



# Catalog Extract

## 2019-2020 Edition

This is an extract of the 2019-2020 AUC catalog edition, for a complete catalog, please check the official website at:  
[catalog.aucegypt.edu](http://catalog.aucegypt.edu)

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# Schools and Departments

## The American University in Cairo

### Development Studies at AUC (Graduate)

**School of Business**

**School of Humanities and Social Sciences**

Development Studies is a rapidly growing area of study concerned with the long-term social, political and economic changes taking place in the Global South. The field is interdisciplinary and multidisciplinary within the social sciences, drawing on the perspectives of anthropology, economics, gender and women's studies, political science, public policy and administration, and sociology in order to understand the complexities of poverty and inequality, population growth, political economy, globalization, international division of labor, structural adjustment, war and human rights, democratization, civil society and NGOs, social justice, and sustainable and alternative forms of development.

Examining questions of development in the Middle East and Africa, in particular, and the Global South more broadly is an AUC strength. Several departments and research centers at AUC offer students opportunities to pursue advanced degrees and to participate in collaborative applied projects and scholarly research in development studies.

#### **Graduate Programs:**

- Economics in International Development (MA and graduate diploma)
- Gender and Women's Studies (MA and graduate diploma)
- Gender and Development in the Middle East/North Africa Track
- Migration and Refugee Studies (MA and graduate diploma)
- Political Science (MA and graduate diploma)  
Professional Development Specialization
- Public Policy and Administration (MPPA and graduate diploma)
- Sociology-Anthropology (MA)

#### **Research Centers:**

- The Cynthia Nelson Institute for Gender & Women's Studies
- Desert Development Center
- Migration and Refugee Studies Center
- John D. Gerhart Center for Philanthropy and Civic Engagement
- Social Research Center

## The Academy of Liberal Arts

### Department of Arabic Language Instruction

***Chair of the Department of Arabic Language Instruction: Iman Aziz Soliman***

*Arabic Language Teachers:* D. Abo El-Seoud, L. Al-Sawi (Director, Arabic Language Intensive Program (ALIN)), M. Mohamed Al-Qaffash, S. El-Ezabi, N. Harb, M. K. Hassan, A. Hassanein, I. Saad, H. Salem (Executive Director, Center for Arabic Study Abroad / Center for Advanced Arabic Studies in Cairo (CASA/CAASIC), I. Soliman, A. Waked, and S. Yacout (Director, Arabic Language (ALNG))

The Department of Arabic Language Instruction (ALI) is responsible for Arabic Language Instruction within the university's academic structure. The ALI administers regular non-intensive and accelerated courses in Arabic offered for academic credit (ALNG). This Unit offers courses that cater to undergraduates and graduates who need to fulfill their Arabic requirements. It also serves non-degree and study abroad students. ALNG Unit offers courses at the elementary, intermediate, and advanced levels in both Modern Standard Arabic and Egyptian Colloquial Arabic. There are two tracks for Modern Standard Arabic classes: normal and accelerated.

Under the umbrella of the Department of Arabic Language Instruction, three intensive programs are administered: the Arabic Language Intensive Program (ALIN), Arabic Language Intensive Summer Program (ALIS), the Center for Arabic Study Abroad (CASA) and the Center for Advanced Arabic Studies in Cairo (CAASIC). ALIN students who are qualified to change to undergraduate programs may receive up to 12 undergraduate credits in the fall and in the spring semesters from AUC, except elementary undergraduate students who can receive 10 credit hours. In the Summer Program (ALIS), students can receive up to 6 credit hours. Students may be able to obtain credit toward an academic degree at their home institution for their Intensive Arabic Language (ALIN) coursework. They should determine their institution's policy regarding transfer credit before coming to Cairo.

Students registered in the ALIN and wishing to change their program to AUC undergraduate, graduate and non-degree programs have to satisfy the admission requirements listed in the catalog for these programs.

**Arabic Language Undergraduate Credit Courses (ALNG)**

*Director:* S. Yacout

All Arabic language credit classes at AUC are administered and taught by the Department of Arabic language Instruction.

**Timely Completion Policy for Arabic Language Requirement**

All students must sit for an Arabic language placement exam during their freshman year unless they have submitted a Thanawiyya Amma certificate or its equivalent before the date of the last placement exam for any given academic year. Based on the placement exam score, students will either be exempted from required Arabic Language courses, or be required to take one or two sequenced courses. Students exempted from Arabic may still opt to register in elective Arabic courses.

Starting Fall 2019, all students are required to take up to 6 credits from the following ALNG courses:

ALNG 000/1010 - Eye on Press (3 cr.)

ALNG 000/1020 - Arabic in Context (3 cr. per semester)

ALNG 000/2010 - Current Issues and Egyptian Society (3 cr. per semester)

These courses will replace the previously required ALNG courses:

ALNG 101-102 -103/1101-1102-1103 - Elementary Modern Standard Arabic (3 cr. each per semester)

ALNG 201-202-203/2101-2102-2103 - Intermediate Arabic (3 cr. each per semester)

**The following Arabic Language Instruction Department policies must be followed by all students:**

- The Timely completion of the Arabic Language requirement applies to all enrolled students, regardless of their year of admission.
- All students must sit for an Arabic language placement exam during their freshman year unless they have submitted a Thanawiyya Amma certificate or its equivalent before the date of the last placement exam for any given academic year.
- Students may sit for the Arabic Placement exam only once during their first year. Retaking of the exam is not allowed.
- Based on the placement exam score, students will either be exempted from required Arabic Language courses, or be required to take one or two sequenced (not concurrent) courses.
- Students who fail to take their placement exam during their first two semesters will receive registration holds upon the completion of 30 credits, and they will be automatically required to do two Arabic language courses.
- Students must take all required Arabic language courses before completing 90 credit hours. For students required to take two courses, the first of the required courses must be taken before completing 60 credit hours. Students failing to register for (or registering and dropping) their required Arabic courses in time to meet the Arabic Timely Completion Policy will be issued registration holds preventing them from registering for other courses before registering for the required Arabic courses.
- Students who have taken the placement exam before fall 2019, and have not completed their required ALNG courses following the old course numbering, will be placed in the new ALNG courses, as determined by the department of Arabic Language Instruction.

Please check the ALNG webpage to see the instructions and schedule of the exam.

To see all Arabic Language Undergraduate Credit Courses (ALNG), please check the "Courses" link in the homepage.

### **Arabic Language Intensive Program (ALIN)**

*Director: L. Al-Sawi*

The Department of Arabic language Instruction offers intensive Arabic language courses for students, businessmen, diplomats, scholars, and others needing to gain a broad command of contemporary Arabic as quickly and as effectively as possible. For over sixty years, first through its School of Oriental Studies and then through its Center for Arabic Studies, AUC has taught Arabic to foreigners. Since the inception of what is now the Department of Arabic language Instruction, in the 1970s, this program has attracted students from the United States, Africa, Asia and Europe, offering intensive courses in both modern standard and Egyptian colloquial Arabic. A summer program is also offered.

Arabic Language Intensive Program (ALIN) is part of the Department of Arabic language Instruction program. Students must register for a minimum of twelve credit hours per semester, while the normal course load is twenty contact hours per week. All courses are taken for grades, and credit is granted as indicated at the beginning of each course listing. ALIN students who are qualified to change to undergraduate programs may receive up to 12 undergraduate credits in the fall and in the spring semesters from AUC, except elementary undergraduate students who can receive 10 credit hours. Summer students can receive up to 6 credit hours. (see "Non-degree Academic Regulations" for transfer of credit to other universities under "Undergraduate Academic Requirements and Regulations").

### **Elementary Level**

The course for beginners runs from the first week of September through May. The main emphasis is on modern standard Arabic, but Egyptian colloquial Arabic is simultaneously offered (about thirty percent of class time is devoted

to colloquial). Arabic is used as the main medium of instruction in the second half of the program. The course comprises up to twenty hours per week of classroom instruction, including language laboratory work, and up to twenty hours of home assignments.

A student who successfully completes the first year of intensive study with the Department of Arabic Language Instruction can expect to possess a working competence in reading and writing modern standard Arabic and understanding and speaking Egyptian colloquial or modern standard Arabic.

### **Intermediate Level**

Courses at this level are designed for those who have completed a year of intensive study at the elementary level of the Department of Arabic Language Instruction or who have studied two or more years elsewhere and can demonstrate a similar level of competence. The program runs from the first week of September through May in the following year.

Arabic is the chief medium of instruction. Students continue work in modern standard Arabic and Egyptian colloquial Arabic. Interested students may, at this level, begin to acquire familiarity with classical Arabic. Attention is given to the Arabic of print and broadcast media, while special lecture courses in Arabic are offered in response to the special interests of the students, such as Middle Eastern economics and politics, business correspondence, medieval and modern Arabic literature.

Students who complete this second year of study should be able to read and write modern standard Arabic with some fluency, to pursue study in topics that specially interest them in Arabic, and to converse freely in Arabic. Intermediate-level students will also have had an opportunity to acquire vocabulary and terminology related to such special fields of interest as business and diplomacy.

### **Advanced Level**

Exceptional students may wish to take a third year. These courses are arranged according to demand, but they typically include advanced work in reading and writing and lecture courses in special topics. At the end of such a course a student should be able to compete with Arab students at the university level. Alternatively, the student should be able to employ Arabic with competence and confidence in the fields of business and/or diplomacy.

### **Certificate and Program Requirements**

ALIN fulltime students must take twenty contact hours per week for which they are awarded twelve to fifteen program credits per semester.

At the end of students' enrollment in the Department of Arabic Language Instruction, certificates of achievement will be awarded from the department (specifying their level, i.e. elementary, intermediate or advanced) (See the Intensive Arabic Language Course listing and the number of program credits awarded for each course).

**Arabic Language Intensive Courses (ALIN)** *(To see all ALIN courses, please go the "Courses" link in the homepage.)*

ALIN courses are listed sequentially by area. In this three digit system, the first digit represents the level of the course: 1 for elementary, 2 for intermediate, and 3 for advanced.

Prerequisites are not listed for every course. However, entry into all intermediate and advanced courses presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **Arabic Language Intensive Summer Program (ALIS)**

*Supervised by: I. Soliman*

The Department of Arabic Language Instruction offers an intensive summer program from the second week of June until the last week of July. Students must take twenty hours of class per week to be considered full-time. The summer curriculum includes either Modern Standard Arabic (MSA) and Egyptian Colloquial Arabic (ECA) at all levels, or Modern Standard Arabic only, both options as a full load.

In addition, a number of electives are also offered depending on the students' level.

Students in summer receive from six to eight credit hours depending on their level. A certificate of achievement from the Department of Arabic language Instruction is then offered upon successful completion of the program.

### **Extra Curricular Activities/Student Cultural Activity Program**

An integral part of the intensive language program, both full year & summer, is an extensive series of tours of Cairo and trips to the easily visited sites of interest all over Egypt. These tours and trips are supplemented by a lecture series. While the department subsidizes a large portion of the expenses, including transportation (except where air travel is involved) and entrance fees, students are required to pay for their food and lodging.

The Department of Arabic Language Instruction cultural program also includes a cultural component featuring activities such as calligraphy, music, folkloric dance and an overview of Egyptian films.

In addition, the program includes an end of semester summer party which is organized with the active participation of the students.

**Arabic Language Intensive Summer Program Courses (ALIS):** To see all ALIS courses, please go the "Courses" link in the homepage.

### **Center for Advanced Arabic Studies in Cairo (CAASIC)**

*Director (U.S.A.):* Nevneka Korica-Sulliavn, Harvard University

*Executive Director:* H. Salem

CAASIC offers full-year, advanced-level training in Arabic language and culture to graduate and undergraduate students at The American University in Cairo. CAASIC welcomes applicants from all nationalities with a minimum of three years of formal instruction in Arabic.

Students receive 12 credit hours per semester (total of three semesters) , twelve credit hours per semester, while the normal course load is twenty contact hours per week.

All courses are taken for grades, and credit is granted as indicated at the beginning of each course listing.

### **Certificate and Program Requirements**

CAASIC students apply and undergo a selection process that requires sitting and passing a language entry exam, submitting transcripts, three letters of recommendation as well as a statement of purpose.

CAASIC fulltime students must take twenty contact hours per week during the summer and fall and 12 contact hours in spring for which they are awarded twelve to fifteen program credits per semester.

At the end of students' enrollment in the Arabic Language Intensive Program, certificates of achievement will be awarded from the Arabic Language Institute (specifying their level, i.e. elementary, intermediate or advanced) (See the Intensive Arabic Language Course listing and the number of program credits awarded for each course)

### **Program Description**

The program consists of three semesters - summer, fall and spring - as explained below:

#### **A. Summer Program**

The summer program offers up to 20 contact hours per week and fellows are expected to spend between four to five hours daily doing homework and preparing for class activities for the following day.

The summer academic program includes two courses:

##### **1. Umm Addunia: A Course in Egyptian Colloquial Arabic and Culture 4 cr.**

This course offers eight to ten contact hours per week and aims to develop the fellows' proficiency in the Egyptian dialect quickly so that they can function in their new environment. In addition to focusing on the colloquial of daily life, the course places emphasis on aammiyyat al-muthaqqafiin (educated colloquial), in which the colloquial is mixed with formal Arabic. Multiple sections of this course are offered to accommodate varying levels of proficiency.

##### **2. Egypt: Culture and Society 4 cr.**

This is a content-based course that offers eight to ten contact hours per week and aims to engage students through a number of historical, political, social and cultural issues of significance to the society in which they are living. The course places emphasis on the development of all language skills with attention to expanding vocabulary and enhancing grammatical accuracy.

#### **B. Fall Academic Program**

##### **Description and Courses**

The fall semester requires learners to study three core courses at 20 contact hours per week. The following courses are offered in the fall:

1. AIAS 501/5301 - Egyptian Colloquial Arabic (3 cr.)
2. AIAS 521/5151 - Listening And Speaking (3 cr.)
3. AIAS 531/5121 - Reading, Writing And Vocabulary Building (5 cr.)
4. The cultural program offers a structured lecture series aligned with fall curriculum (1 credit)  
Objectives and themes. Learners attend a biweekly lecture. Short and long trips are organized by ALI and all CAASIC learners are welcome to join any of the free one-day activities or the long excursions for a fee.

#### **C. Spring Academic Program (12 credits)**

The spring semester represents the culmination of the CAASIC program. The spring semester allows learners to utilize the advanced language skills they have developed during the summer and fall by working with Arabic materials in their own fields of specialization. Each fellow is required to study four courses. Each course is for 3 credits, for approximately 12 contact hours per week: two elective core courses with language focus (such as Palestinian literature, the city of Cairo, Arabic media, Arabic literature, Egyptian history through movies, Egyptian colloquial literature and text, etc.), in addition to two elective courses related to the learners' research interest (such as literature, religion, politics, economics, political Islam, etc.). The selection process happens in consultation with the CAASIC director. Fellows choose from a list of courses that have been previously offered.

The community-based learning component of the program, Learners Without Borders, is highly recommended. This is a Community-Based Learning course in which learners design and complete a community project, documentary or presentation based on volunteer work with local organizations or institutions related to their academic and/or general interests. Fellows will engage with the target language community so they can develop superior language proficiency, improve intercultural competence and establish significant lifelong social networks. Each learner will work with a cultural adviser and develop a course agreement specifying the nature of their work. Course projects involving



volunteer work will require a signed student organization agreement, outlining roles and responsibilities which should be submitted to the advising professor.

Any spring course offered must have a minimum enrollment of six students.

All CAASIC students will be required to abide by an Arabic-only speaking policy on campus and off campus as much as possible.

### **Exit Exam**

All CAASIC students will be required to participate in an end of full-year proficiency exit exam. This exam is no substitute for the regular quizzes or monthly and end of semester achievement exams.

## **Department of English Language Instruction**

Chair: N. Kassabgy

Intensive Academic English Program Director: M. Fairley

IAEP Assessment Specialist: M. Baza

Intensive and Academic English for Graduates Program Director: A Lewko

Academic English for the Liberal Arts (ENGL 0210) Program Director: M. El Saady

Academic English for the Liberal Arts (ENGL 0210) Assessment Specialist: E. Arrigoni

Senior Instructors: N. Aboul Fetouh, E. Arrigoni, A. Demian, S. Esnawi, S. Farag, K. Helmy, R. Jabr, L. Kamal, N. Kassabgy, N. Khafagi, S. Abdel Hady Makhlouf, A. Mishriki, M. Fairley, S. Rizzo, M. El Saady, M. Sarofim, H. Shawarbi, A. Shebeenie, E. Yoder, M. Osman, Y. Salah Eldin, A. Lewko

Instructors: M. Ateek, I. Baza, M. Baza, M. Salah Eldin

### **Mission Statement**

The Department of English Language Instruction (ELI) offers intensive, semi-intensive, and modular non-credit courses to prepare undergraduate and graduate students in academic English, critical thinking, and other academic skills that they will need at university. This is accomplished by highly qualified faculty using content-based and learner-centered approaches designed to align with courses at AUC and to empower learners

### **ELI Program Accreditation - ELI/CEA**

The Department of English Language Instruction of the American University in Cairo, Academy of Liberal Arts is accredited by the Commission on English Language Program Accreditation for the period August 2015 through August 2025 and agrees to uphold the CEA Standards for English Language Programs and Institutions. CEA is recognized by the U.S. Secretary of Education as a nationally recognized accrediting agency for English language programs and institutions in the U.S. For further information about this accreditation, please contact CEA, 801, North Fairfax Street, Suite 402A, Alexandria, VA 22314, (703) 665-3400, [www.cea-accredit.org](http://www.cea-accredit.org)

### **Undergraduates**

## Academic Bridge Program

An Academic Bridge Program ensures academic preparedness and provides foundations for success for incoming students needing developmental course-work prior to their freshman semester. The undergraduate courses offered by the Department of English Language Instruction (ELI) are the essential core of AUC's efforts in this regard. As such, their goal is to provide the proficiency in Academic English, along with enhanced reading, critical thinking and study skills, needed for successful study at the American University in Cairo as an English-Language, American style institution of higher learning committed to the principles of a liberal arts education.

As detailed below, the ELI offers two levels of study for undergraduates: Intensive Academic English and Academic English for the Liberal Arts. Both are designed to help transition students into the freshman program at AUC, and to contribute to ensuring future academic success for students, whatever their fields of study.

### Intensive Academic English (ELIN 0101/0102)

The Intensive Academic English (IEP) for undergraduates offers ELIN 0101 (Intermediate English), and ELIN 0102 (Advanced English). Students are placed in one of the two levels according to their scores on the International English Language Testing System (IELTS) or Test of English as a Foreign Language Internet-Based Test (TOEFL-ibt).

#### Attendance

Students in all undergraduate IEP classes take five hours of classes a day. Because of the intensive nature of the classes, regular attendance and active involvement are major factors in a student's success. It is very difficult and often impossible to make up what has been missed.

Attendance and participation are considered very important to this intensive language program. A student who for any reason misses the equivalent of six days of class (thirty hours) in any one semester will be asked to withdraw. Students who are asked to withdraw but fail to do so will be suspended. A committee of IEP administrators and instructors will decide whether or not the suspended student will be allowed to return to the IEP.

Undergraduate students in the Intensive Academic English Program (IEP) classes are allowed to take up to two full semesters and a summer term to reach either the level of ENGL 100/0210 - Academic English for the Liberal Arts (0 cr.) or RHET 110/1010 - Freshman Writing (3 cr.) . At the end of two full semesters and a summer term, a student who has still not attained the required level will be dismissed. A full semester is 25 contact hours per week, five hours a day four days a week. The summer term is a condensed six-week term that is equivalent to half a full semester with the same number of contact hours per week (five hours a day five days a week). The class size is smaller and instruction is more individualized to focus on individual students' needs in order to pass the course.

#### Readmission

Suspended students who are not allowed to return to the IEP may be readmitted to AUC only if they submit new iBT or IELTS scores placing them in levels higher than the IEP. Other applicants for readmission may not submit a new TOEFL iBT or IELTS score unless more than six months have elapsed since their last TOEFL iBT or IELTS examination or the IEP exit battery.

### Academic English for the Liberal Arts (ENGL 0210)

Academic English for the Liberal Arts (ENGL 0210) is a non-credit, concurrent, conference-centered course intended to transition students into a full course of study in the Freshman Program at AUC. Sessions are devoted to the comprehension and summary of university-level texts, the introduction to basic research tools, the writing of essays on science and humanities topics, and remedial grammar, within the context of individual teacher-student conferences. Newly developed materials and approaches, such as close adjuncting to Freshman Program courses or course content, ensure that students see the relevance and impact of their efforts in terms of their long-term academic success.

Since students receive the equivalent of nine credit hours of instruction in Academic English for the Liberal Arts, students taking the course (ENGL 0210) may enroll in no more than two academic courses with a maximum of 7 credit hours of academic course credits. Any student who withdraws from ENGL 0210 must also withdraw from the two other academic courses. Regular attendance in ENGL 0210 is important; a student who for any reason misses more than the number of hours specified in the ENGL 0210 Attendance Policy will be dropped from the course. A student who is dropped will be allowed to retake the course the following semester. For new students, placement in ENGL 0210 is determined by their score on the International English Language Testing System (IELTS) or Test of English as a Foreign Language- Internet-Based Test (TOEFL-Ibt). For students enrolled in Intensive Academic English (IAEP) courses, placement in Academic English for the Liberal Arts (ENGL 0210) is determined by their score on the IAEP exit test. All students who have been admitted into ENGL 0210 must satisfactorily complete the course work within a time period not to exceed two full semesters and a summer session. Students taking ENGL 0210 in summer may not enroll in any other academic course.

### **The Academic English for Graduates (AEG) Program:**

Graduate students who are otherwise qualified to enter the university but whose English does not meet the necessary level of proficiency, based on the applicant's performance on the TOEFL, iBT or IELTS, will be admitted to ELIN 0301 or ELIN 0302, or placed in the appropriate modules of ENGL 123-125/0310, 0311 and 0312.

Graduate students in the intensive ELIN 0301 and ELIN 0302 courses are allowed a maximum of two semesters to reach the level of Academic English for Graduates (see Academic English for Graduates Modules in this section), or beyond. Graduate students enrolled in the modules are allowed a maximum of two semesters per module to pass out of the program.

## **Intensive English for Graduates Courses**

The intensive English for Graduates course is offered at ELIN 0301 (intermediate) and ELIN 0302 (advanced) levels. Students are placed in one of the two levels according to their scores on the TOEFL, iBT or IELTS. Students in these courses are not allowed to concurrently enroll in other AUC courses.

### **Content of Courses**

Students are placed in sections normally composed of up to twelve students. Students are given a grammar review, extensive reading and writing practice, advanced vocabulary review, and practice in speaking and listening comprehension. Grading in this course is on a Pass/Fail system.

### **Attendance**

Attendance and participation are considered so important to this intensive language program that a student who for any reason misses the equivalent of more than 21 class hours in any one semester will be asked to withdraw. Applicants for readmission may submit an iBT, TOEFL or IELTS score. If their score is the intensive level, they will be allowed to return to ELIN 0301 or ELIN 0302. Students who are asked to withdraw but fail to do so will be suspended.

### **Suspension and Readmission**

Graduate students suspended from ELIN 0301 or ELIN 0302 must petition for readmission and must meet all the admission requirements prevailing at the time of readmission. Readmission is not granted automatically. Students suspended from ELIN 0301 or ELIN 0302 who are readmitted to the university must score high enough on the TOEFL, iBT or the IELTS for direct admission to Academic English for Graduates or higher, as they will not be allowed to return to ELIN 0301 or ELIN 0302.

## **Academic English for Graduates Modules**

Academic English for graduate students consists of three non-credit modules covering effective writing (ENGL 0310), academic reading (ENGL 0311), listening and speaking (ENGL 0312). Students who are taking all their required modules may take other courses at the same time, thus enabling them to apply what they are learning in these modules to what they will be expected to do in other graduate courses. Grading in these modules is on a Pass/Fail system.

ENGL 0310 meets for two hours two times a week, while the other two modules (ENGL 0311 and ENGL 0312) meet for two hours one time per week. Students who have part-time or full-time jobs are strongly advised not to attempt other undergraduate or graduate courses until they have completed their academic English requirements. Students enrolled in any of the modules are expected to spend at least three hours per week outside of class in preparation for each weekly class meeting of each module in which they are enrolled (e.g., a student enrolled in three modules should expect to spend at least 9 hours per week outside class plus eight hours per week in class).

Generally students taking the modules are limited to taking courses according to the formula below:

<b>Required Academic</b>	<b>English modules Students may take</b>
3 modules	One undergraduate course
2 modules	One undergraduate or one graduate course
1 module	Two undergraduate or graduate courses

Any student who withdraws from a module must first withdraw from any non-ENGL courses. Students who fail any given module(s) may repeat the module(s) once. Students who are repeating a given module will not be allowed to take concurrent courses without the written approval of the Program Director of Academic English for Graduates (AEG) program. Students who fail the same module twice will be disqualified but may apply for readmission. Applicants for readmission must score high enough on the TOEFL, iBT or IELTS to be exempt from English courses, as they will not be allowed to return to ENGL 0310, 0311, or 0312.

## Department of Rhetoric and Composition

### Department of Rhetoric and Composition The Academy of Liberal Arts

Senior Instructors II: A. Elshimi (Director), R. Hoath, D. Jones, S. Makhoulouf

Senior Instructors: H. Attiah (ACE Director), F. Boutros, A. El Afifi, R. Byford, M. Carter (Acting Associate Chair), G. Elshimi (ALA Dean), M. Gibson (Writing Center Director), H. Grant, M. Henry (Chair), G. Marquis (Dean of Students), G. McCullough, Y. Motawy, K. Saville (Associate Chair)

Instructors: A. Abdullah, B. Comer, S. Darwish, Y. El Masry, H. El Minyawi, D. Fyfe, D. Gomaa, A. Hamad, I. Hamam, J. Herrick, O. Hesham, M. Hendershot (Associate Dean), S. Khabbar, J. Maklad, L. Richardson, Y. Soheim, W. Wali, A. Young, S. Zaki

The Department of Rhetoric and Composition provides a solid foundation for critical thinking, reading, writing, and promoting excellence in research and rhetoric. As part of this effort, we work to maintain a community where knowledge, research methods, rhetorical skills, and universal human values are cultivated to deepen scholarly practices, personal growth and community engagement.

AUC's Freshman Program requires students to take 6 credit hours of writing. The Department of Rhetoric and Composition offers the following sequence of courses to fulfill this requirement:

- RHET 110/1010 - Freshman Writing (3 cr.)
- RHET 120/1020 - Research Writing (3 cr.)

**Placement in Department of Rhetoric and Composition Courses:**

- Students sitting for the TOEFL or IELTS exams and achieving scores that place them at RHET 1010 entry level will be placed directly in RHET 1010 in their first semester at AUC.
- Students in the English Language Instruction program who pass their exit exam will be placed in RHET 1010.
- Students with university transfer credits, or certain high school credits (e.g. HL or AP English) may transfer credit or be exempted from RHET courses, depending on their circumstances (as indicated in their letters of acceptance from AUC.)
- The University reserves the right to make changes in student placement during the first two weeks of classes, in the rare event this is deemed necessary by program instructors.

**Department of Rhetoric and Composition Course Policies:**

- All students need to complete 6 credits of RHET courses - RHET1010 (along with its 3-credit partner course, CORE1010), and RHET1020, as described below:
  1. Students who are placed by an external placement exam or the ELI exit exam in RHET 1010 should complete RHET 1010 and RHET 1020 consecutively in their first two semesters as freshmen.
  2. Students who have been exempted from RHET 1010 must complete RHET 1020 in their first semester at AUC, then take an upper division course in the Department of Rhetoric and Composition to complete their requirements.
  3. Students who have been transferred RHET 1010 credit must complete RHET 1020 in their first semester at AUC. This will complete their RHET requirements.
- Students enrolled in RHET 1010 must be concurrently registered in a CORE 1010 course with the same theme. This creates a student learning community across the two courses, emphasizing the scholarly practices necessary for undergraduate success.
- Both RHET 1010 and CORE 1010 must be completed in the freshman year.
- In the event that the department has accepted transfer credits for CORE1010, the student will be placed in a standalone (non-tandem) section of RHET1010 to complete freshman requirements. In the event that the department has accepted transfer credits for RHET1010, the student will be placed in a standalone (non-tandem) section of CORE1010 to complete freshman requirements
- RHET 1020 must be taken in the semester immediately following the passing of RHET 1010.
- Dropping one of the two courses RHET 1010 or CORE 1010 will result in the other course being automatically dropped.
- Students repeating the tandem course CORE 1010/RHET 1010 must enroll in a different theme, unless approved by the department to repeat in the same theme.
- The passing of one of the tandem courses is not contingent upon the passing of the other. Students may pass or fail one or both.
- Students may take each of RHET 1010 and RHET 1020 up to three times in three consecutive semesters in order to fulfill department or graduation requirements.
- Only students repeating RHET or CORE 1010 will be able to enroll during summer semesters. Enrollment will not be open to students wishing to take the course for the first time in summer.
- As of Fall 2014, students retaking RHET 101 (RHET 1000) will instead take the RHET 1010 along with the matching CORE 1010 course. RHET 1010 will also meet the requirement for RHET 102 (RHET 1100).
- As of fall 2014, students taking or retaking RHET 102 (RHET 1100) will take RHET 1010 with the choice of taking the CORE 1010 partner course.
- As of fall 2014, students taking or retaking RHET 201 (RHET 2010) will instead enroll in RHET 1020 - an equivalent course.
- RHET1010, CORE1010 and RHET1020 are part of the freshman program. They are governed by the Timely Completion of Required Freshman Classes policies, found [here](#).

Department of Rhetoric and Composition required courses: Rhetoric and Composition

## Writing Minor

The Writing Minor advances the knowledge, competencies and values of rhetoric and writing disciplines. It provides an opportunity for concentrated study and practice of writing for different purposes and in different contexts. The Writing Minor complements all majors.

## Requirements (15 credits):

Students who opt to minor in Writing must have completed RHET 1020 with a minimum grade of B-.

**To fulfill the 15 credit hours for the Writing Minor, students take the following:**

**Foundation course for each emphasis area:**

- Writing in the Creative Genres: ECLT 370/3070 - Creative Writing (3 cr.) Required
- Writing in the Academic/Professional Genres: RHET 320/3210 - Business Communication (3 cr.) Suggested

**Additional Requirements (12 credits total):**

- 6-9 credits in one emphasis area
- 3 credits in the other emphasis area, and
- 0-3 credits in either emphasis area of their choice.

Writing Minor courses may be double-counted for Core Curriculum credit at the secondary and capstone levels, consistent with the rules and policies of the Core Curriculum.

Students who have already taken any of the writing courses below as electives or Core courses (as described above) may count credits retroactively.

Course List by Emphasis Area:

### A. Writing in the Creative Genres

Courses in this area cultivate creative thought and facility in expression, using language in an imaginative way. Students who select this area of emphasis will study, practice and work toward mastery in several creative genres of writing, including the following: narrative nonfiction, autobiography, travel writing, fiction, poetry, and children's literature. They will read theory, and practice the conventions of these genres, consider ethical concerns raised in the genres, develop critical mastery of the creative genres, and produce a substantial capstone project demonstrating significant growth in writing in a chosen creative genre.

- ECLT 370/3070 - Creative Writing (3 cr.)
- RHET 340/3120 - Life Narratives (3 cr.)
- RHET 341/3130 - Travel Writing (3 cr.)
- RHET 342/3140 - Writing Children's Literature (3 cr.)
- RHET 345/3110 - The Writer's Workshop (3 cr.)
- RHET 380/3150 - Poetry Writing (3 cr.)
- RHET 390/3160 - Fiction writing (3 cr.)
- RHET 450/4160 - Imagining the Book (3 cr.)

### B. Writing in the Academic/Professional Genres

Courses in this area strengthen writing and communication skills in preparation for a variety of careers. Students who select this area of emphasis will focus on the social power of writing, and will work toward professional competency in the fields of business, science, civil and academic communications. They will read within and practice the conventions of these fields of communication, and will reflect upon ethical and critical standards enforced or called into question by these practices.

- RHET 320/3210 - Business Communication (3 cr.)
- RHET 225/3220 - Public Speaking (3 cr.)
- RHET 321/3230 - Technical Communication (3 cr.)
- RHET 332/3240 - Principles of Mediation and Negotiation (3 cr.)
- RHET 334/3250 - Digital Rhetoric (3 cr.)
- RHET 310/3310 - Discourse and Power (3 cr.)
- RHET 322/3320 - Writing in the Social Sciences (3 cr.)
- RHET 323/3330 - Words that Change the World (3 cr.)
- RHET 325/3340 - Making Your Case: The Art of Persuasion (3 cr.)
- RHET 330/3350 - Writing and Cognition: The Mind and the Machine (3 cr.)
- RHET 410/4260 - Writing for Project Funding (3 cr.)
- RHET 480/4270 - Research and Writing Internship (3 cr.)
- RHET 490/4280 - Advanced Scientific and Technical Writing (3 cr.)
- RHET 400/4360 - Writing for Publication (3 cr.)

## Selected Topics and Independent Study

(Depending on 'topic,' these courses may fit in either 'emphasis' area. Each course may be repeated for credit as long as the content differs each time it is taken.)

- RHET 399/3099 - Selected Topics (3 cr.) - Also fits the Core Secondary: Humanities and Social Sciences category
- RHET 460/4060 - Independent Study (1-3 cr.)

## Rhetoric and Composition

**Core Curriculum Requirements for students entering before Fall 2013.**

**For students entering Fall 2013 and after, please click here for current core curriculum requirements.**

## Core Curriculum Requirements

Students must fulfill 9 credits in **Rhetoric and Composition**, in two ways:

- RHET 101/1000 - Approaches to Critical Writing (3 cr.)
- RHET 102/1100 - Effective Argument (3 cr.)
- RHET 201/2010 - Research Writing (3 cr.)

Or

- A 300 or 400 level writing course (3 cr.) (e.g., RHET 3210, RHET 3230, RHET 3320, RHET 4360, or RHET 4260)
- and:
- RHET 102/1100 - Effective Argument (3 cr.)
- RHET 201/2010 - Research Writing (3 cr.)

## Core Curriculum

The Core Curriculum

## Graduate School of Education

### Department of International and Comparative Education

*Associate Professor:* H. El Deghaidy (Department Chair) , N. Megahed, T. Purinton (Dean of Graduate School of Education)

*Assistant Professor:* G. Osman, J. Skaggs, M. Toprak

*Professor of Practice:* M. Zaalouk (Director of the Middle East Studies of Higher Education)

*Associate Professor of Practice:* R. Hozayin

### Educational Studies Minor

The minor in educational studies is administered by the Department of International and Comparative Education in the Graduate School of Education. This minor offers undergraduate students at AUC an opportunity to study educational issues related to educational reform, as well as theories and practices of teaching and learning. It is an initial base from which they may pursue postgraduate interests in education, and it provides humanities, social sciences or natural sciences majors with an introduction to the professional opportunities available in education.

This minor requires 15 credit hours.

#### ELECTIVES

- EDUC 000/2011 - Education and Society (3 cr.)
- EDUC 000/2021 - Fundamentals of Teaching and Learning (3 cr.)
- EDUC 000/3011 - Educating Children and Youth for a Sustainable Future (3 cr.)
- EDUC 000/3021 - Educational Assessment and Instructional Design (3 cr.)
- EDUC 000/3031 - Education, Civil Society and International Development (3 cr.)
- EDUC 000/4031 - Gender and Education (3 cr.)
- EDUC 000/1099 - Selected Topics for the Core Curriculum (3 cr.)
- EDUC 000/2099 - Selected Topics in Core Curriculum (3 cr.)
- EDUC 000/4098 - Selected Topics for Core Curriculum (3 cr.)



# Educational Leadership (M.A.) with concentrations in School Leadership and Higher Education

## Master of Arts in Educational Leadership (EDUL)

A total of 34 credit hours (10 courses plus the thesis) are required for MA students. Students may, with prior department approval, bring in up to six credit hours of coursework from other relevant programs. The program seeks to enroll students who are passionate about improving educational leadership in schools and higher education in Egypt, the Middle East, and beyond. By focusing on education from an international and comparative perspective, we intend for students to gain professional educational skills in a global context of reform. All students in the MA Program in Educational Leadership must either complete and defend a thesis, or complete the "Alternative to thesis Option" as described below.

### Thesis

The Graduate School of Education conceives of the thesis in one of a variety of ways, including, but not limited to:

As a research paper that utilizes quantitative, qualitative, or mixed research methods based on a theoretical framework and a full review of the related literature.

As a thorough literature review that utilizes meta-analytic techniques or a theoretical framework to organize and portray a concept, argument, or field-based concern.

As an applied project that utilizes a rigorous literature review and a carefully explained problem in order to demonstrate skill in applying research to real problems in the field.

As a policy analysis or program evaluation that utilizes various analytic methods to provide interpretation on the effect of a particular policy or program, bolstered by a thorough literature review.

The thesis should be between 10,000 and 20,000 words and should demonstrate capacity to utilize research tools and existing empirical and theoretical literature.

To conduct a thesis in lieu of the comprehensive examination, the student must submit a pre-proposal to the department. The evaluation of the pre-proposal will indicate whether or not the department will allow the student to do a thesis instead of the comprehensive examination. A proposal must be submitted to, and approved by, a committee consisting of a faculty supervisor and two readers. Upon approval, IRB and other research approvals (such as CAPMAS) must be obtained prior to any data being collected. Upon completion of the thesis, the document must be submitted to, and approved by, the same committee. A period of two semesters must be devoted to the thesis.

### Alternative to Thesis Option

In lieu of a thesis, the student may opt to: (i) take one extra 3-credit course; and then (ii) sit for a comprehensive exam, through registering for a 1-credit Comprehensive Exam course EDUC 5288. The exam will consist of essays written in a specified time period, followed by a brief oral interview conducted by 2 faculty members. The purpose of the interview is to give the candidate the opportunity to amplify and supplement the written papers.

## Core Courses

The following courses represent the content Core courses required of all students.

- EDUC 511/5201 - Foundations of Educational Research (3 cr.)
- EDUC 521/5202 - Social Foundations of Education (3 cr.)
- EDUC 531/5203 - Introduction to International & Comparative Education (3 cr.)
- EDUC 541/5204 - Human Development & Learning Theory (3 cr.)
- EDUC 542/5221 - Transformative Leadership (3 cr.)

- EDUC 546/5223 - Organizational Theory and Educational Institutions (3 cr.)

All students must also complete two semesters of the thesis by registering for EDUC 599/5299 - Research Guidance and Thesis (2 cr.) (2 cr. each course) in the last two semesters of the program, for a total of 4 credit hours, or complete the Alternative to Thesis option.

## Concentrations

Each student will select one of the following concentrations: School Leadership or Higher Education. Students must take a minimum of three courses from their concentration and complete their thesis on a subject within that concentration.

### 1. School Leadership

Students in the School Leadership concentration are required to complete at least three of the following courses:

- EDUC 551/5205 - Foundations of Instructional Practice (3 cr.)
- EDUC 535/5213 - Educational Evaluation & Assessment (3 cr.)
- EDUC 534/5217 - Strategic Educational Planning and Development (3 cr.)
- EDUC 544/5222 - School Governance and Management (3 cr.)
- EDUC 573/5224 - Research-based Instructional Leadership (3 cr.)
- EDUC 556/5233 - Action Research (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)
- EDUC 000/5236 - Education for Sustainable Development (3 cr.)

### 2. Higher Education

Students in the Higher Education concentration are required to complete at least three of the following courses:

- EDUC 534/5217 - Strategic Educational Planning and Development (3 cr.)
- EDUC 552/5231 - Online and Blended Learning Design and Instruction in Developing Countries (3 cr.)
- EDUC 562/5241 - Pedagogy & Theory of Modern Teaching & Learning in Higher Education (3 cr.)
- EDUC 563/5242 - Theories of Student Development in Higher Education (3 cr.)
- EDUC 564/5243 - Policy and Administration in Higher Education (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)
- EDUC 000/5236 - Education for Sustainable Development (3 cr.)

Additional courses for both concentrations can be taken from among the other MA-level courses offered by the Graduate School of Education.

## International & Comparative Education (M.A.) with concentrations in International Education Development & Policy and Teaching and Learning

### Master of Arts in International & Comparative Education (ICED)

A total of 34 credit hours (10 courses plus the thesis) are required for MA students. Students may, with prior department approval, bring in up to six credit hours of coursework from other relevant programs. The program seeks to enroll students who are interested in improving educational policy and practice in Egypt, the Middle East, and beyond.

By focusing on education from an international and comparative perspective, the program prepares students to gain inquiry-based practices and professional educational skills in local, regional and global contexts of reform which offer career opportunities in educational policy, development, and NGOs in addition to classroom teaching. All students in the MA Program in International and Comparative Education must either complete and defend a thesis, or complete the "Alternative to thesis Option" as described below.

### **Thesis**

The Graduate School of Education conceives of the thesis in one of a variety of ways, including, but not limited to:

1. As a research paper that utilizes quantitative, qualitative, or mixed research methods based on a theoretical framework and a full review of related literature.
2. As a thorough literature review that utilizes meta-analytic techniques or a theoretical framework to organize and portray a concept, argument, or field-based concern.
3. As an applied project that utilizes a rigorous literature review and a carefully explained problem in order to demonstrate skill in applying research to real problems in the world.
4. As a policy analysis or program evaluation that utilizes various analytic methods to provide interpretation of the effect of a particular policy or program, bolstered by a thorough literature review.

The thesis should be between 10,000 and 20,000 words and should demonstrate capacity to utilize research tools and existing empirical and theoretical literature.

To conduct a thesis in lieu of the comprehensive examination, the student must submit a pre-proposal to the department. The evaluation of the pre-proposal will indicate whether or not the department will allow the student to do a thesis instead of the comprehensive examination. A proposal must be submitted to, and approved by, a committee consisting of a faculty supervisor and two readers. Upon approval, IRB and other research approvals (such as CAPMAS) must be obtained before any data are collected. Upon completion of the thesis, the document must be submitted to, and approved by, the same committee. An oral defense with the thesis committee will be required. A period of two semesters must be devoted to the thesis.

### **Alternative to Thesis Option**

In lieu of a thesis, the student may opt to: (i) take one extra 3-credit course; and then (ii) sit for a comprehensive exam, through registering for a 1-credit Comprehensive Exam course EDUC 5288. The exam will consist of essays written in a specified time period, followed by a brief oral interview conducted by 2 faculty members, if needed. The purpose of the interview is to give the candidate the opportunity to amplify and supplement the written papers.

## **Core Courses**

The following courses represent the content Core Courses required of all MA students.

- EDUC 511/5201 - Foundations of Educational Research (3 cr.)
- EDUC 521/5202 - Social Foundations of Education (3 cr.)
- EDUC 531/5203 - Introduction to International & Comparative Education (3 cr.)
- EDUC 541/5204 - Human Development & Learning Theory (3 cr.)
- EDUC 551/5205 - Foundations of Instructional Practice (3 cr.)
- EDUC 575/5215 - Educational Policy Analysis (3 cr.)

All students must also complete two semesters of the thesis by registering for EDUC 599/5299 Research Guidance and Thesis (2 cr. each course) in the last two semesters of the program, for a total of 4 credit hours, or complete the alternative to Thesis option.

## **Concentrations**

Each student will select one of the following concentrations: International Education Development & Policy, or Teaching and Learning. Students must take a minimum of three courses from their concentration and complete their thesis on a subject within that concentration.

## 1. International Education Development and Policy

Students in the International Education Development and Policy concentration are required to complete at least three of the following courses:

- EDUC 532/5211 - Globalization, Development, and Educational Reform in the Arab World (3 cr.)
- EDUC 533/5212 - Comparative Gender, Adolescent, Youth, and Human Development Policy (3 cr.)
- EDUC 535/5213 - Educational Evaluation & Assessment (3 cr.)
- EDUC 536/5214 - Human Rights-based Education (3 cr.)
- EDUC 588/5216 - Research-Based Comparative Approaches to Educational Reform (3 cr.)
- EDUC 534/5217 - Strategic Educational Planning and Development (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)
- EDUC 000/5236 - Education for Sustainable Development (3 cr.)

## 2. Teaching and Learning

Students in the Teaching & Learning concentration are required to complete at least three of the following courses:

- EDUC 535/5213 - Educational Evaluation & Assessment (3 cr.)
- EDUC 534/5217 - Strategic Educational Planning and Development (3 cr.)
- EDUC 552/5231 - Online and Blended Learning Design and Instruction in Developing Countries (3 cr.)
- EDUC 554/5232 - Literacy, Learning and Education (3 cr.)
- EDUC 556/5233 - Action Research (3 cr.)
- EDUC 557/5234 - Reaching Diverse and Underserved Learners (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)
- EDUC 000/5236 - Education for Sustainable Development (3 cr.)

Additional courses for both concentrations can be taken from among the other MA-level courses offered by the Graduate School of Education.

## Teaching and Learning (M.Ed.)

To complete the Teaching and Learning (M.ED.), 27 credit hours are required, divided into 9 3-credit courses. The program will take fourteen months to complete. The sequence of courses is fixed; stepping out for a course requires a student to join a new cohort when it reaches that stage in the curriculum. Courses are offered following the AUC semesters.

TEAL 000/5201 - Fundamentals of Curriculum Design, Theory, & Practice (3 cr.)

TEAL 000/5202 - Learning Theory & Educational Psychology (3 cr.)

TEAL 000/5203 - Social & Political Theories of Educational Practice (3 cr.)

TEAL 000/5204 - Assessment of Student Learning (3 cr.)

TEAL 000/5205 - Differentiation of Instruction for Diverse Learners (3 cr.)

TEAL 000/5206 - Problem-based Instructional Models (3 cr.)

TEAL 000/5207 - Promoting Independent & Lifelong Learners (3 cr.)

TEAL 000/5208 - Teaching Capstone (3 cr.)

TEAL 000/5209 - Teaching Portfolio (3 cr.)

### **Blended/Online**

This program will only be offered in a blended/online format, and admission will only be granted based on cohorts.

## **Educational Leadership (Graduate Diploma)**

The Graduate Diploma in Educational Leadership is offered by the Department of International & Comparative Education, Graduate School of Education. This Diploma is designed as a one-year (two semesters) program for students who wish to enhance their qualifications or pursue an academic interest in the field of educational leadership.

### **Admission**

Applicants must meet the same admissions requirements as those for the MA in Educational Leadership. Should a student in good standing decide during or within one semester after completion of the requirements for the Diploma that he/she wishes to work towards the MA degree, he/she may apply to transfer to the MA degree.

### **Courses (18 credit hours)**

Course work for the Graduate Diploma requires the completion of 18 credits as follows:

#### **Required Courses**

12 credits Required / 4 courses

EDUC 521/5202 - Social Foundations of Education (3 cr.)

EDUC 541/5204 - Human Development & Learning Theory (3 cr.)

EDUC 542/5221 - Transformative Leadership (3 cr.)

EDUC 546/5223 - Organizational Theory and Educational Institutions (3 cr.)

#### **Electives**

6 credits Required / 2 courses

Students should take two additional electives from among the 500-level courses in Educational Leadership offered by the Department that best meet their professional goals, with approval from their academic advisor.

## **Inclusive Education (Graduate Diploma)**

The Graduate Diploma in Inclusive Education is offered by the Departments of Psychology (HUSS) and International & Comparative Education (GSE). This Diploma is designed as a one-year (two semester) program. This proposed graduate diploma focuses on inclusive education, which is about how schools, classrooms, programs, and activities are developed and designed so that all students of different abilities and backgrounds can effectively learn and participate together. Students with learning difficulties and other challenges should not be segregated, stigmatized, or excluded from educational opportunities, and students who are gifted and talented should not have their potential constrained by the academic system. Relevant and adequate education for all learners is a human right, under the Convention for the Rights of Disabled Persons and the Universal Declaration of Human Rights (both of which Egypt has ratified). In addition, the Egyptian Constitution also guarantees access to appropriate educational opportunities for students with

learning disabilities and those who are gifted (Articles. 81 & 82, 2014). The proposed program is unique in the region because it is jointly offered by the Departments of International & Comparative Education and Psychology, with interdisciplinary perspectives enhancing the theory and methods taught. This will provide students with broader well-rounded skills, attract students from both education and psychology sectors, and open up diverse job and educational pathways for graduates. This Graduate Diploma could be a stepping stone towards a future masters or doctorate for educators who wish to develop a more specialized level of expertise.

### **Admission**

All applicants must have a bachelor's degree. Applicants should have at least two years relevant fulltime work experience. Admission is competitive, and dependent on a successful interview.

### **Courses (18 credit hours)**

Course work for the Graduate Diploma requires the completion of 18 credits as follows:

#### **Required Courses**

18 credits Required / 6 courses

#### **Semester 1**

PSYC 520/5205 - Psychology in the Schools (3 cr.)

EDUC 541/5204 - Human Development & Learning Theory (3 cr.)

EDUC 557/5234 - Reaching Diverse and Underserved Learners (3 cr.)

#### **Semester 2**

PSYC 000/5255 - Assessment and Evaluation for Learning Enrichment (3 cr.)

EDUC 000/5238 - Programs and Environments for Inclusive Education (3 cr.)

PSYC 000/5265 - Applied Projects in Inclusive Education (3 cr.)

## **International & Comparative Education (Graduate Diploma)**

The Graduate Diploma in International & Comparative Education is offered by the Department of International & Comparative Education, Graduate School of Education. This Diploma is designed as a one-year (two semesters) program for students who wish to enhance their qualifications or pursue an academic interest in the field of education.

### **Admission**

Applicants must meet the same admissions requirements as those for the MA in International & Comparative Education. Should a student in good standing decide during or within one semester after completion of the requirements for the Diploma that he/she wishes to work towards the MA degree, he/she may apply to transfer to the MA degree.

#### **Courses (18 credit hours)**

Course work for the Graduate Diploma requires the completion of 18 credits as follows:

### **Required Courses**

12 credits Required / 4 courses

EDUC 521/5202 - Social Foundations of Education (3 cr.)

EDUC 531/5203 - Introduction to International & Comparative Education (3 cr.)

EDUC 541/5204 - Human Development & Learning Theory (3 cr.)

EDUC 575/5215 - Educational Policy Analysis (3 cr.)

### **Electives**

6 credits Required / 2 courses

Students should take two additional electives from among the 500-level courses in International & Comparative Education offered by the Department that best meet their professional goals, with approval from their academic adviser.

## **School of Business**

### **Department of Accounting**

Emeritus Professors: S. Farag

Professors: K. Dahawy (Chair), M. Hegazy

Associate Professors: A. Abdel-Meguid , K. Samaha

Visiting Associate Professor: M. Basuony

Assistant Professor: A. Abdel-zaher

Visiting Assistant Professors: M. El Helaly, N. Shehata

### **Accounting (B.A.C.)**

Accounting is both a primary communication channel between business entities and its stakeholders and a comprehensive information system which supports effective decision making. The role of the accounting profession is becoming more pronounced in today's business environment which is characterized by scarce resources, fierce rivalry, complex transactions and increased public scrutiny. Furthermore, auditors are considered the key deterrent to managerial malfeasance, a phenomenon which adversely affects markets and investors' confidence. Students pursuing the Bachelor of Accounting will be exposed to a comprehensive set of technical knowledge of financial accounting, cost/managerial accounting, taxation, and auditing. Ethical considerations, corporate governance and financial transparency issues are covered throughout the course offerings.

Accounting graduates are qualified to work within different professional capacities at corporate multinationals, Big 4 auditing firms, banks, consulting firms, and other types of organizations. In addition, recent graduates of the program have attained, or are currently pursuing, professional certifications such as the Certified Public Accountant (CPA), the Chartered Financial Analyst (CFA), the Certified Management Accountant (CMA), and the Association of Chartered Certified Accountants (ACCA) qualification, in addition to other postgraduate studies.

The objective of the Bachelor of Accounting degree is to provide conceptual and practical knowledge to graduates who will prepare, report and analyze economic and financial information used for making sound managerial decisions.

Students who seek to be admitted to the Bachelor of Accounting (BAC) program through the declaration process must have completed no less than 27 credit hours of study including the courses listed in (1) below. Students who have successfully completed these courses, with the minimum required grades where applicable, and who meet the minimum major weighted grade point average as determined by the department, will be accepted in the major.

Required Courses to be completed to declare Accounting as a major

ACCT 201/2001 - Financial Accounting (3 cr.) with a minimum grade of B

ACCT 202/2002 - Managerial Accounting (3 cr.) with a minimum grade of B

ECON 201/2021 - Introduction to Macroeconomics (3 cr.) OR ECON 202/2011 - Introduction to Microeconomics (3 cr.)

MACT 210/2222 - Statistics for Business (3 cr.)

## 2. Calculation of the Major Weighted Grade Point Average

The major weighted Grade Point Average = Overall GPA at time of declaration x 60% + (Average GPA in ACCT 2001 and ACCT 2002) x 40%.

## 3. The minimum major Weighted Grade Point Average

Admission to the Accounting major is competitive. Eligible students will be ranked and selected based on their major weighted grade point average.

Students must complete a minimum of 127 credit hours for the Bachelor of Accounting degree.

Students who seek the Bachelor of Accounting degree are not permitted to minor in Business Administration.

# Core Curriculum (40 credits)

## Collateral Requirements (15 credits)

All students seeking a Bachelor of Accounting degree are required to complete the following collateral requirements (15 credits):

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)
- ECON 216/2061 - Mathematics for Economists I (3 cr.)
- ECON 303/3041 - Monetary Economics (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)

## Management Requirements (9 credits)

- BADM 300/3003 - Business Environment and Ethics (3 cr.)
- MGMT 307/3201 - Management Fundamentals (3 cr.)
- MGMT 311/3301 - Business Law (Commercial & Fiscal) (3 cr.)
- BADM 000/4999 - Internship and Assessment (0 cr.)

## Marketing Requirements (3 cr.)

- MKTG 302/2101 - Principles of Marketing (3 cr.)

## Finance Requirements (12 credits)



The following 3 courses are mandatory (9 cr.):

- FINC 303/2101 - Business Finance I (3 cr.)
- FINC 404/3201 - Investment Analysis (3 cr.)
- FINC 405/3401 - Applied Banking (3 cr.)
- **One course to be selected from the following (3 cr.):**
- FINC 408/3501 - International Finance (3 cr.)
- FINC 410/4202 - Capital Markets (3 cr.)
- FINC 414/4301 - Corporate Finance (3 cr.)

## Management of Information Systems Requirements (3 credits)

- MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)

## Accounting Requirements (36 credits)

- ACCT 201/2001 - Financial Accounting (3 cr.)
- ACCT 202/2002 - Managerial Accounting (3 cr.)
- ACCT 301/3001 - Intermediate Accounting I (3 cr.)
- ACCT 302/3002 - Intermediate Accounting II (3 cr.)
- ACCT 303/3003 - Advanced Accounting (3 cr.)
- ACCT 304/3004 - Cost Accounting (3 cr.)
- ACCT 305/3005 - Auditing (3 cr.)
- ACCT 306/3006 - Principles of Taxation (3 cr.)
- ACCT 000/4000 - Automated Financial Accounting (3 cr.)
- ACCT 401/4001 - Contemporary Issues in Auditing and Forensic Accounting (3 cr.)
- ACCT 402/4002 - Special Topics in Tax Accounting (3 cr.)
- ACCT 403/4003 - Contemporary Issues in Financial Reporting (3 cr.)

## Electives (12 credits)

## Accounting Minor

Students who seek to a minor in accounting must already be declared in another major and completed ACCT 201/2001 - Financial Accounting (3 cr.) with a minimum grade of B and ACCT 202/2002 - Managerial Accounting (3 cr.) with a minimum grade of B. Students who have successfully completed these courses, with the minimum required grades and who meet the minimum minor weighted grade point average as determined by the department, will be accepted in the minor. Accepted students should plan their minor with their academic advisor with the approval of the department.

Calculation of the Minor weighted grade point Average

The minor weighted grade point Average = Overall GPA at time of minor declaration x 60% + (Average GPA in ACCT 2001 and ACCT 2002) x 40%.

Admission to the Accounting minor is competitive. Eligible students will be ranked and selected based on their minor weighted grade point average.

Students who seek the Bachelor of Business Administration degree are not permitted to minor in accounting.

The accounting minor consists of at least five courses (15 credits) two of which are required, and three are electives, as follows:

### Required courses:

- ACCT 201/2001 - Financial Accounting (3 cr.)
- ACCT 202/2002 - Managerial Accounting (3 cr.)

Additional elective courses (at least THREE) from the following with approval of the advisor:

- ACCT 301/3001 - Intermediate Accounting I (3 cr.)
- ACCT 302/3002 - Intermediate Accounting II (3 cr.)
- ACCT 303/3003 - Advanced Accounting (3 cr.)
- ACCT 304/3004 - Cost Accounting (3 cr.)
- ACCT 305/3005 - Auditing (3 cr.)
- ACCT 306/3006 - Principles of Taxation (3 cr.)

## Department of Economics

### Department of Economics

#### School of Business

*Professors Emeritus:* G. Amin, W. Mikhail

*Professors:* A. Beshai (Director of Graduate Studies), N. Rizk, T. Selim

*Associate Professors:* H. El-Ramly, A. El-Shennawy, A. Kamaly, M. Said, J. Salevurakis (Chair), A. Seghir (Dean of the School of Business)

*Assistant Professors:* S. Atallah, M. Al-Ississ, M. Bouaddi (Associate Chair), D. El Edel, M. El-Komi, D. Nouredin, S. Ali Shah

*Visiting Assistant Professor:* N. Abdel Razek

*Teaching Associate:* S. Al Ashrafy

A society's scarce resources are allocated among various production activities and among various consumers. An economy is made up of business producing goods and services for sale, individuals working, receiving income, and spending that income on the goods and services, and government taxing businesses and individuals and providing services not available from the private sector. The methods in which this complex system is organized and coordinated through a series of interrelated markets is the subject of economics. The basic training in these methods is provided in concentration requirements covering economic theory, statistics, econometrics, finance, development, trade, and economic history.

The Department of Economics offers three graduate programs in economics: an established master's program and two new programs: an M.A. Economics in International Development and a Graduate Economics Diploma in International Development. Together, these three programs cater to evolving job market needs and keep up with recent developments in the field.

### Economics (B.A.)

## Bachelor of Arts

The curriculum for the B.A. degree in Economics is designed to prepare students to be i) economists with an understanding of a wide range of economics subjects and equipped with the necessary analytical tools to do so or ii) experts in the economic development and policy making or iii) economists with a strong foundation in quantitative and financial economics. For the first group, the curriculum offers a wide range of courses pertaining to the different aspects of the economy in theory and practice. For the second group, the curriculum offers courses that specifically address the challenges of economic development and prospects of policy making in the region. For the third group, the program offers rigorous and advanced courses in econometric theory and application and in financial economics.

Students who seek a major in Economics must satisfy the following requirements prior to applying for declaration:

- Complete a minimum of 27 credit hours including ECON 2011, 2021 and ECON 2061.
- Earn an average grade of B or higher in ECON 2011 and ECON 2021 with a minimum grade of B minus in each course.
- Earn a minimum grade of B in ECON 2061 (Equivalently, earn an average grade of B or higher in MACT 1121 and MACT 1122).

\* In the case of a second attempt of courses required for major declaration, the higher of the two grades earned will be considered. The grade of a third attempt or more will not be considered for the purpose of declaring a major in Economics.

The score for declaration will be calculated as follows:

(Economics GPA\*50%) + (Overall GPA\*50%)

Economics GPA is the GPA of all economics courses completed prior to applying for declaration (except ECON 1099).

Selection to declare a major in Economics is competitive and will be based on availability of space.

### Degree Requirements

Students must complete a minimum of 120 credit hours for the Bachelor of Arts in Economics degree in the following areas:

- I. Core Curriculum (37 credits),
- II. Collateral Requirements (9 credits),
- III. Economics Core Requirements (39 credits),
- IV. Requirements for General Economics Degree (15 or 16 credits)
- V. Requirements for 'Economic Development and Policy Analysis' Concentration (15 or 16 credits),
- VI. Requirements for 'Quantitative and Financial Economics' Concentration (15 or 16 credits),
- VII. General Electives (19 or 20 credits)

## I. Core Curriculum (37 credits)

The remaining 3 credit hours required to satisfy the Core are fulfilled by completing the course ECON 308/3071 - Labor Economics (3 cr.)

## II. Collateral Requirements (9 credits)

- ACCT 201/2001 - Financial Accounting (3 cr.)
- FINC 303/2101 - Business Finance I (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)
- BADM 000/4999 - Internship and Assessment (0 cr.)

## III. Economics Core Requirements (39 credits)

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)
- ECON 216/2061 - Mathematics for Economists I (3 cr.)
- ECON 218/2081 - Statistics for Economists (3 cr.)
- ECON 301/3021 - Intermediate Macroeconomic Theory (3 cr.)
- ECON 302/3011 - Intermediate Microeconomic Theory (3 cr.)
- ECON 303/3041 - Monetary Economics (3 cr.)
- ECON 308/3071 - Labor Economics (3 cr.)
- ECON 312/3053 - Economic Development (3 cr.)
- ECON 316/3061 - Mathematics for Economists II (3 cr.)
- ECON 318/3081 - Introduction to Econometrics (3 cr.)
- ECON 403/4031 - International Trade (3 cr.)
- ECON 405/4091 - History of Economic Thought (3 cr.)

#### IV. Requirements for General Economics Degree (15 or 16 credits)

Students should choose five out of the following courses:

- ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)
- ECON 000/3054 - Environmental and Natural Resource Economics (3 cr.)
- ECON 320/3055 - The Digital Economy: Information Technology, Knowledge and Intellectual Property (3 cr.)
- ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.)
- ECON 413/4012 - Feasibility Study (3 cr.)
- ECON 000/4013 - Behavioral Economics (3 cr.)
- ECON 310/4014 - Public Economics and Policy Analysis (3 cr.)
- ECON 000/4015 - Applied Econometrics (3 cr.)
- ECON 404/4041 - Financial Economics (3 cr.)
- ECON 416/4061 - Mathematical Economics (3 cr.)
- ECON 418/4081 - Econometric Methods (3 cr.) and ECON 418P/4082 - Practicum (1 cr.)
- ECON 414/4094 - Economics of Egypt (3 cr.)
- ECON 411/4099 - Seminar: Special Topics in Economics (3 cr.)

#### V. Requirements for 'Economic Development and Policy Analysis' Concentration (15 or 16 credits)

Students should complete the following three courses:

- ECON 310/4014 - Public Economics and Policy Analysis (3 cr.)
- ECON 414/4094 - Economics of Egypt (3 cr.)
- ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.)

and choose two out of the following courses:

- ECON 000/3054 - Environmental and Natural Resource Economics (3 cr.)
- ECON 320/3055 - The Digital Economy: Information Technology, Knowledge and Intellectual Property (3 cr.)
- ECON 413/4012 - Feasibility Study (3 cr.)
- ECON 000/4013 - Behavioral Economics (3 cr.)
- ECON 000/4015 - Applied Econometrics (3 cr.)
- ECON 416/4061 - Mathematical Economics (3 cr.)

- ECON 418/4081 - Econometric Methods (3 cr.) and ECON 418P/4082 - Practicum (1 cr.)
- ECON 411/4099 - Seminar: Special Topics in Economics (3 cr.)
- ECON 512/5254 - Economic Growth & Development (3 cr.) or ECON 505/5231 - Advanced International Trade (3 cr.)

## VI. Requirements for 'Quantitative and Financial Economics' Concentration (15 or 16 credits)

Students should complete the following three courses:

- ECON 404/4041 - Financial Economics (3 cr.)
- ECON 416/4061 - Mathematical Economics (3 cr.)
- ECON 418/4081 - Econometric Methods (3 cr.) and ECON 418P/4082 - Practicum (1 cr.)

and choose two out of the following courses:

- ECON 413/4012 - Feasibility Study (3 cr.)
- ECON 000/4013 - Behavioral Economics (3 cr.)
- ECON 000/4015 - Applied Econometrics (3 cr.)
- ECON 414/4094 - Economics of Egypt (3 cr.)
- ECON 411/4099 - Seminar: Special Topics in Economics (3 cr.)
- ECON 504/5241 - Financial Economics (3 cr.) or ECON 520/5215 - Competitive Strategy and Game Theory (3 cr.)
- MACT 321/3311 - Introduction to Financial Mathematics (3 cr.)
- MACT 429/4233 - Applied Multivariate Analysis (3 cr.)

## VII. General Electives (19 to 20 credits)

### Economics Minor

Students who seek a minor in economics must complete:

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)

With an average grade of B prior to applying for declaration.

After minor declaration, students must complete three other economics courses, 300-level or above.

Economics courses that cannot be included in the minor are:

- ECON 316/3061 - Mathematics for Economists II (3 cr.)
- ECON 318/3081 - Introduction to Econometrics (3 cr.)

Accepted students should plan their minor with their academic advisor with the approval of the department

The minor in field of study provides students with an introduction to the fundamental historical, descriptive, and theoretical concepts of the field.

### Economics in International Development (M.A.)

This program is specially designed for students who wish to acquire in-depth understanding and knowledge in the field of development. An interdisciplinary approach is adopted as an essential requirement for gaining a broader and more integrated perspective of this dynamic field of study. The program should be of interest to those who plan to seek a position or a career with a wide range of development-related institutions at the macro or micro levels. Examples include; United Nations Agencies, The World Bank, bilateral donor representative offices/projects, NGOs, and

development-finance institutions. In addition, the program equips students to assume technical positions in government departments directly concerned with development planning and evaluation.

### **Admission**

The applicant for admission to this program should have a good knowledge of the concepts and analytical tools of economics. An applicant whose bachelor's degree is in a discipline other than economics may be admitted provisionally, but in such cases the applicant must either display competence in economics by passing required examinations or develop the necessary competence by completing additional undergraduate courses.

The department uses as reference for admission, minimum acceptable scores on the Graduate Record Exam (GRE) of 150 verbal, 150 quantitative, and 3.0 analytical (which is equivalent to 450 verbal, 600 quantitative, and 3.0 analytical for exams taken prior to September 1, 2011). Prior to full admission, students must have reported their GRE examination scores.

## **Courses**

A minimum of 27 credit hours is required. All students must:

### **1. Take five core courses**

- ECON 500/5251 - The Economic Setting for Development (3 cr.)
- ECON 505/5231 - Advanced International Trade (3 cr.)
- ECON 507/5282 - Quantitative Methods (3 cr.)
- ECON 519/5213 - Project Evaluation (3 cr.)
- ECON 590/5259 - Research Practicum (3 cr.)

### **2. Choose four electives**

One from each of the following groups of courses as indicated below:

#### **Group 1**

- ECON 508/5271 - Labor Economics (3 cr.)
- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- ECON 512/5254 - Economic Growth & Development (3 cr.)
- ECON 506/5299 - Advanced Topics in Economics (3 cr.)

#### **Group 2**

- POLS 525/5225 - International Political Economy (3 cr.)
- POLS 535/5235 - Middle East Politics (3 cr.)
- POLS 536/5236 - Contemporary Issues in Political Islam (3 cr.)
- POLS 561/5261 - Public Policy and Development (3 cr.)
- POLS 562/5262 - International Development Organizations (3 cr.)

#### **Group 3**

- SOC/ANTH 500/5201 - Classical Social Thought (3 cr.)
- SOC/ANTH 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)
- SOC/ANTH 535/5235 - Maintaining Systems of Global Inequality (3 cr.)
- SOC/ANTH 560/5260 - Population Dynamics (3 cr.)
- PSYC 525/5253 - Consultation to Non-Profit Organizations (3 cr.)

#### Group 4

- PPAD 504/5222 - Fundamentals of Financial Planning and Management for Government and Nonprofit Organizations (3 cr.)
- PPAD 512/5114 - Management of Development Programs (3 cr.)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.)
- PPAD 520/5133 - Global Health Issues and Policies (3 cr.)
- PPAD 522/5135 - Promotion of Local Economic Development (3 cr.)
- PPAD 526/5128 - Corporate Social Responsibility and NGO Partnerships (3 cr.)

### **Economics with a Thesis Option or with concentrations in Middle East Economic Development, Competitive Strategy and Valuation, International Economics, and Financial Economics for Non-Thesis Track (M.A.)**

Completion of the AUC Graduate Program in Economics opens wide opportunities for prestigious and creative jobs in research centers and departments, both in government and private institutions. AUC graduates of this program have also made valuable additions to several U.N. and international development institutions.

#### **Admission**

The applicant for admission to the master's program in economics should have a considerable background in economic theory. An applicant whose bachelor's degree is in a discipline other than economics may be admitted provisionally, but in such cases the applicant must complete additional undergraduate courses. The prerequisite for full admission to the master's degree in economics is completion of ECON 4061 and ECON 4081 with a grade of B or better; i.e. a student must complete ECON 4061 and ECON 4081 before enrolling in any 500 level course.

The department uses as reference for admission, minimum acceptable scores on the Graduate Record Exam (GRE) of 150 verbal, 150 quantitative, and 3.0 analytical (which is equivalent to 450 verbal, 600 quantitative, and 3.0 analytical for exams taken prior to September 1, 2011). Prior to full admission, students must have reported their GRE examination scores.

Students applying for Master in Economics can choose either Thesis Track or Non-Thesis Track option. Total credit hours for completion of the Master Degree for either track is 27 credit hours.

### **Requirements for Thesis Track**

#### **Courses**

All students must take the following four courses (12 credit hours)

- ECON 501/5221 - Advanced Macroeconomic Theory (3 cr.)
- ECON 502/5211 - Advanced Microeconomic Theory (3 cr.)
- ECON 518/5281 - Econometrics (3 cr.)
- ECON 525/5201 - Research Workshop (3 cr.)

### Three Additional Courses (9 credit hours)

A maximum of three hours of 5000-level courses or 4000 level courses in related fields other than economics may be taken for graduate credit with the approval of the Director of Graduate Studies and the Department Chair.

### Thesis (six credit hours)

An M.A. thesis is not allowed to be submitted for examination until the student has made a presentation of a major part of it at the department seminar.

## Requirements for Non-Thesis Track

### Courses

#### All students must take the following four courses (12 credit hours)

- ECON 501/5221 - Advanced Macroeconomic Theory (3 cr.)
- ECON 502/5211 - Advanced Microeconomic Theory (3 cr.)
- ECON 518/5281 - Econometrics (3 cr.)
- ECON 525/5201 - Research Workshop (3 cr.)

### Three Additional Courses (9 credit hours)

A maximum of three hours of 5000-level courses or 4000 level courses in related fields other than economics may be taken for graduate credit with the approval of the Director of Graduate Studies and the Department Chair.

## Concentration Fields

Within the Non-Thesis track student must complete at least one Concentration Field (6 credit hours).

*The MA in Economics offers four concentration fields:*

### 1. Middle East Economic Development (6 credit hours)

- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- ECON 512/5254 - Economic Growth & Development (3 cr.)

### 2. Competitive Strategy and Valuation (6 credit hours)

- ECON 519/5213 - Project Evaluation (3 cr.)
- ECON 520/5215 - Competitive Strategy and Game Theory (3 cr.)



### 3. International Economics (6 credit hours)

- ECON 505/5231 - Advanced International Trade (3 cr.)
- ECON 517/5233 - International Finance (3 cr.)

### 4. Financial Economics (6 credit hours)

- ECON 504/5241 - Financial Economics (3 cr.)
- ECON 528/5242 - Financial Econometrics (3 cr.)

## Economics in International Development (Graduate Diploma)

This graduate diploma is designed for students who wish to gain a basic understanding and knowledge of development, but who may not intend to proceed to obtain a Master's Degree. This Diploma program is also interdisciplinary to provide a broader and more integrated perspective of development issues.

The Diploma should be of interest to those who plan to seek a position or a career with development-related institutions or with government departments directly concerned with development planning and evaluation.

### Admission

The applicant for admission to this program should have a good knowledge of the concepts and analytical tools of economics. An applicant whose bachelor's degree is in a discipline other than economics may be admitted provisionally, but in such cases, the applicant must either display competence in economics by passing required examinations or develop the necessary competence by completing additional undergraduate courses.

The department uses as reference for admission, minimum acceptable scores on the Graduate Record Exam (GRE) of 150 verbal, 150 quantitative, and 3.0 analytical (which is equivalent to 450 verbal, 600 quantitative, and 3.0 analytical for exams taken prior to September 1, 2011). Prior to full admission, students must have reported their GRE examination scores.

## Courses

A minimum of 15 credit hours is required. All students must:

### 1. Take two core courses

- ECON 500/5251 - The Economic Setting for Development (3 cr.)
- ECON 507/5282 - Quantitative Methods (3 cr.)

### 2. Choose three electives

One from each of the following groups of courses as indicated below:

#### Group 1

- ECON 505/5231 - Advanced International Trade (3 cr.)
- ECON 508/5271 - Labor Economics (3 cr.)
- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- ECON 512/5254 - Economic Growth & Development (3 cr.)
- ECON 519/5213 - Project Evaluation (3 cr.)
- ECON 530/5217 - Health Economics in Developing Countries (3 cr.)

## Group 2

- POLS 525/5225 - International Political Economy (3 cr.)
- POLS 535/5235 - Middle East Politics (3 cr.)
- POLS 536/5236 - Contemporary Issues in Political Islam (3 cr.)
- POLS 561/5261 - Public Policy and Development (3 cr.)
- POLS 562/5262 - International Development Organizations (3 cr.)

## Group 3

- SOC/ANTH 500/5201 - Classical Social Thought (3 cr.)
- SOC/ANTH 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)
- SOC/ANTH 535/5235 - Maintaining Systems of Global Inequality (3 cr.)
- SOC/ANTH 560/5260 - Population Dynamics (3 cr.)
- PSYC 525/5253 - Consultation to Non-Profit Organizations (3 cr.)

## Note

Students awarded the Diploma may apply for admission to the M.A. in Economics International Development.

# Department of Management

## Department of Management School of Business

Emeritus Professors: F. El Hitami, H. El Sherif

Professors: S. Akabawy, M. Badran, M. El Shinnawy, M. Hassanein (Distinguished Professor), T. Hatem, I. Hegazy, S. Kamel, E. Tooma, S. Youssef.

Associate Professors: I. Azzam (Abraaj Group Chair of Private Equity), A. Bassiouny (Department Chair), N. Becheikh (Associate Dean for Graduate Studies and Research), A. ElShahat, S. Elwan, H. Mertzanis, M. Mourad (chair), D. Rateb, H. Shamma (BP Endowed Chair), A. Tolba

Assistant Professors: N. Ahmed, D. Bassiouni, A. Hassanein (Associate Dean for Undergraduate Studies and Administration), N. ElEnani, A. Ismail (Abdul Latif Jameel Chair of Entrepreneurship), I. Seoudi, R. Samir

Professor of Practice: A. AwniK, O'Connell

Associate Professor of Practice: D. Sherif (Willard W. Brown Chair of International Business Leadership)

Participating Faculty: H. Hosny, A. Kais

The Department of Management offers two undergraduate degree programs:

- Bachelor of Business Administration (BBA)

- Bachelor of Business Administration in Management of Information and Communication Technology (MICT) as a joint degree between the School of Business (BUS) and the School of Sciences and Engineering (SSE).

The Department of Management offers one graduate degree program:

- The Master of Science in Finance

#### Mission

Our mission is to develop entrepreneurial and responsible business leaders and professionals who are dedicated to the betterment of the society by providing a high quality business education to top caliber students from all segments of Egyptian society as well as from other countries while focusing on continuous improvement and commitment to excellence in learning, intellectual contributions and service.

In support of this mission the department:

- Provides a high quality contemporary - style business education that blends a global perspective with national cultures and is relevant to the business needs of Egypt and the region.
- Provides programs that encourage the development of an entrepreneurial spirit that emphasizes creativity, innovation, individual initiative and teamwork.
- Provides learning environment that fosters faculty/student communication and promotes lifelong learning and career development.
- Encourages faculty development activities that improve teaching, maintain competence and keep faculty current with ideas and concepts in their fields.
- Seeks to develop a portfolio of intellectual contributions to learning and pedagogy, to practice, and to the theory and knowledge base of the disciplines.
- Encourages the establishment of close partnerships with the business community through consultancies and service that enhance the intellectual and economic quality of Egypt while enriching the learning process.

#### Core Values

In support of the mission, the faculty and staff are committed to shared core values that promote:

- Individual excellence
- Personal integrity and ethical professional behavior
- Collaboration, contribution, and inclusiveness
- Life-long learning
- Continuous improvement
- Adaptation to a changing global environment
- Social responsibility and community service

## **Business Administration, with concentrations in Marketing, Finance, Management of Information Technology, Entrepreneurship and International Business (B.B.A.)**

### **Bachelor of Business Administration (B.B.A.)**

A successful economic future for Egypt and the Middle East is highly concerned with a basic understanding of the principles and practices of business as they apply to firms in a dynamic environment. The business administration curriculum provides students with a foundation in the liberal arts and sciences while enabling them to develop expertise in business management and practices. Major emphasis is placed on the role of business in Egypt and the Middle East.

#### **Declaration Policy**

The number of students accepted in the Bachelor of Business Administration program is limited and is filled through the declaration of major process.

Students who seek to be admitted to the Bachelor of Business Administration program should apply in their third semester. Students seeking to declare the BBA program must have completed not less than 27 credit hours of study including the four courses listed below.

ACCT 201/2001 - Financial Accounting (3 cr.)

ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

OR ECON 202/2011 - Introduction to Microeconomics (3 cr.)

MACT 210/2222 - Statistics for Business (3 cr.)

BADM 203/2001 - Introduction to Business (3 cr.)

Based on the available space, a limited number of students who have successfully completed these courses and who meet the declaration requirements as determined by the department will be accepted in the major. The selection of students into the Business Major is competitive and will depend on the calculation of an equal weighted score between:

### **I. Overall GPA**

The Overall GPA will be calculated using the following criteria:

A minimum of 27 credit hours must be completed.

All courses a student has completed will be included in the calculation, excluding, in certain cases, the course with the lowest grade\*.

\* A student could be eligible to have his/her lowest grade excluded from the calculation of the Overall GPA if he/she has completed 30 or more credit hours

### **II. Major GPA**

The Major GPA based will be calculated using the following criteria:

A minimum of 12 credit hours of courses related to the Business Major must be completed.

All Business Major courses, including collateral courses, that the student has completed will be included in the calculation, excluding, in certain cases, the course with the lowest grade\*.

\* A student could be eligible to have his/her lowest grade excluded from calculating the Management Related GPA if he/she has completed 15 or more credit hours

Admission to the Business Administration major is competitive. Eligible students will be ranked and selected based on their weighted grade point average.

### **Degree Requirements**

Students must complete a minimum of 127 credit hours for the Bachelor of Business Administration degree in the following areas: I. Core Curriculum (37 credits), II. Collateral Requirements (18 credits), III. Business Core Requirements (45 credits), IV. Concentration (15 credits), V. General Electives (12 credits)

Students who seek the Bachelor of Business Administration degree are not permitted to the minor in accounting or entrepreneurship.

## **I. Core Curriculum (37 credits)**

The remaining 3 credit hours required to satisfy the Core are fulfilled by completing the course BADM 480/4001 - Business Planning and Strategy (3 cr.)

## II. Collateral Requirements (18 credits)

All students seeking a Bachelor of Business Administration degree must complete the following collateral requirements:

- ACCT 201/2001 - Financial Accounting (3 cr.)
- ACCT 202/2002 - Managerial Accounting (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)
- ECON 216/2061 - Mathematics for Economists I (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)

## III. Business Core Requirements (45 credits)

### A. Business Core Required Courses (33 credits)

- BADM 203/2001 - Introduction to Business (3 cr.)
- BADM 301/3002 - International Business (3 cr.)
- BADM 300/3003 - Business Environment and Ethics (3 cr.)
- BADM 480/4001 - Business Planning and Strategy (3 cr.)
- BADM 000/4999 - Internship and Assessment (0 cr.)
- ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)
- FINC 303/2101 - Business Finance I (3 cr.)
- MGMT 311/3301 - Business Law (Commercial & Fiscal) (3 cr.)
- MGMT 404/4202 - Managing the Human Capital (3 cr.)
- MKTG 302/2101 - Principles of Marketing (3 cr.)
- MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)
- OPMG 310/3201 - Operations for Competitive Advantage (3 cr.)

### B. Business Core Elective Courses (12 credits)

1-Choose any three (3) courses from the following list, one of which must be a course from your area of concentration if you are intending a concentration in FINC, MKTG or MOIS:

- FINC 404/3201 - Investment Analysis (3 cr.)
- MKTG 405/3201 - Marketing Research (3 cr.)
- MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)
- OPMG 401/4301 - Supply Chain Management (3 cr.)

2-Choose one (1) course from:

any 3000 or 4000 level course OUTSIDE your concentration within the School of Business.

## IV. Concentration Requirements (15 credits)

Students seeking a BBA degree must select only one of the following five options (Concentrations will only be offered provided that a sufficient number of students are enrolled):

1. BBA with a marketing concentration
2. BBA with a finance concentration
3. BBA with a management of information technology concentration
4. BBA with an Entrepreneurship concentration
5. BBA with an International Business concentration

## 1. Marketing Concentration (15 credits)

Acceptance in the Marketing concentration is competitive. Marketing Concentration has limited capacity and is offered given a sufficient number of enrolled students. Eligible students are accepted in the concentration if they meet the Marketing concentration's minimum weighed GPA determined periodically by the department. Students seeking a concentration in marketing are required to take the following courses:

- MKTG 410/3202 - Consumer-Buyer Behaviour (3 cr.)
- MKTG 408/3301 - Marketing Communications Management (3 cr.)
- MKTG 480/4602 - Marketing Strategy (3 cr.)

In addition, choose two of the following marketing elective courses:

- MKTG 411/4401 - Professional Selling (3 cr.)
  - MKTG 412/4601 - International Marketing (3 cr.)
  - MKTG 414/4501 - Services Marketing (3 cr.)
  - MKTG 416/4302 - E-Marketing (3 cr.)
  - MKTG 418/4303 - Principles of Public Relations (3 cr.)
  - MKTG 420/4203 - Advanced Marketing Research (3 cr.)
  - MKTG 470/4970 - Special topics in Marketing (3 cr.) \*
- (\*)Different topics can be counted as different electives

## 2. Finance Concentration (15 credits)

Acceptance in the Finance concentration is competitive. Finance Concentration has limited capacity and is offered given a sufficient number of enrolled students. Eligible students are accepted in the Finance concentration if they meet the Finance concentration's minimum weighed GPA determined periodically by the department. In order to be eligible to apply for a concentration in finance, students need:

An average B+ in FINC 2101 and FINC 3201 . BBA students who do not score this average should not be allowed to register for other Finance courses in the concentration

In the special event, where a student has FINC 2101 or FINC 3201 transferred from another university, then, a minimum of B+ in either FINC 2101 or FINC 3201 has to be obtained to addition to an average of B in any two additional Finance courses.

For avoidance of doubt, to declare the Finance concentration, a student must take at AUC either FINC 2101 or FINC 3201. In the case where both FINC 2101 and FINC 3201 are transferred, the student will have to repeat FINC 3201 at AUC.

Students seeking a concentration in finance are required to take the following courses:

- FINC 405/3401 - Applied Banking (3 cr.)
- FINC 414/4301 - Corporate Finance (3 cr.)

In addition, choose three of the following finance elective courses:

- FINC 408/3501 - International Finance (3 cr.)
  - FINC 410/4202 - Capital Markets (3 cr.)
  - FINC 412/4203 - Options and Derivatives (3 cr.)
  - FINC 415/4204 - Portfolio Theory and its Applications (3 cr.)
  - FINC 000/4302 - Introduction to Private Equity and Direct Investments (3 cr.)
  - FINC 470/4970 - Special Topics in Financial Management (3 cr.) \*
- (\*)Different topics can be counted as different electives

### 3. Management of Information Technology Concentration (15 credits)

Acceptance in MOIS concentration is competitive. MOIS Concentration has limited capacity and is offered given a sufficient number of enrolled students. Eligible students are accepted in the concentration if they meet the MOIS concentration's minimum weighed GPA determined periodically by the department. Students seeking a concentration in Management of Information Technology (MOIS) are required to take the following courses:

- MOIS 430/4202 - Business Information Systems Analysis and Development (3 cr.)
- MOIS 435/3301 - Entrepreneurial IT and Electronic Business (3 cr.)
- MOIS 499/4999 - Internship and Graduation Project (3 cr.)

One course from:

- MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)
- MOIS 477/4704 - Big Data and Predictive Analysis (3 cr.)

One course to be selected from the MOIS area:

- MOIS 466/3401 - Human Computer Interaction (HCI) (3 cr.)
  - MOIS 423/3501 - Geographic Information Systems (GIS) (3 cr.)
  - MOIS 433/3701 - Marketing Information Systems (3 cr.)
  - MOIS 434/3702 - Financial Information Systems (3 cr.)
  - MOIS 444/3703 - Accounting Information Systems (3 cr.)
  - MOIS 450/3801 - Strategic Information Systems (3 cr.)
  - MOIS 470/4970 - Special Topics in Management of Information Systems (3 cr.) \*
- (\*)Different topics can be counted as different electives

### 4. Entrepreneurship (15 credits)

Acceptance in Entrepreneurship concentration is competitive. Entrepreneurship Concentration has limited capacity and is offered given a sufficient number of enrolled students. Eligible students are accepted in the concentration if they meet the Entrepreneurship concentration's minimum weighed GPA determined periodically by the department. Students seeking a concentration in Entrepreneurship are required to take the following courses:

ENTR 417/4301 - Entrepreneurship Lab: Developing and Launching a New Venture (3 cr.)

ENTR 419/4303 - Social Entrepreneurship (3 cr.)

In addition, choose three courses from:

- ENTR 418/4302 - Corporate Entrepreneurship (3 cr.)
  - ENTR 420/4501 - Family Business (3 cr.)
  - ENTR 421/4502 - Innovation and Technology (3 cr.)
  - ENTR 000/4503 - Digital Strategy (3 cr.)
  - ENTR 470/4970 - Special Topics in Entrepreneurship (3 cr.) \*
- (\*)Different topics can be counted as different electives

## 5. International Business (15 credits)

Acceptance in the International Business concentration is competitive. International Business Concentration has limited capacity and is offered given a sufficient number of enrolled students. Eligible students are accepted in the concentration if they meet the International Business concentration's minimum weighed GPA determined periodically by the department. Students seeking to pursue a concentration in International Business are required to take TWO of the following courses:

- ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)
- ECON 312/3053 - Economic Development (3 cr.)
- ECON 414/4094 - Economics of Egypt (3 cr.)
- ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.)

In addition, choose THREE of the following courses:

- MKTG 412/4601 - International Marketing (3 cr.)
- FINC 408/3501 - International Finance (3 cr.)
- ECON 403/4031 - International Trade (3 cr.)
- MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)
- MGMT 470/4970 - Special Topics in Management (3 cr.) \*

(\*) upon departmental approval of exchange program requirements

Students intending to complete this concentration through the cohort exchange program with University of South Carolina (USA), should follow the cohort requirements upon consultation and approval with the exchange program advisor.

## V. General Electives (12 credits)

# Management of Information and Communication Technology (B.B.A.)

## **Bachelor of Business Administration in Management of Information and Communication Technology (MICT)**

The study of Management of Information and Communication Technology (MICT) is designed with a particular focus to adapt its content in a local context congruent with the needs of Egyptian organizations and capable of addressing IT challenges that arise in such organizations. The MICT curriculum provides students with a foundation in the liberal arts and sciences while enabling them to develop expertise in business management and information technology. This program is a joint degree between the School of Business (BUS) and the School of Sciences and Engineering (SSE).



Students who select a major in MICT should be able to function as a user advocate and select, create, apply, integrate and administer computing technologies to meet the needs of users within a societal and organizational context. Equipped with this knowledge, the students enrolled in the major will be able to analyze, design and manage information and communication technology infrastructure.

All MICT declaration-of-major applicants must have completed not less than 27 credit hours of study including the three courses listed below (with an average of B+ or more).

ACCT 2001 , CSCE 1001 , MACT 2222

Admission to the major is competitive. Eligible students will be ranked and selected based on the cumulative GPA requirement (weight of 75%) as well as the average GPA in the three courses required (weight of 25%).

Overall GPA of 100%

= Cumulative GPA is 75%

+

[average GPA in ( ACCT 2001 , CSCE 1001 , MACT 2222)]\* 25%

Students who seek the MICT degree are not permitted to have a major or a minor in accounting.

Students must complete a minimum of 131 credit hours for the MICT degree with no more than 63 hours of courses in the business area.

### Course Requirements

(Total Credit = 131 with no more than 63 hours of courses in the business area)

Course No.	Cr.
RHET 101/1000 - Approaches to Critical Writing (3 cr.) * (P)	3
RHET 102/1100 - Effective Argument (3 cr.) * (P)	3
RHET 201/2010 - Research Writing (3 cr.) * (P)	3
SCI 120/1020 - Scientific Thinking (3 cr.) (P)	3
PHIL 220/2100 - Philosophical Thinking (core curriculum requirement) (3 cr.) (P)	3
LALT 101 (P)	0
Natural Sc + Lab (P)	4
Humanity (P/S)	3
Social Sc. (P/S)	3
Arab World Studies (S) Θ	3
Arab World Studies (S) Θ	3
International World Studies (S)	3
Core Capstone Course (C)	3

Core Capstone Course (C)	3
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<b>Total</b>	<b>37</b>
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**General Electives / Minor****Course No.Cr.**

ALING ✓	3
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ALING ✓	3
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<b>Total</b>	<b>6</b>
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(P) Primary level courses taken during first 3 Semesters.

(S) Secondary level courses taken by students' 6th Semester.

(C) Capstone level courses taken during students' last 2 Semesters.

\* Students exempted from RHET 1000 or RHET 1100 or RHET 2010 must take any RHET 300 or 400 course.

✓ Non-Thanaweya Amma arabic language holders may be required to take 0-6 credits depending on Arabic placement test score.

⊖ Thanaweya Amma arabic language students may not take Arabic Literature in Translation

**Before declaration:**

- Students must have completed 27 cr. hrs.

The following courses must be taken with an average of B+:

- ACCT 2001
- CSCE 1001
- MACT 2222

**Business Core Requirements (33 credits)**

BADM 203/2001 - Introduction to Business (3 cr.)

BADM 300/3003 - Business Environment and Ethics (3 cr.)

ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)

FINC 303/2101 - Business Finance I (3 cr.)

MGMT 311/3301 - Business Law (Commercial & Fiscal) (3 cr.)

MKTG 302/2101 - Principles of Marketing (3 cr.)

MKTG 405/3201 - Marketing Research (3 cr.)

MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)

MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)

OPMG 310/3201 - Operations for Competitive Advantage (3 cr.)

OPMG 401/4301 - Supply Chain Management (3 cr.)

**Collateral Requirements (18 credits)**

ACCT 201/2001 - Financial Accounting (3 cr.)

ACCT 202/2002 - Managerial Accounting (3 cr.)

ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

ECON 202/2011 - Introduction to Microeconomics (3 cr.)

ECON 216/2061 - Mathematics for Economists I (3 cr.) Ψ

MACT 210/2222 - Statistics for Business (3 cr.)

Ψ ECON 2061 can be replaced by MACT 1121 / MACT 1122 (for BADM & ACCT majors only)

**MOIS Concentration Requirements (15 credits)**

MOIS 430/4202 - Business Information Systems Analysis and Development (3 cr.)

MOIS 435/3301 - Entrepreneurial IT and Electronic Business (3 cr.)

MOIS 499/4999 - Internship and Graduation Project (3 cr.) (double counted with Core Capstone)

**One course to be selected from the MOIS area:**

MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)

MOIS 477/4704 - Big Data and Predictive Analysis (3 cr.)

**One course to be selected from the MOIS area:**

MOIS 466/3401 - Human Computer Interaction (HCI) (3 cr.)

MOIS 423/3501 - Geographic Information Systems (GIS) (3 cr.)

MOIS 433/3701 - Marketing Information Systems (3 cr.)

MOIS 434/3702 - Financial Information Systems (3 cr.)

MOIS 444/3703 - Accounting Information Systems (3 cr.)

MOIS 450/3801 - Strategic Information Systems (3 cr.)

MOIS 470/4970 - Special Topics in Management of Information Systems (3 cr.)

**Computer Science Requirements (22 credits)**

CSCE 106/1001 - Fundamentals of Computing I (3 cr.)

CSCE 110/1101 - Fundamentals of Computing II (3 cr.)

CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)

CSCE 346/3422 - Introduction to Information Security (3 cr.)

CSCE 342/3421 - Fundamentals of Computing and Communication Systems (3 cr.)

**Three courses to be selected from the CSCE area:**

CSCE 315/3101 - Programming Language (1-3 cr.)

CSCE 316/3102 - Programming in Java (3 cr.)

CSCE 325/3104 - Concepts of Programming Languages (3 cr.)

CSCE 341/3701 - Software Engineering (3 cr.)

CSCE 453/4501 - Database Systems (3 cr.)

CSCE 456/4502 - Design of Web-based Systems (3 cr.)

CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)

## Business Administration Minor

The minor in business administration is designed to introduce students to the basic concepts, models and techniques of the discipline. Students seeking to minor in Business Administration have to apply for the minor following the completion of the following three courses:

ACCT 201/2001 - Financial Accounting (3 cr.)

BADM 203/2001 - Introduction to Business (3 cr.)

ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

or

ECON 202/2011 - Introduction to Microeconomics (3 cr.)

or

ENGR 345/3222 - Engineering Economy (3 cr.)

Students seeking to minor in Business Administration have to apply for the minor prior to registering for business minor courses. The selection of students into the minor in Business Administration is competitive and will depend on the calculation of an equal weighted score between:

### I. Overall GPA

The Overall GPA will be calculated using the following criteria:

1. A minimum of 27 credit hours must be completed.
2. All courses a student has completed excluding the course with the worst grade\*.

\*The worst grade is only excluded if the student has taken 30 or more credit hours.

## II. GPA in Minor Requirement courses

The student's GPA in the above three courses required for minor declaration.

Admission to the Business Administration minor is competitive. Eligible students will be ranked and selected based on their weighted grade point average.

## Requirements

The minor requires completion of five courses (15 credit hours) as follows:

1.

- ACCT 201/2001 - Financial Accounting (3 cr.)

2.

- BADM 203/2001 - Introduction to Business (3 cr.)

3.

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)  
or
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)  
or
- ENGR 345/3222 - Engineering Economy (3 cr.)

4.

- MKTG 302/2101 - Principles of Marketing (3 cr.)

5.

- FINC 303/2101 - Business Finance I (3 cr.)

## Entrepreneurship Minor

The Minor in business entrepreneurship is designed to introduce students to the idea of entrepreneurship, the traits and behaviors of an entrepreneur. They will learn how to identify market opportunities and how to conduct simple feasible studies for their business ideas. Students can also expect to learn the basic legal aspects of establishing a company in Egypt, and the basic marketing and financial knowledge and skills they need to manage their new company. This knowledge is finally integrated when students engage in multidisciplinary teams in the challenging yet exciting task of creating a new venture and preparing a full business plan. Further exposure to real life will be attained through an internship that each student will have to attend.

Students seeking to minor in Entrepreneurship have to apply for the minor prior to registering for the minor courses. The selection of students into the minor in Entrepreneurship is competitive and depends on the student's overall GPA. Students who minor in entrepreneurship are not permitted to have a minor in business administration or accounting.

## Requirements

The Entrepreneurship minor requires completion of five courses (15 credit hours) as follows:

Students must take the following four courses:

- BADM 203/2001 - Introduction to Business (3 cr.)
- ENTR 303/3201 - Principles of Entrepreneurial Finance (3 cr.)
- ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)
- MKTG 302/2101 - Principles of Marketing (3 cr.)

In addition, students choose one of the following elective courses:

ENTR 417/4301 - Entrepreneurship Lab: Developing and Launching a New Venture (3 cr.)

ENTR 419/4303 - Social Entrepreneurship (3 cr.)

ENTR 000/4503 - Digital Strategy (3 cr.)

ENTR 418/4302 - Corporate Entrepreneurship (3 cr.)

ENTR 420/4501 - Family Business (3 cr.)

ENTR 421/4502 - Innovation and Technology (3 cr.)

## Information Systems Minor

The study of information systems focuses on the need to improve systems for the benefit of individuals, organizations and society at large. An information system is concerned not only with the technical development of systems applications but also with the interface with people and the support of different business and decision processes. The information systems minor aims to provide a supplementary course of study for students who are taking a major in disciplines outside the departments of Management and Computer Science.

Students who select a minor in information systems (IS) understand the fundamental concepts of information processing and the relationship between the underlying technology and end-user applications that are continuously changing and affecting different elements related to business and organizational development and growth... Equipped with this knowledge, the students enrolled in the minor will be able to solve different computer and information systems related problems, as well as exploring the latest in information and communication technology.

Students who minor in information systems are not permitted to have a minor in business administration or accounting.

## Course Requirements

Students who minor in information systems are required to complete the following courses:

1.

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)

2.

- CSCE 201/2502 - Information Technology (3 cr.)  
or
- MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)

3.

- MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)  
or
- MOIS 430/4202 - Business Information Systems Analysis and Development (3 cr.)

4.

- MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)

5.

- CSCE 456/4502 - Design of Web-based Systems (3 cr.)  
or
- MOIS 435/3301 - Entrepreneurial IT and Electronic Business (3 cr.)

## Master in International Management/CEMS (MIM/CEMS)

The Master in International Management/CEMS (MIM/CEMS) is a one-year pre-experience master program that builds on previous knowledge acquired by students in their Bachelor's degree studies. The MIM year is composed of three main terms, whereby students are required to spend one term at AUC, one term at any of the other CEMS member schools around the globe, and one international internship of at least 8 weeks outside the country at which the student applied and was accepted. Students command of at least three (3) languages, including mother tongue, are mandatory to graduate. Upon graduation, the MIM students become alumni of both AUC and CEMS.

The (MIM/CEMS) is the most international pre-experience master program in the world as it combines solid academic education with relevant business practice. The curriculum includes components of the (MIM/CEMS) common curriculum (i.e. offered in all schools member of the CEMS alliance) as well courses and seminars tailored to the specific local and regional context. The curriculum as well as the courses' content are designed, regularly updated, and delivered in collaboration with corporate and social partners to ensure the curriculum is practical and relevant to the local, regional, and global business environment. It represents hence a perfect preparation for the students targeting an international career in business.

### Admission Requirements

To be accepted in the AUC- MIM/CEMS applicants shall fulfill the following requirements:

- A Bachelor's degree in business, economics, accounting
- For students holding a bachelor degree in a non-business bachelor degree a minimum of 30 credit hours of business courses is required (60 ECTS).
- High academic records (For example a GPA not less than 3.4 or an equivalent from other systems).

- Provide proof of proficiency in English (if not mother tongue) (Check English Proficiency requirements below)
- A maximum of two years from the graduation date (undergraduate degree) and the date of the start of the MIM program.
- Two (2) letters of references from instructors or employers advocating the student's readiness to the AUC-MIM/CEMS program and including multi-cultural aptitude with emphasis on academic rigor
- One-page letter of motivation. (Check components of letter of motivation below)
- Applicant's updated Curriculum Vitae.
- Command of a second language other than English (this may include Arabic, French, German or any CEMS approved language[RS1] )
- Filled mother tongue declaration form <https://cems.box.com/s/xox7sjjcegabkcgms06zbdyo6nprlrri> signed by the applicant to be submitted with the rest of the documents.
- Good international exposure, relevant extra-curricular activities and/or community service.
- Selected applicants will go through a rigorous personal interview

### **English Proficiency requirements**

Students applying to Master in International Management / CEMS ( MIM/CEMS) need to provide a proof of English proficiency through any of the following Methods

- IELTS: minimum IELTS Band score: 7.0, minimum IELTS Writing score: 7.0;
- iBT TOEFL: minimum overall iBT TOEFL score: 100, minimum iBT Writing score: 27;
- CPE Grade C(\*): An overall score of 200 or above with a writing score of 200 or above.
- CAE Grade B(\*): An overall score of 193 or above with a writing score of 193 or above.

(\*): No letter grades will be taken into account for the English Language results, only numerical scores.

Exemption from the English language examinations is only allowed for applicants who received a degree solely taught in English from an EQUIS and/or AACSB accredited institution.

### **Additional Notes:**

- While the validity of any of these English language examinations is 2 years from the day of the exam, the results will not be considered for graduate admission if the expiry date is before the first day of registered classes at AUC.
- The American University in Cairo reserves the right to request English proficiency test results from any applicant as deemed necessary.

### **Components of letter of motivation**

At AUC MIM/CEMS program, we seek a strong sense of international spirit in the candidate's motivation. We also seek strong, convincing written motivation for the program, in the first instance. The letter of motivation should therefore address some of the following topics

1. Why do you apply for MIM CEMS at AUC?
  2. Why do you want to study in Egypt?
  3. Why do you think you are the right person for this program?
- In which way will you contribute to the MIM CEMS program?
  - What knowledge and skills gathered in your previous education/experience will be useful?
  - How do you estimate your own personality? Do you think you are a good leader? Are you somebody who can make a difference? What makes you think so? (Emphasize your strong points, but be realistic.)

### **Program Details**

The MIM program requires a total of (35 Credits) including required courses, exclusive courses, elective courses, seminars and culminates with a business project and international internship. The program also requires all MIM/CEMS students to graduate with competence in three languages, one of which must be English.



AUC adopts the credit hours system while the (CEMS) adopts the ECTS (European Credit Transfer and Accumulation System). Below is the definition of each of these two systems

- Credit Hour: Coursework is counted in credit hours. In general, a credit hour represents a one-hour class period and at least two hours of individual study each week for one semester. Hence 3 credit hour course represents 3 hours of class work and 6 hours of individual study per week.
- ECTS: workload ranges from 1,500 to 1,800 hours for an academic year, which means that one credit corresponds to 25 to 30 hours of work.

According to the above definitions, the credit conversion of the European ECTS and the credit units at AUC (2 ECTS = 1 credit.).

### **CEMS Required Courses**

CEMS 000/5201 - Global Strategy (3 cr)

CEMS 000/5202 - Global Management Practice (3 cr)

### **CEMS Exclusive courses**

#### **TERM 1 (September-December)**

CEMS 000/5203 - Bottom of the Pyramid (BOP) Marketing (3 cr)

CEMS 000/5204 - Advanced Financial Management: Cases from the Middle East (3 cr)

CEMS 000/5205 - Global Supply Chain Management (3 cr)

#### **TERM 2 (February- May)**

CEMS 000/5206 - Economics of Cultural Heritage (3 cr)

### **Elective Courses (2 required)**

The course offering will depend on the scheduling of each department offering the course, and their capacity to accept additional students.

ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)

PPAD 502/5231 - Economics for Public Policy Analysis (3 cr.)

POLS 535/5235 - Middle East Politics (3 cr.)

ARIC 575-576/5222-5223 - Special Studies in Islamic Art and Architecture (3 cr.)

EGPT 533/5330 - Coptic Art and Architecture (3 cr.)

EGPT 445/5160 - Selected Topics in Coptic Studies (3 cr.)

EGPT 519/5199 - Selected Topics in Ancient Egyptian Art and Culture (3 cr.)

### **Seminars**

The CEMS- MIM program includes a set of seminars in both terms. These seminars grading is based on a pass/fail grade. The number of credit hours for these seminars are distributed according to the following:

#### **TERM 1 (September-December)**

CEMS 000/5200 - Block Seminar (1.5) 5-day seminar delivered before the start of term 1

CEMS 000/5210 - Business Communication Skills Seminar (0.5 cr) 1-day seminar

### **TERM 2 (February- May)**

CEMS 000/5220 - Responsible Global Leadership Seminar (1 cr)

CEMS 000/5221 - Skill Seminar (0.5 cr)

CEMS 000/5250 - Business Project (7.5 cr)

CEMS 000/5355 - International Internship (0 cr)

### **Language requirements**

All MIM/CEMS students graduate with competence in three languages, one of which must be English (at an advanced level) and another which must be a CEMS language.

The current CEMS Languages are: Arabic, Bengali, Cantonese, Czech, Danish, Dutch/Afrikaans, Farsi/Tajik, Finnish, French, German, Greek, Hebrew, Hindi/Urdu, Hungarian, Indonesian/Malay, Irish, Italian, Japanese, Korean, Mandarin, Norwegian, Polish, Portuguese, Romanian, Russian, Serbo-Croat (Bosnian, Croatian, Serbian, Montenegrin), Spanish, Swedish, Tagalog, Tamil, Thai, Turkish and Vietnamese.

The third language can be a CEMS language or any other language.

It is the students' responsibility to meet these language requirements. The school will be guiding the students to language teaching/testing certified locations.

The minimum language requirements are the following:

Language 1	English
Mother Tongue or Proficiency ( Fulfilled through entry requirements of the MIM program)	
Language 2	A CEMS official language
Mother tongue or B2/oral B1/written	
Language 3	Any Language
Mother Tongue or Elementary Level.	

## **Finance, with concentrations in Corporate Finance, Investments, and FinTech (M.Sc.)**

The MSc in Finance directly targets the expertise required in today's global financial environment. This program gives a clear understanding of practical financial decision-making. Graduates work in investment and merchant banks, insurance and pension funds, and for governments and multinational companies.

### **Admission**

All applicants must satisfy the university's graduate admission requirements and obtain an acceptable score on the Graduate Management Admission Test (GMAT) or Graduate Record Examinations (GRE). The Applicant must present a bachelor's degree from a regionally accredited college or university with a minimum GPA of 3.0 or very good for non-GPA measured degrees. No previous working experience is needed.

To obtain the MSc in Finance degree, students must complete 42 credit hours of which 33 credit hours of course work and nine credit hours of thesis. Students with relevant background can waive some of the core courses but must complete a minimum of 36 credit hours to be awarded the degree. A research methodology course will be mandatory. The program will consist of 11 for-credit courses plus a thesis designed to be completed in two full years.

## MSc Core Courses (18 credits)

Students must complete six core courses before attempting to take any of the elective courses. Students with relevant background can waive up to two core courses. The core courses are:

- ACCT 501/5201 - Financial Reporting and Analysis (3 cr.)
- FINC 527/5201 - Managerial Economics (3 cr.)
- FINC 535/5204 - Applied Financial Econometrics (3 cr.)
- FINC 540/5202 - Financial Management (3 cr.)
- FINC 541/5203 - Investments and Portfolio Management (3 cr.)
- FINC 000/5230 - Statistical and numerical methods (3 cr.)

## MSc Concentrations (12 credits)

The student must complete all core courses before attempting to take any of the elective courses. The student specializes in one of three concentration fields which are Investments, Corporate Finance and FinTech. The student must take four courses (12 cr.) from his or her concentration field.

### 1. Investments Concentration (12 cr.)

- FINC 512/5313 - Options and Derivatives (3 cr.)
- FINC 513/5331 - Fixed Income Securities (3 cr.)
- FINC 516/5314 - Real Estate Finance (3 cr.)
- FINC 518/5315 - Islamic Finance (3 cr.)
- FINC 542/5311 - International Financial Management (3 cr.)
- FINC 543/5312 - Financial Institutions and Markets (3 cr.)
- FINC 545/5333 - Private Equity and Venture Capital (3 cr.)
- FINC 570/5370 - Selected Topics in Financial Management (3 cr.)
- FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

### 2. Corporate Finance Concentration (12 cr.)

- FINC 512/5313 - Options and Derivatives (3 cr.)
- FINC 514/5353 - Financial Risk Analysis (3 cr.)
- FINC 517/5352 - Financial Modeling (3 cr.)
- FINC 518/5315 - Islamic Finance (3 cr.)
- FINC 542/5311 - International Financial Management (3 cr.)

- FINC 543/5312 - Financial Institutions and Markets (3 cr.)
- FINC 544/5351 - Advanced Corporate Finance (3 cr.)
- FINC 545/5333 - Private Equity and Venture Capital (3 cr.)
- FINC 570/5370 - Selected Topics in Financial Management (3 cr.)
- FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

### 3. FinTech Concentration (12 cr.)

The student must complete the following course:

- FINC 000/5320 - Financial Computing (3 cr.)

In addition the student chooses 3 courses (9 cr.) from the following concentration courses:

- FINC 512/5313 - Options and Derivatives (3 cr.)
- FINC 514/5353 - Financial Risk Analysis (3 cr.)
- MGMT 510/5307 - Entrepreneurship and Innovation (3 cr.)
- FINC 570/5370 - Selected Topics in Financial Management (3 cr.)
- CSCE 565/5261 - Advanced Artificial Intelligence (3 cr.)

### Research Methodology (3 credit hours)

A student must take a research methodology course before starting the thesis.

- FINC 590/5402 - Research Methodology (3 cr.)

### Thesis (9 credit hours)

The thesis is not allowed to be submitted for examination until the student has made a presentation of a major part of it at a department seminar.

- FINC 599/5401 - Thesis (9 cr.)

## Executive Master of Business Administration (EMBA) Program

### Executive Master of Business Administration (EMBA)

The EMBA is a professional degree designed for experienced executives with significant work experience (minimum 8 years) who are seeking to push their boundaries and limits with greater strategic vision, skills and leadership development that can immediately be applied to their current positions and have immediate effect on advancing to senior management positions in their organizations. The program focuses on integrating innovation, entrepreneurship and leadership to encourage future executives to think out the box. The curriculum emphasizes managerial and leadership skills, developing creativity and innovation, building on previous experiences, creating a solid networks with classmates, alumni and faculty as well as mastering broad range of functional and managerial knowledge. It enable

students to apply immediately newfound skills and ideas in their workplace and engage in real-time global business challenges.

## **Admissions**

All applicants must satisfy the general university requirements for graduate programs and have a bachelor's degree from a regionally accredited college or university in any academic discipline with minimum GPA of 3.0 and minimum 8 years of experience in his field of work. The GMAT is recommended but not required as the case of the MBA. A personal interview is a must to be accepted in the program. In addition, minimum acceptable results for standardized test for English Language proficiency will be required as in line with university policies for admission i.e TOFEL, 2 recommendation letters, written essay, written letter of commitment from the organization, whether sponsoring or not its employees, to allow their employees off the job during the program. To obtain EMBA degree, a total of 48 credit hours are required.

## **EMBA Program Structure**

The EMBA program is delivered in a highly interactive modular format. It consists of 23 modules for a total of 48 credit hours to satisfy the requirements of the program at AUC.

## **Program Details**

The 23 modules of the program are divided into five sections:

### **Section 1: General Management Perspectives:**

Takes Participants from general insights to challenging business practices of today's economy and globalization, thus preparing them for what they will be doing in the coming modules. Participants will learn general insights about business practices, globalization of economy latest theories and best practices of today, importance of using team-work approach which the program focuses on through out the modules either through group assignments, case studies and projects and building basic framework in a qualitative, analytical and problem solving skills. It covers the following modules:

- EMBA 601/5601 - Change Management and Global Transformation (1.75 cr.)
- EMBA 602/5602 - Team-work & Communication (1.75 cr.)
- EMBA 603/5603 - Data Analysis and Analytical Decision Modeling for Optimizing Decisions (2 cr.)

### **Section 2: Business Core:**

Gaining common business knowledge background with more depth and complexity in order to master the management's fundamentals and disciplines. This section is going to prepare them to master the management fundamentals i.e. accounting, finance, marketing etc., with a much higher level of complexity and expertise. It will expand and strengthens participants' basic knowledge in the fundamental disciplines of business, so they will be able to integrate everything together when making business decisions or developing action plans that provide effective leadership of the organization.

- EMBA 604/5604 - Managerial Economics (1.75 cr.)

- EMBA 605/5605 - Strategic Accounting (1.75 cr.)
- EMBA 606/5606 - Financial Management (2 cr.)
- EMBA 607/5607 - Corporate Financial Management (1.75 cr.)
- EMBA 608/5608 - Talent Management, Coaching & Mentoring (1.75 cr.)
- EMBA 609/5609 - Managerial Decision Making and Operation Management (2 cr.)
- EMBA 610/5610 - Global Marketing Management (International Live-in Module) (2.75 cr.)
- EMBA 611/5611 - Competitive & Corporate Strategy (International Live-in Module) (2.75 cr.)
- EMBA 612/5612 - E- Business & Managers' Toolkit (2 cr.)

### Section 3: Managerial Global Leadership:

The modules combine a solid foundation in critical management practices with essential skills for senior level executives i.e. negotiation. It prepares executives to be effective leaders, confident, innovative, visionary, be able to manage entrepreneurial ventures and for the management greatest challenge of all, constant change. The continuous shift in the globalized economy and the rapid advances in communication technology forces organizations to constantly reshape their business strategies, structure and role of their business leaders. Executives have to change themselves to be confident, speedy, visionary, innovative, and responsive to this challenging business environment. Being effective leaders, they will help their organizations to survive in this unpredictable global business environment; relating business to legal environment, competition law and corporate governance and how they affect decision-making. This section addresses what executives should know about legal environment, competition law and about how corporate governance affects the way organizations are directed and controlled. It will address some important aspects such as separation of ownership and control, property rights and reconciling conflicts between stakeholders. It examines how the quality of corporate governance system influences prices, shares of the company and cost of raising capital and how it complies with the legal and regulatory requirements. It relates business to its legal environment and provides broad analysis of how laws influence management decisions and strategies. Participants will be familiarized with certain basic legal concepts relating to doing business on the national and international levels. Thus completing the cycle by making executives familiar with how business decisions and transactions should comply with national as well as international laws.

- EMBA 613/5613 - Leadership & Management (1.75 cr.)
- EMBA 614/5614 - Innovation and Creating the Best Practices of Tomorrow (1.75 cr.)
- EMBA 615/5615 - Global Supply Chain Management and Operational Excellence (2 cr.)
- EMBA 616/5616 - Negotiation & Conflict Management (1.75 cr.)
- EMBA 617/5617 - Entrepreneurial Management (1.75 cr.)
- EMBA 618/5618 - Doing Business With The East (International Live-in Module) (2.75 cr.)
- EMBA 619/5619 - Doing Business With The East (International Live-in Module) (2.75 cr.)

### Section 4: Advanced Business Core:

Relating business to legal environment, competition law and corporate governance and how they affect decision-making. This section addresses what executives should know about legal environment, competition law and about how corporate governance affects the way organizations are directed and controlled. It will address some important aspects such as separation of ownership and control, property rights and reconciling conflicts between stakeholders. It examines how the quality of corporate governance system influences prices, shares of the company and cost of raising capital and how it complies with the legal and regulatory requirements. It relates business to its legal environment and provides broad analysis of how laws influence management decisions and strategies. Participants will be familiarized with certain basic legal concepts relating to doing business on the national and international levels. Thus completing the cycle by making executives familiar with how business decisions and transactions should comply with national as well as international laws.

- EMBA 620/5620 - Corporate Governance & Social Responsibility (2 cr.)
- EMBA 621/5621 - Business & Legal Environment (1.75 cr.)
- EMBA 622/5622 - Development & Rationale for Competitive Law (1.75 cr.)

## Section 5: Integrating Project:

This section is the integrating part of the program. Participants undertake a consulting project within their own organization, identify a challenge or an opportunity to seek to address and undertake the appropriate analysis leading to a recommended course of action. They are encouraged to apply and integrate several analytic tools and organizational skills learned in various modules during the program.

- EMBA 623/5623 - Adapting to Global Environment - Integration Consultation Project (4 cr.)

# Master of Business Administration (MBA) Program

## Business Administration, with tracks in Finance, Marketing, Operations Management, Management of Information Technology and Construction Industry (M.B.A.)

### Master of Business Administration (MBA)

The MBA is designed to prepare students who have completed undergraduate work in any academic discipline and intend to pursue a management career. The primary objective of the program is to provide candidates with a general and versatile business acumen, skills and technical competencies, which have become essential for the success of today's business professional. While the curriculum meets international standards, it also addresses local and regional business peculiarities. Advanced and elective courses provide more specialized insights in certain business areas. The program is housed by the School of Business which holds the triple-crown accreditation; the Association to Advance Collegiate Schools of Business (AACSB), European Quality Improvement System (EQUIS), and the Association of MBAs (AMBA) accreditations.

### Admission

All applicants must satisfy the university's graduate admission requirements and obtain an acceptable score on the Graduate Management Admission Test (GMAT). In addition, applicants should have three or more years of relevant professional experience. To obtain the MBA degree, a minimum of 39 semester credit hours and a maximum of 48 credit hours are required. The exact number of credits will be determined according to the educational background of each candidate.

## MBA Foundation Courses (12-30 credits)

The MBA Foundation courses are directed at providing the student with a basic background in the various functional areas of Business. Once these foundation courses are completed, students will be required to take the Strategic Management course, BADM 5310. The foundation courses are as follows:

- ACCT 501/5201 - Financial Reporting and Analysis (3 cr.)

- FINC 527/5201 - Managerial Economics (3 cr.)
- FINC 540/5202 - Financial Management (3 cr.)
- MGMT 502/5202 - Managing Organizations in a Dynamic Environment (3 cr.)
- MGMT 510/5307 - Entrepreneurship and Innovation (3 cr.)
- MGMT 504/5302 - Managing Human Capital (3 cr.)
- MKTG 520/5201 - Marketing Management (3 cr.)
- MOIS 508/5201 - Information and Communication Technology in Business (3 cr.)
- OPMG 507/5201 - Introduction to Business Statistics (3 cr.)
- OPMG 520/5202 - Operations Management for Competitive Advantage (3 cr.)

### Integrating course:

- BADM 000/5310 - Strategic Management (3 cr.)

## MBA Electives (12-21 credits)

Following the completion of the foundation courses and BADM 000/5310 - Strategic Management (3 cr.) students would select four elective courses from at least three different tracks. At least three courses should be track mandatory courses. A student may also specialize in a specific track by selecting three courses from the same track (two track mandatory courses and a track elective). The fourth course should be selected from another track or from the list of general electives. Concurrent registration for foundation courses, BADM 000/5310 - Strategic Management (3 cr.), track courses, and general electives is subject to approval.

Available tracks are as follows (tracks will only be offered provided that a sufficient number of applicants are enrolled):

Finance

Marketing

Operations Management

Management of Information Technology

Construction Industry

### Finance Track

To complete this track, students must complete four track courses. The two track mandatory courses stated below, and choose one course from the list of track electives. The fourth course is to be taken from any other track or from the list of general electives.

### Two Track Mandatory courses

- FINC 541/5203 - Investments and Portfolio Management (3 cr.)
- FINC 544/5351 - Advanced Corporate Finance (3 cr.)

### Track Electives (choose one course):



- FINC 512/5313 - Options and Derivatives (3 cr.)
- FINC 542/5311 - International Financial Management (3 cr.)
- FINC 543/5312 - Financial Institutions and Markets (3 cr.)
- FINC 570/5370 - Selected Topics in Financial Management (3 cr.)
- FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

## Marketing Track

To complete this track, students must complete four track courses. The two track mandatory courses stated below, and choose one course from the list of track electives. The fourth course is to be taken from any other track or from the list of general electives.

### Two Track Mandatory courses

- MKTG 526/5305 - Integrated Marketing Communication (3 cr.)
- MKTG 530/5306 - Strategic Marketing (3 cr.)

### Track Electives (choose one course):

- MKTG 521/5301 - Marketing Research Methods (3 cr.)
- MKTG 524/5304 - Global Marketing (3 cr.)
- MKTG 000/5307 - Strategic Brand Management (3 cr.)
- MKTG 570/5370 - Contemporary Topics in Marketing (3 cr.)
- MKTG 575/5375 - Independent Study in Contemporary Topics in Marketing (1-3 cr.)

## Operations Management Track

To complete this track, students must complete four track courses. The two track mandatory courses stated below, and choose one course from the list of track electives. The fourth course is to be taken from any other track or from the list of general electives.

### Two Track Mandatory courses:

- OPMG 532/5305 - Operations Strategy (3 cr.)
- OPMG 521/5301 - Managing and Coordinating Supply Chains (3 cr.)

### Track Electives (choose one course):

- OPMG 528/5302 - Managing Dynamic Projects (3 cr.)
- OPMG 533/5306 - Business Dynamics (3 cr.)
- OPMG 530/5303 - Data Analysis (3 cr.)
- OPMG 570/5370 - Selected Topics in Operations Management (3 cr.)
- OPMG 575/5375 - Independent Study in Operations Management (1-3 cr.)

## Management of Information Technology Track

To complete this track, students must complete four track courses. The two track mandatory courses stated below, and choose one course from list of track electives. The fourth course is to be taken from any other track or from the list of general electives.

## Two Track Mandatory courses

- MOIS 549/5301 - Systems Analysis, Design, and Implementation (3 cr.)
- MOIS 550/5302 - Decision Support Systems (3 cr.)

## Track Electives (choose one course):

- MOIS 551/5303 - Electronic Business: Doing Business in the Digital Economy (3 cr.)
- MOIS 555/5305 - Information Technology Strategy and Entrepreneurship (3 cr.)
- OPMG 521/5301 - Managing and Coordinating Supply Chains (3 cr.)
- MOIS 570/5370 - Advanced Topics (Next Generation Technologies) (3 cr.)
- MOIS 575/5375 - Independent Research in Management of Information Systems/Technology (1-3 cr.)

## Construction Industry Track

To complete this track, students must complete four track courses. The two track mandatory courses stated below, and choose one course from list of track electives. The fourth course is to be taken from any other track or from the list of general electives.

## Two Track Mandatory courses

- CENG 530/5261 - Contracts in Construction Industry (3 cr.)
- CENG 531/5262 - Construction Management (3 cr.)

## Track Electives (choose one course):

- CENG 532/5263 - Planning, Scheduling and Control (3 cr.)
- CENG 534/5265 - Risk Management and Bidding Strategies (3 cr.)
- CENG 535/5266 - Claims and Disputes in the Construction Industry (3 cr.)

## List of General Electives

- ACCT 502/5301 - Managerial Accounting for Decision Making (3 cr.)
- ACCT 570/5370 - Selected Topics in Accounting (3 cr.)
- ACCT 575/5375 - Independent Study in Accounting (1-3 cr.)
- MGMT 506/5304 - Management of International Business Organizations (3 cr.)
- MGMT 509/5306 - Leadership (3 cr.)
- MGMT 511/5308 - Strategic Management of Innovation (3 cr.)
- MGMT 570/5370 - Selected Topics in Management (3 cr.)
- MGMT 575/5375 - Independent Study in Management (1-3 cr.)
- ECON 519/5213 - Project Evaluation (3 cr.)
- ECON 520/5215 - Competitive Strategy and Game Theory (3 cr.)

- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- ECON 508/5271 - Labor Economics (3 cr.)

## MBA Capstone (3 credits)

- BADM 000/5401 - Business Consultancy (3 cr.)

# School of Global Affairs and Public Policy

## Department of Journalism & Mass Communication

### Department of Journalism and Mass Communication School of Global Affairs and Public Policy

*Professor Emeritus:* S. Friedlander, A. Schleifer

*Professor:* H. Amin

*Associate Professors:* R. Abdulla, N. Hamdy

*Assistant Professors:* R. Allam, R. Close, A. Ismail, A. Taher

*Professors of Practice:* H. Al Mirazi, S. Macleod, M. Abou Oaf, G. Zaki

*Associate Professors of Practice:* F. Al-Atraqchi (Chair), K. Fox

Cairo is not only the capital of the land that gave writing to civilization, but it is also the hub of mass communication for the entire Middle East.

**The Journalism and Mass Communication department offers three undergraduate degree programs:**

- Bachelor of Arts in Multimedia Journalism
- Bachelor of Arts in Communication and Media Arts
- Bachelor of Arts in Integrated Marketing Communication

#### **Bachelor of Arts**

- Communication and Media Arts (B.A.)
- Integrated Marketing Communication (B.A.)
- Multimedia Journalism (B.A.)

#### **Master of Arts**

- Journalism and Mass Communication (M.A.)

## Communication and Media Arts (B.A.)

Today's communication and media professionals need to have a broad background in both traditional and new media and to understand the impact of the convergence of these media on society. By combining media practice with

communication theory, this degree covers a broad spectrum of critical perspectives on the media and introduces a range of contemporary media practices. Consistent with the mission of the School of Global Affairs and Public Policy, our program/s encompass a number of interdisciplinary courses.

The goal of this major is to produce well-rounded students who are knowledgeable about contemporary media theories and research issues, have developed excellent writing skills, have gained production and presentation skills, and are critical thinkers and writers.

Before declaring a CMA major, students must complete 24 credits of university coursework, complete RHET 2010 with a grade B or better, and pass an English Proficiency Test.

CMA majors are not permitted to have a major in MMJ or IMC. Students must complete a minimum of 120 credits for the Bachelor of Arts degree in CMA, of which no more than 48 credits can be in CMA and another 65 of their total credits must be Humanities and Social Sciences.

### **Core Curriculum (40 credits)**

#### **JRMC Core (12 credits)**

- JRMC 200/2200 - Introduction to Mass Communication (3 cr.)
- JRMC 201/2201 - Media Writing (3 cr.)
- JRMC 202/2202 - Multimedia Writing and Production (3 cr.)
- JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

#### **Communication and Media Arts Major (30 credits)**

- JRMC 230/2230 - Photography Foundations 1 (3 cr.)
- JRMC 270/2270 - Online Communication (3 cr.)
- JRMC 320/3320 - Mass Communication Research (3 cr.)
- JRMC 339/3339 - Studio Production: AUC TV (3 cr.)
- JRMC 000/3380 - Digital Storytelling (3 cr.)
- JRMC 406/4406 - Internship (3 cr.)
- JRMC 420/4420 - Media Management (3 cr.)
- JRMC 444/4444 - Media Law and Policy (3 cr.)
- JRMC 460/4460 - Audio Production (3 cr.)
- JRMC 482/4482 - Media Convergence Capstone (3 cr.)

#### **Choose two of the following courses : (6 credits)**

- JRMC 250/2250 - Global Media Systems (3 cr.)
- JRMC 305/3305 - Introduction to Visual Communication (3 cr.)
- JRMC 000/3307 - Sports Media (3 cr.)
- JRMC 310/3310 - Public Opinion, Persuasion and Propaganda (3 cr.)
- JRMC 330/3330 - Photojournalism and Documentary Practices (3 cr.)
- JRMC 441/4441 - Camera and Editing Workshop (3 cr.)
- JRMC 000/2208 - Media Literacy in the Digital Age (3 cr.)

- JRMC 000/3303 - Data for Media (3 cr.)
- JRMC 000/3390 - Media Economics (3 cr.)

## General Electives/Minor

Depending on the number of credit hours needed to complete 120 credits required for a bachelor's degree from AUC, CMA majors are required to select elective courses leading to a minor in an area that will complement their major, including Rhetoric and Writing, Middle East Studies, Arabic Studies, History, Political Science, Sociology or the Arts. Double majors are exempt. Selections should be made in consultation with your major advisor.

## Integrated Marketing Communication (B.A.)

Integrated Marketing Communication (IMC) is the integration of all marketing communication tools under one strategic communication focus. It takes all communication tools from working in isolation to complementing each other, with the objective of communicating one unified message from the organization (or the brand) to its target consumers. The objective of IMC is to manage all organizational communication in an integrated fashion and to build positive relationships between the organization on one hand and its customers and other stakeholders, such as employees, board members, the media, and society at large. Consistent with the mission of the School of Global Affairs and Public Policy our program/s encompass a number of interdisciplinary courses.

Students majoring in IMC gain skills and experience in all aspects of the marketing communication process through both theoretical learning and hands-on-experience. Components of the program include exposure to the fundamentals of strategic planning, media research, budgeting, creative strategy, creative development, media planning, production, modern corporate image, branding, social responsibility, event marketing, sales promotions, direct marketing, and public relations.

Before declaring an IMC major, students must complete 24 units of university coursework, complete RHET 2010 and JRMC 2200 with a grade of B or better, and pass an English Proficiency Test.

IMC majors are not permitted to have a major in CMA or MMJ. Students must complete a minimum of 120 credits for the Bachelor of Arts degree in IMC of which no more than 48 credits can be in IMC and another 65 of their total credits must be in Humanities and Social Sciences.

### Core Curriculum (40 credits)

#### JRMC Core (12 credits)

- JRMC 200/2200 - Introduction to Mass Communication (3 cr.)
- JRMC 201/2201 - Media Writing (3 cr.)
- JRMC 202/2202 - Multimedia Writing and Production (3 cr.)
- JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

#### Integrated Marketing Communication Major (30 credits)

- JRMC 305/3305 - Introduction to Visual Communication (3 cr.)
- JRMC 315/3315 - Introduction to Advertising (3 cr.)
- JRMC 320/3320 - Mass Communication Research (3 cr.)
- JRMC 355/3355 - Creative Strategy and Advertising Copywriting (3 cr.)

- JPMC 000/3366 - Online Behavior and Web Analytics (3 cr.)
- JPMC 000/3390 - Media Economics (3 cr.)
- JPMC 415/4415 - Public Relations Theory and Techniques (3 cr.)
- JPMC 425/4425 - Integrated Marketing Communication Campaigns Capstone (3 cr.)
- MKTG 302/2101 - Principles of Marketing (3 cr.)
- MKTG 410/3202 - Consumer-Buyer Behaviour (3 cr.)

## Choose two of the following courses: (6 credits)

- JPMC 230/2230 - Photography Foundations 1 (3 cr.)
- JPMC 406/4406 - Internship (3 cr.)
- JPMC 420/4420 - Media Management (3 cr.)
- JPMC 000/4430 - Advertising Agency Operations (3 cr.)
- JPMC 444/4444 - Media Law and Policy (3 cr.)
- ENTR 000/4503 - Digital Strategy (3 cr.)
- DSGN 365/3265 - Advertising and Branding (3 cr.)
- DSGN 420/4220 - Production for Designers (3 cr.)
- DSGN 317/3117 - History of Advertising in the Arab World (3 cr.)
- JPMC 000/2208 - Media Literacy in the Digital Age (3 cr.)
- JPMC 000/3303 - Data for Media (3 cr.)

## General Electives/Minor

Depending on the number of credit hour needed to complete 120 credits required for bachelor's degree from AUC, IMC majors are required to select elective courses leading to a minor in an area that will complement their major, including Rhetoric and Writing, Middle East Studies, Arabic Studies, History, Political Science, Sociology or the Arts. Double majors are exempt. Selections should be made in consultation with your major advisor.

## Multimedia Journalism (B.A.)

The Multimedia Journalism major converges the disciplines of traditional and new media into a single stream which exposes students to and trains them to print, broadcast, digital and citizen journalism.

The major stresses basic news gathering, reporting and writing skills for multi-platform delivery, with a particular emphasis on the instantaneous dissemination advantages of social media.

The major is structured as a building process that moves students from the initial broad exposure to mass communication. The focus is on the essentials of media ethics and responsibilities and creating media professionals who will compete in any terrain around the world.

Before declaring a MMJ major, students must complete 24 credits of university coursework, complete RHET 2010 with a grade B or better, and an English Proficiency Test.

MMJ majors are not permitted to have a major in CMA or IMC. Students must complete a minimum of 120 credits for the Bachelor of Arts degree in MMJ, of which no more than 48 credits can be in MMJ and another 65 of their total credit hours must be in Humanities and Social Sciences.

## Core Curriculum (40 credits)

## JRMC Core (12 credits)

- JRMC 200/2200 - Introduction to Mass Communication (3 cr.)
- JRMC 201/2201 - Media Writing (3 cr.)
- JRMC 202/2202 - Multimedia Writing and Production (3 cr.)
- JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

## Multimedia Journalism Major (33 credits)

- JRMC 000/2208 - Media Literacy in the Digital Age (3 cr.)
- JRMC 230/2230 - Photography Foundations 1 (3 cr.)
- JRMC 312/3312 - Multimedia Journalism Lab: The Caravan (3 cr.)
- JRMC 000/3303 - Data for Media (3 cr.)
- JRMC 333/3333 - Research for Journalists (3 cr.)
- JRMC 337/3337 - TV Scriptwriting and Production (3 cr.)
- JRMC 339/3339 - Studio Production: AUC TV (3 cr.)
- JRMC 000/3380 - Digital Storytelling (3 cr.)
- JRMC 444/4444 - Media Law and Policy (3 cr.)
- JRMC 460/4460 - Audio Production (3 cr.)
- JRMC 480/4480 - Multimedia Reporting Capstone (3 cr.)

## Choose One of the following Electives in the Major (3 credits)

- JRMC 301/3301 - Journalism Editing and Design (3 cr.)
- JRMC 305/3305 - Introduction to Visual Communication (3 cr.)
- JRMC 310/3310 - Public Opinion, Persuasion and Propaganda (3 cr.)
- JRMC 330/3330 - Photojournalism and Documentary Practices (3 cr.)
- JRMC 402/4402 - Reporting and Writing in Arabic (3 cr.)
- JRMC 403/4403 - Feature and Magazine Writing (3 cr.)
- JRMC 406/4406 - Internship (3 cr.)
- JRMC 412/4412 - Newsroom Editing and Management (3 cr.)
- JRMC 441/4441 - Camera and Editing Workshop (3 cr.)
- JRMC 471/4471 - Online Journalism (3 cr.)
- JRMC 000/3390 - Media Economics (3 cr.)

## General Electives/Minor

Depending on the number of credit hours needed to complete 120 credits required for bachelor's degree from AUC, MMJ majors are required to select elective courses leading to a minor in an area that will complement their major, including Rhetoric and Writing, Middle, Middle East Studies, Arabic Studies, History, Political Science, Sociology or the Arts. Double Majors are exempt. Selections should be made in consultation with your major advisor.

## Arabic Writing and Reporting Minor

The Arabic Writing and Reporting Minor develops essential Arabic language skills appropriate to a variety of professional and community contexts, including journalism and mass media, the private sector, governmental and non-governmental organizations, universities and institutes of higher education, creative writing and indeed all other public pursuits in Arabic speaking countries and communities.

The minor has two tracks (1) Arabic Reporting Skills and (2) Arabic Writing Skills

## Track 1. Arabic Reporting Skills

### Requirements (18 credits):

Prerequisites: students must take ALWT 2271 from Reading to Writing: Intermediate Level (3cr.) and ALWT 3271 from Reading to Writing: High Intermediate Level (3cr.) or be exempted from those classes by performing well on the Arabic placement exam administrated every semester by the Department of Arabic Language Instruction.

Students shall take six courses for a total of eighteen (18) credits:

### Core Courses (15 credits):

- ALWT 420/4271 - From Reading to Writing: Advanced Level: 3 credits
- JPMC 200/2200 - Introduction to Mass Communication (3 cr.)
- JPMC 312/3312 - Multimedia Journalism Lab: The Caravan (3 cr.)
- JPMC 412/4412 - Newsroom Editing and Management (3 cr.)
- JPMC 402/4402 - Reporting and Writing in Arabic (3 cr.)

### Elective Courses (one of the following):

- ALWT 421/4272 - Arabic Language Proficiency for Media Writing 3 credits
- ALWT 521/5271 - Professional Arabic TV Script Writing 3 credits

## Track 2. Arabic Writing Skills

### Requirements (18 credits):

Prerequisites: students must take ALWT 2271 from Reading to Writing: Intermediate Level (3cr.) and ALWT 3271 from Reading to Writing: High Intermediate Level (3cr.) or be exempted from those classes by performing well on the Arabic placement exam administrated every semester by the Department of Arabic Language Instruction.

Students shall take six courses for a total of eighteen (18) credits:

### Core Course:

ALWT 420/4271 - From Reading to Writing: Advanced Level: 3 credits



### Five (5) elective courses from the following list:

- ARIC 401/5110 - Senior Seminar in Arabic Texts (3 cr.)
  - ALWT 462/4201 - Professional Translation in Business: 3 credits
  - ALWT 463/4202 - Diplomatic Professional Translation: 3 credits
  - ALWT 421/4272 - Arabic Language Proficiency for Media Writing 3 credits
  - ALWT 422/4273 - Professional Business Writing: 3 credits
  - ALWT 423/4274 - Professional Diplomatic Writing (3 cr)
  - ALWT 521/5271 - Professional Arabic TV Script Writing 3 credits
  - JRMCM 402/4402 - Reporting and Writing in Arabic (3 cr.)
  - APLN 516/5102 - The Linguistics of Arabic (3 cr.)
  - TVDJ 538/5238 - Arabic TV Script Writing (3 cr.)
- \* Students may also be permitted, at their advisor's discretion, to take ALNG 399/3991 - Selected Topics (3 cr. per semester) if the topic is writing related.

## Journalism and Mass Communication Minor

The study of journalism and mass communication provides the student with a basic exposure to news gathering and reporting skills, multi-media writing skills and other mass media cultures. Students who have completed JRMCM 2200 and RHET 1100 and who meet the GPA requirement of 3.4 are encouraged to apply for the minor before their junior year.

### Requirements (18 credits):

- JRMCM 200/2200 - Introduction to Mass Communication (3 cr.)
- JRMCM 201/2201 - Media Writing (3 cr.)

### And one of the following:

- JRMCM 202/2202 - Multimedia Writing and Production (3 cr.)
- JRMCM 203/2203 - Mass Media Ethics and Responsibility (3 cr.)
- JRMCM 250/2250 - Global Media Systems (3 cr.)

### Additional Requirements:

Three additional courses at the 300 level or above (provided that prerequisites are completed). Courses not included are JRMCM 406/4406 - Internship (3 cr.) and JRMCM 499/4499 - Directed Individual Study in Mass Communication (1-3 cr.) and Capstone Courses JRMCM 4480 , JRMCM 4482 and JRMCM 4425 and MTKG courses.

## Journalism and Mass Communication (M.A.)

### Master of Arts

The Master of Arts program in journalism and mass communication is designed to provide intellectual growth and advanced training for persons already engaged in mass media or public information work. Students wishing to specialize in a particular area, such as marketing communication or international business journalism, sociological or political communication, are encouraged to design a sequence of elective courses that best meets their interests.

## Admission

Students are required to have a minimum GPA of 3.00 (on a 4.00 scale) on an undergraduate degree from an accredited college or university. For students who have been out of school for some time work experience or other relevant criteria may be considered in lieu of a lower than 3.0 GPA. Students who have below a 3.0 cumulative GPA from their bachelor's degree may still be considered for provisional admission and should provide an explanation of extenuating circumstances and/or a demonstration of outstanding work experience.

Students who do not have an undergraduate degree in a mass communication major from AUC may be asked to complete a set of readings and/or a program of undergraduate prerequisite courses completed with grades of B or higher.

In addition to the general requirements established by the university, the applicant must demonstrate a proficiency in English at an advanced level and obtain an acceptable score on the Graduate Record Examination (GRE) (*currently frozen*).

Students are also required to submit two recommendation letters from relevant, credible sources and a personal statement of purpose, which is evaluated for its clarity of expression, creativity, and persuasiveness in arguing that:

- The applicant has the necessary record of preparation and performance to succeed in the program.
- The applicant's goals can be served by the program's courses and experiences.
- The program itself can benefit from the applicant's experiences.

Applicants are also to submit an updated curriculum vitae, official transcripts of all university degrees, and samples of professionally published or broadcast work if available.

A writing sample that demonstrates the potential to write clearly and critically is also required. If the student has graduated within the last three years, an academic paper from the undergraduate (or M.A.) coursework will suffice. Writing samples may include a term paper, a chapter from an Honors or M.A. thesis, or a conference paper. If the student has graduated more than three years ago, he/she should include an essay of 300-500 words about a recent local, regional, or international communication issue that he/she deems important.

Applicants may be required to take an entry exam administered by the department to measure their writing skills and their overall awareness of the communication field and the word around them. Applicants may also be required to sit through a personal interview.

## Admission Checklist:

- GRE Scores (frozen)
- Official transcripts
- Proof of English language proficiency
- Two letters of recommendation
- Personal statement
- Curriculum vitae
- Samples of published/ broadcast work
- Writing sample

## Courses

A minimum of 27 graduate credit hours is required, including the following four core courses. Note that the four core courses should be taken as early after admission to the program as possible.

- JPMC 500/5200 - Seminar in Mass Communication Theory and Literature (3 cr.)
- JPMC 502/5202 - Seminar: Current Issues in Mass Communication (3 cr.)
- JPMC 504/5204 - Seminar: Research Methods in Mass Communication (3 cr.)
- JPMC 550/5250 - Seminar in International Communication (3 cr.)

## Note

Students should complete the following courses as early after admission to the program as possible.

- JPMC 500/5200 - Seminar in Mass Communication Theory and Literature (3 cr.)
- JPMC 504/5204 - Seminar: Research Methods in Mass Communication (3 cr.)

## Additional Requirements

Additional coursework should come from the following list of Master of Arts courses, or because of the interdisciplinary scope of mass communication, students may, with adviser approval, take and apply up to three 500-level courses (9 hours) from other disciplines. A maximum of six credit hours of 400-level coursework may be approved and counted toward the required credit hours.

## Master of Arts Courses

- JPMC 500/5200 - Seminar in Mass Communication Theory and Literature (3 cr.)
- JPMC 501/5201 - Advanced Reporting and Writing (3 cr.)
- JPMC 502/5202 - Seminar: Current Issues in Mass Communication (3 cr.)
- JPMC 504/5204 - Seminar: Research Methods in Mass Communication (3 cr.)
- JPMC 506/5206 - Internship (3 cr.)
- JPMC 550/5250 - Seminar in International Communication (3 cr.)
- JPMC 570/5270 - Seminar in Mass Communication and National Development (3 cr.)
- JPMC 571/5271 - Digital Journalism (3 cr.)
- JPMC 580/5280 - Impact of Television: Issues and Developments (3 cr.)
- JPMC 590/5290 - Special Topics (3 cr.)

## Comprehensive Examination

Master of Arts students must complete the following courses in preparation for the comprehensive examination. The examination procedure is described in the “General Requirements” section. An oral examination may be required in addition to the written examination. Students must pass comprehensive examinations before being permitted to begin work on their theses.

- JPMC 500/5200 - Seminar in Mass Communication Theory and Literature (3 cr.)
- JPMC 502/5202 - Seminar: Current Issues in Mass Communication (3 cr.)
- JPMC 504/5204 - Seminar: Research Methods in Mass Communication (3 cr.)
- JPMC 550/5250 - Seminar in International Communication (3 cr.)

## Thesis

A thesis is required for all students. The department's thesis committee must approve the thesis topic after the student, in consultation with an advisor, submits a formal proposal. Written in English, the thesis must be defended by the student before faculty members, and must conform to current university requirements, policies and procedures.

## Department of Law

### Department of Law

### School of Global Affairs and Public Policy

*Professor Emeritus:* E. Hill

*Associate Professors:* A. Lorite (on leave), A. Shalakany, T. Skouteris

*Assistant Professors:* N. Badawi, J. Beckett, M. Khalil, T. Monforte (on leave), U. Natarajan, G. Parolin (on leave), H. Sayed (Chair), J. Terrell.

*Senior Instructor:* D. Van Bogaert

## Political Science (B.A.) and International Human Rights Law (M.A.)

### Dual Degree Option in Political Science (B.A.) and International Human Rights Law (M.A.)

The Dual Degree option combines a BA in Political Science and an MA in International Human Rights Law. It is a dual degree, creating a synergy between the existing BA in Political Science and the existing MA in International Human Rights Law.

The dual degree option enables good students to prepare for a postgraduate degree while completing the requirements for the BA in Political Science. Non-law students who achieve a MA Degree under the auspices of the Law Department at AUC qualify for better jobs in Egypt or abroad, or pursue a legal education at prestigious law schools in the United States and elsewhere. The MA degree also provides students with the necessary expertise in international human rights law and with the intellectual, analytical and communication tools needed to intervene critically and effectively in the global policy debates confronting their societies as policy makers, academics, activists and international civil servants.

By the end of the sixth semester of the political science BA at AUC, and after successfully completing POLS 4371, the student has to declare her/his intention to pursue the Dual Degree by submitting a graduate admission application. The student should follow the application procedures for graduate studies. Admission decisions will be made by the Law Department's Admission Committee. Successful applicants will be admitted pending the fulfillment of two conditions: i) finishing the requirements of their undergraduate degrees with at least B (GPA 3); and ii) obtaining an average of at least a B+ (GPA of at least 3.3) across the three cross-listed 'Dual Degree' Law courses. Places are limited.

Students enrolled in the dual degree will receive a political science BA degree certificate upon the completion of their undergraduate course requirements. Many students feel the need to work in parallel to the pursuit of an MA degree. We believe that students who fulfill the pols BA requirement should not be denied the opportunity to do so.

Under this structure, dual-degree students will be required to take three 400-level courses that are cross-listed under LAW and POLS. These three "Dual Degree" cross-listed courses (see below) will count for credit towards both the BA in Political Science and under the MA in International Human Rights Law.

The three 'Dual Degree' Law courses to be offered to undergraduates in the Political Science Department are the following: (a) POLS 471/4371 - Introduction to Public International Law (3 cr.) (b) POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) and (c) POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) The curriculum for the MA IHRL requires the completion of nine courses and a thesis, as indicated in the tentative plan below: 3 POLS/LAW undergraduate courses, 2 graduate regional human rights courses, 3 graduate elective courses, LAW 5227, and the thesis.

#### **Tentative Plan for Full-time Students**

##### **SEMESTER VI (POLS undergraduate program)**

LAW/POLS 471/4371 - Introduction to Public International Law (3 cr.) (counts towards both concentrations in POLS for all students) (and MA IHRL credits)

[4 POLS courses or other courses as required to complete POLS BA degree]

##### **SEMESTER VII (POLS undergraduate program)**

LAW/POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) (counts towards both BA POLS and MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

##### **SEMESTER VIII (POLS undergraduate program)**

LAW/POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) (counts towards both BA POLS and MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

##### **SEMESTER IX (MA IHRL program)**

LAW 511/5211 - International Humanitarian Law (3 cr.) \* (1 out of 3 starred courses required)

LAW 514/5214 - Human Rights in the Middle East (3 cr.) \* (1 out of 3 starred courses required)

LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.) \* (1 out of 3 starred courses required)

LAW Electives\*\*

##### **SEMESTER X (MA IHRL program)**

LAW 000/5221 - Law and Patriarchy (3 cr.)

LAW Electives\*\*

LAW 527/5227 - Graduate Law Seminar (3 cr.)

##### **SEMESTER XI (MA IHRL program)**

LAW 599/5299 - Research Guidance/Thesis (no cr., pass/fail)

*\*\* Lists of LAW elective courses will be provided to students in the program prior to registration for each semester.*

## **International Human Rights Law and Justice (M.A.)**

International Human Rights Law considers protection of the individual as developed through organs of the United Nations, other international institutions, and at regional and domestic levels in the North and in the South. The program seeks to give students a thorough grounding in the theoretical underpinnings of human rights law and in the methods of solid multidisciplinary research that are required for investigating legal issues pertaining to human rights. It is intended for those presently working, or desiring to work, in humanitarian organizations, in government departments and agencies concerned with humanitarian issues, or in other public, private and international sectors where there is

increasingly a need for persons who have an understanding of the law and legal consequences of human rights within an international framework.

It is possible to work towards the MA in International Human Rights Law and the Diploma in Forced Migration and Refugee Studies (FMRS) simultaneously or sequentially, and to cross count 4 courses (12 credits) with the advice and consent of the department for a total of eleven courses (see Dual Graduate Degrees under Academic Requirements and Regulations section).

### **Admission**

The applicant for admission to the MA program should have an acceptable bachelor's degree in law, political science or a closely related social science (preferably with a minor in political science or law studies) with a grade of gayyid giddan (very good) or a grade point average of 3.0. Applicants with deficiencies in their preparation may be required to take appropriate courses at the undergraduate level. English language proficiency is required as per general AUC graduate admission requirements. Admitted degree candidates should normally start their course sequence in the fall semester. Students enrolled in the AUC English Language Institute must complete all ELI Courses and modules before being allowed to enroll in Law Classes. For these students, spring enrollment is allowed.

## **Course Requirements**

The International Human Rights Law MA degree requires a total of 27 credits hours.

There are five required courses:

- LAW 509/5209 - International Law (3 cr.)
- LAW 510/5210 - Introduction to International Human Rights Law and Critique (3 cr.)
- LAW 000/5221 - Law and Patriarchy (3 cr.)
- LAW 527/5227 - Graduate Law Seminar (3 cr.)

one out of the following three courses:

- LAW 511/5211 - International Humanitarian Law (3 cr.)
- LAW 514/5214 - Human Rights in the Middle East (3 cr.)
- LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.)

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The remaining four courses are electives, two of which have to be Law courses.  
Department approval is required for electives offered by other departments.

## **Thesis Requirements**

The research requirement for the MA in International Human Right Law is satisfied by writing a thesis of sufficient depth and length for the topic addressed therein and prepared under the supervision of a faculty member of the department. Students are required to register for the following course while fulfilling their thesis requirement.

- LAW 599/5299 - Research Guidance/Thesis (no cr., pass/fail)

## Degree Time Framework

Fulfilling the M.A. in International Human Rights Law normally calls for two years of study.

## Dual Degree Option in Political Science (B.A.) and International Human Rights Law (M.A.)

The Dual Degree option combines a BA in Political Science and an MA in International Human Rights Law. It is a dual degree, creating a synergy between the existing BA in Political Science and the existing MA in International Human Rights Law.

The dual degree option enables good students to prepare for a postgraduate degree while completing the requirements for the BA in Political Science. Non-law students who achieve a MA Degree under the auspices of the Law Department at AUC qualify for better jobs in Egypt or abroad, or pursue a legal education at prestigious law schools in the United States and elsewhere. The MA degree also provides students with the necessary expertise in international human rights law and with the intellectual, analytical and communication tools needed to intervene critically and effectively in the global policy debates confronting their societies as policy makers, academics, activists and international civil servants.

By the end of the sixth semester of the political science BA at AUC, and after successfully completing POLS 4371, the student has to declare her/his intention to pursue the Dual Degree by submitting a graduate admission application. The student should follow the application procedures for graduate studies. Admission decisions will be made by the Law Department's Admission Committee. Successful applicants will be admitted pending the fulfillment of two conditions: i) finishing the requirements of their undergraduate degrees with at least B (GPA 3); and ii) obtaining an average of at least a B+ (GPA of at least 3.3) across the three cross-listed 'Dual Degree' Law courses. Places are limited.

Students enrolled in the dual degree will receive a political science BA degree certificate upon the completion of their undergraduate course requirements. Many students feel the need to work in parallel to the pursuit of an MA degree. We believe that students who fulfill the pols BA requirement should not be denied the opportunity to do so.

Under this structure, dual-degree students will be required to take three 400-level courses that are cross-listed under LAW and POLS. These three "Dual Degree" cross-listed courses (see below) will count for credit towards both the BA in Political Science and under the MA in International Human Rights Law.

The three 'Dual Degree' Law courses to be offered to undergraduates in the Political Science Department are the following: (a) POLS 471/4371 - Introduction to Public International Law (3 cr.) (b) POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) and (c) POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) The curriculum for the MA IHRL requires the completion of nine courses and a thesis, as indicated in the tentative plan below: 3 POLS/LAW undergraduate courses, 2 graduate regional human rights courses, 3 graduate elective courses, LAW 5227, and the thesis.

### **Tentative Plan for Full-time Students**

#### **SEMESTER VI (POLS undergraduate program)**

LAW/POLS 471/4371 - Introduction to Public International Law (3 cr.) (counts towards both concentrations in POLS for all students) (and MA IHRL credits)  
[4 POLS courses or other courses as required to complete POLS BA degree]

#### **SEMESTER VII (POLS undergraduate program)**

LAW/POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) (counts towards both BA POLS and

MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

### **SEMESTER VIII (POLS undergraduate program)**

LAW/POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) (counts towards both BA POLS and MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

### **SEMESTER IX (MA IHRL program)**

LAW 511/5211 - International Humanitarian Law (3 cr.) \* (1 out of 3 starred courses required)

LAW 514/5214 - Human Rights in the Middle East (3 cr.) \* (1 out of 3 starred courses required)

LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.) \* (1 out of 3 starred courses required)

LAW Electives\*\*

### **SEMESTER X (MA IHRL program)**

LAW 000/5221 - Law and Patriarchy (3 cr.)

LAW Electives\*\*

LAW 527/5227 - Graduate Law Seminar (3 cr.)

### **SEMESTER XI (MA IHRL program)**

LAW 599/5299 - Research Guidance/Thesis (no cr., pass/fail)

*\*\* Lists of LAW elective courses will be provided to students in the program prior to registration for each semester.*

## **International and Comparative Law (LL.M.)**

### **The Ibrahim Shihata Memorial LL.M Program in International and Comparative Law**

Dr. Ibrahim Shihata, in whose memory this LL.M has been established, made significant contributions to the development of international economic law. In addition to his positions of Senior Vice President and General Counsel with the World Bank, Dr. Shihata also served as Secretary-General of the International Center for the Settlement of Investment Disputes; he was principal architect of the Multilateral Investment Guarantee Agency (MIGA); and he was responsible for the World Bank Guidelines for the Legal Treatment of Foreign Investments. Other positions included first Director General of the OPEC Fund for Economic Development and General Counsel of the Kuwait Fund. He was instrumental in establishing the Inter-Arab Investment Guarantee Agency, and he was the founder of the International Development Law Institute in Rome. Indeed the entire career of Dr. Shihata was devoted to the infrastructures that assisted development. The LL.M program itself, as well as individual courses, are directly concerned with law and development. In Dr. Shihata's words: "Law, as the formal instrument of orderly change in society, plays a pivotal role, even though this role has not always been readily recognized."

The Master of Laws (LL.M) Degree in International and Comparative Law is intended for law school graduates who seek to acquire the intellectual and analytical tools to intervene critically and effectively in the global policy debates confronting their societies, as policy makers, practicing lawyers, judges, academics, activists or international civil servants. In the context of constantly changing global economic and political realities, and the crumbling of old regulatory models, the Degree is designed to empower students to adapt, innovate and gain mastery over what they don't know.

The Master of Laws (LL.M.) Degree in International and Comparative Law offers a wide range of courses designed to provide students with the intellectual tools to promote and critically assess economic, social, and legal developments. The curriculum is flexible and allows students to pursue advanced studies in specialized areas (e.g., business regulation, Islamic law and Middle Eastern legal systems, gender studies, and international human rights law). LL.M. students



have an invaluable opportunity to benefit from the multidisciplinary offerings of the School of Global Affairs and Public Policy (GAPP). Fulfilling the requirements of the LL.M. degree normally calls for two years of study.

### Admission

The Applicant for admission to the LL.M degree should have an acceptable bachelor's degree in law, political science or a closely related social science (preferably with a minor in political science or law studies) with a grade of *gayyid* (good) or its equivalent for full admission. Students lacking the grade requirement may be eligible to be considered for provisional admission (as specified in the AUC catalog *supra*). Acceptance is by decision of the Law Faculty Committee, which may grant provisional admission pending the fulfillment of certain conditions. English language proficiency is required as per general AUC graduate admission requirements. Admitted degree candidates should normally start their course sequence in the fall semester. Students enrolled in the AUC English Language Institute must complete all ELI Courses and modules before being allowed to enroll in Law Classes. For these students, spring enrollment is allowed.

For students admitted to the LL.M degree without a first degree in law, the *Equivalent Certificates Committee* (ECC) of the Supreme Council of Universities in Egypt may consider on a case-by-case basis, the equivalence of the LL.M degree.

## Requirements

The LL.M degree requires nine courses (27 credits hours) as well as a thesis of sufficient depth and length as specified below.

### Four courses are required:

- LAW 500/5200 - Legal Research and Writing (3 cr.)
  - LAW 527/5227 - Graduate Law Seminar (3 cr.)
- Two out of the following three courses:
- LAW 501/5201 - Jurisprudence (3 cr.)
  - LAW 502/5202 - Comparative Law (3 cr.)
  - LAW 509/5209 - International Law (3 cr.)

### Electives

Students will be able to take up to five courses as electives, three of which have to be law courses. The Law Department's approval is required for electives offered by other Departments.

## Thesis Requirements

The research requirement for the LL.M. is satisfied by writing a thesis of sufficient depth and length for the topic addressed therein and prepared under the supervision of a faculty member of the department. Students are required to register for the following course while fulfilling their thesis requirement.

- LAW 599/5299 - Research Guidance/Thesis (no cr., pass/fail)

## International and Comparative Law (Graduate Diploma)

The Graduate Diploma in International and Comparative Law is intended for law school graduates seeking to update their knowledge in international and comparative law and to acquire the intellectual tools to advance academically and professionally. The Graduate Diploma in International and Comparative Law offers the possibility to explore in depth a range of topics in international and comparative law. With a flexible curriculum, students may shape their schedules to focus on the topics of their interest. The Fulfillment of the requirements of the Graduate Diploma, normally calls for two semesters of study.

## Admission

The applicant for admission to the Graduate Diploma in International and Comparative Law should have an acceptable bachelor's degree in law, political science or a closely related social science (preferably with a minor in political science or law studies) with a grade of *gayyid* (good) or its equivalent for full admission. Students lacking the grade requirement may be eligible to be considered for provisional admission (as specified in the AUC catalog *supra*). Acceptance is by decision of the Law Faculty Committee, which may grant provisional admission pending the fulfillment of certain conditions. English language proficiency is required as per general AUC graduate admission requirements. Admitted degree candidates should normally start their course sequence in the fall semester. Students enrolled in the AUC English Language Institute must complete all ELI Courses and modules before being allowed to enroll in Law Classes. For these students, spring enrollment is allowed.

Following admission to the Diploma in International and Comparative Law, students may apply for admission to the LLM program in International and Comparative Law. As a minimum enabling condition, students need to achieve a B+ grade average at the end of their Diploma studies. The application may be submitted at the end of the fulfillment of the Diploma requirements. If the application is successful, credits earned during the diploma will count towards the LLM, given that the Diploma curriculum is identical with the curriculum of the first year of the LLM program. Upon completion of the LLM requirements the student will receive *only* the LLM degree and therefore *not* the Diploma.

## Requirements

The Graduate Diploma requires 18 credit hours.

### **Two courses are required:**

- LAW 500/5200 - Legal Research and Writing (3 cr.)

### **One out of the following two courses:**

- LAW 502/5202 - Comparative Law (3 cr.)
- LAW 509/5209 - International Law (3 cr.)

## Electives

Students will be able to take up to four courses as electives. The Law Department's approval is required for electives offered by other departments.

## International Human Rights Law and Justice (Graduate Diploma)

The Graduate Diploma in International Human Rights Law and Justice is intended for graduate students seeking to update their knowledge in human rights law and to acquire the intellectual tools to advance academically and professionally. The Graduate Diploma in Human Rights Law and Justice offers the possibility to explore in depth a range of topics in human rights and humanitarian law. With a flexible curriculum, students may shape their schedules to focus on the topics of their interest. The fulfillment of the requirements of the Graduate Diploma, normally calls for one year of study.

### Admission

The applicant for admission to the IHRL diploma should have an acceptable bachelor's degree in law, political science or a closely related social science (preferably with a minor in political science or legal studies) with a grade of *gayyid giddan* (very good) or a grade point average of 3.0. Applicants with deficiencies in their preparation may be required to take appropriate course at the undergraduate level. English language proficiency is required as per general AUC graduate admission requirements. Admitted degree candidates should normally start their course sequence in the fall semester. Students enrolled in the AUC English Language Institute must complete all ELI Courses and modules before being allowed to enroll in Law Classes. For these students, spring enrollment is allowed.

Following admission to the Diploma in International Human Rights Law, students may apply for admission to the MA degree in International Human Rights Law. As a minimum enabling condition, students need to achieve a B+ grade average at the end of their Diploma studies. The application may be submitted following fulfillment of the Diploma requirements. If the application is successful, credits earned during the Diploma will count towards the MA, given that the Diploma curriculum is identical with the curriculum of the first year of the MA program. Upon completion of the MA requirements the student will receive *only* the MA Degree and therefore *not* the Diploma.

### Requirements

The Graduate Diploma requires 18 credit hours.

#### There are four required courses:

- LAW 509/5209 - International Law (3 cr.)
- LAW 510/5210 - Introduction to International Human Rights Law and Critique (3 cr.)
- LAW 000/5221 - Law and Patriarchy (3 cr.)

#### And one out of the following three courses:

- LAW 511/5211 - International Humanitarian Law (3 cr.)
- LAW 514/5214 - Human Rights in the Middle East (3 cr.)
- LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.)

\*

The remaining two courses are electives. The Law Department's approval is required for electives offered by other departments.

## Degree Time Framework

Fulfilling the Graduate Diploma in International Human Rights Law normally calls for one year of study.

## Department of Public Policy and Administration

*Professors:* L. El-Baradei

*Associate Professor:* H. Ali , Sh. Bhuiyan (Associate Dean of School of Global Affairs and Public Policy), G. Barsoum (Chair)

*Assistant Professors:* K. Abdelhalim, J. Bower-Bir, C. Kaye-Essien, A. Hodgkins, R. Helwa, A. Karini

*Professors of the Practice:* I. Awad, A. Erfan, K. Haggag, M. Shahin

### *Undergraduate*

The mission of the Public Policy and Administration Department is to support evidence-based policy-making, effective and efficient administration of government and non-profit organizations, and better public governance in Egypt and the Middle East by preparing professionals for careers in public service, conducting policy-relevant research, and promoting dialog on issues of public importance. The PPAD Department builds a culture of leadership and service among its graduates and is dedicated to making significant contributions to Egypt and the international community through public service in diverse institutional settings. Students interested in pursuing a career of public service or those interested in public policy and management are encouraged to explore PPAD's course offerings, shown below. Seniors may also request enrollment in PPAD graduate courses.

### *Graduate*

The objective of the PPAD Department is to equip future leaders with the conceptual framework and the specific skills needed to be effective and innovative policy makers and administrators in various spheres of governance within governmental, regional, international and multinational institutions through structured course work, internship and research that explores public policy and administration challenges in the region and globally and their possible solutions.

## Global and Public Affairs Minor

Offered by the Public Policy and Administration Department, the minor in Global and Public Affairs is designed to give undergraduate students a deeper appreciation of the challenges in organizing the state and public management in a global context. The minor introduces students to the conduct of government and diplomacy, learning about policy and how it is made, implemented, and evaluated, including role of different institutions and actors in shaping policy outcomes. Students are introduced to public management issues in nonprofit and government agencies, including setting strategies, developing operational plans, and managing human and financial resources to achieve desired outcome. The program is designed to prepare students for a broad range of careers that are focused on the resolution of public issues in government, the non-profit sector and global intergovernmental organizations.

The Minor is open to all undergraduate students from different majors with no minimum grades or certain GPA. Students who wish to pursue the GPA minor can declare it at any point of their undergraduate studies. Advising for the minor is provided by the undergraduate advisors in Public Policy and Administration Department.

### **Required Courses (9 credits)**

PPAD 308/3198 - Management in Government (3 cr.)

PPAD 000/4111 - Introduction of Public Policy and Administration (3 cr.)

PPAD 000/4113 - Selected Topics in Global and Public Affairs (3 cr.)

#### **Elective Courses (6 credits)**

PPAD 299/2099 - Selected Topics for the Core Curriculum (3 cr.)

PPAD 540/5161 - Diplomacy: Theory and Practice (3 cr.)

PPAD 519/5124 - Leadership and Communication for Public Affairs (3 cr.)

PPAD 000/5174 - Internship in Public and Non-Profit Organizations (3 cr.)

The above mentioned PPAD graduate courses cannot be double counted for students pursuing a PPAD graduate degree.

## **Development Practice (MDP) option BSc/CENG-MPA**

### **Dual Degree Option BSc/CENG-MPA**

Students enrolled in the School of Science and Engineering may apply to complete the MPA on an accelerated basis in conjunction with completion of the BSc. in Construction Engineering. At present, this option is open only to students completing the BSc. in Construction Engineering. Students interested in this option should consult with their advisors during the Fall of their fourth year for potential admission to the program in their fifth year. The program is jointly administered by the Department of Public Policy and Administration in the School of Public Affairs and the School of Sciences and Engineering. Admission is based on the recommendation of the student's SSE advisor and review by the PPAD department. Students who wish to be admitted to this dual degree should have a minimum GPA of 3.2. The program prepares students for careers in public service with the highest ethical standards, strong competencies in environmental analysis and management as well as public governance, excellent leadership and communication skills, a sound understanding of the use of evidence and analysis in public service settings, and a commitment to building a better future for the people of Egypt and the region. Students pursue careers in government, nonprofit organizations, international development agencies, academia, and the private sector.

Students electing the dual degree option begin taking graduate courses in their ninth semester and receive both the BSc. and the MPA upon the completion of their coursework and master's thesis, normally at the end of their 6th year. The following course sequence has been developed for this option, but students should consult their advisor in CENG to ensure that all SSE requirements are met:

Students who seek to register in this dual degree should complete four 400-level courses that are related to business or public administration, public policy, economics, political science or global affairs. Courses will need to be approved by the department prior to registration

Additionally, students must take the seven PPAD graduate courses listed below and two thesis registration.

#### **SEMESTER X**

PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)

PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)

PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.)

#### **SEMESTER XI**

PPAD 501/5221 - Strategic Management for Government and Nonprofit Organizations (3 cr.)

PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)

PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)

PPAD 000/5174 - Internship in Public and Non-Profit Organizations (3 cr.)

## **SEMESTER XII**

- PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.) (MPA Credit)
- PPAD 516/5132 - Social and Environmental Policy (3 cr.) (MPA Credit)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.) (MPA Credit)
- PPAD 599/5299 - Research Guidance (0 cr.) (MPA Credit)

## **Thesis**

Students are required to write a thesis on some aspect of public administration relevant to their area of study. The preparation of the thesis and the thesis itself must comply with Departmental and AUC guidelines with regard to content, format, dates, and the review and supervision process. Students are responsible for familiarizing themselves with these guidelines and meeting formal deadlines. Students preparing the thesis normally develop a preliminary thesis proposal during PPAD 5201, a required core course, but may prepare an alternative thesis proposal if desired. Once the proposal is approved, students should enroll in PPAD 5298, the thesis research seminar, in the first semester in which they are working on the research component and write-up of their thesis. Thereafter, if additional work is required to complete the thesis, students can enroll each semester in PPAD 5299. Students must pay 3 credits of tuition for the first enrollment in PPAD 5298 and PPAD 5299 and thereafter pay 1 credit of tuition each semester, until the thesis is successfully defended and approved by the Dean.

## **Global Affairs, with concentrations in International and Regional Security and International Cooperation in the Global System (MGA)**

The Master of Global Affairs (MGA) is administered by the Department of Public Policy and Administration in the School of Global Affairs and Public Policy. The program prepares students for leadership and responsibility positions in the conduct of global affairs and public policy in governments and international and regional multilateral agencies as well as in business and civil society organizations. It is expected that students will be drawn from and/or employed in mid-career positions in institutions working in global affairs or demonstrate promise for such careers, based on their commitment and their academic and professional background.

The MGA program aims to provide students with knowledge and professional skills required for the functioning of the global system in an inclusive manner at the international and national levels, combining conceptual understanding with analytic skills and knowledge of global affairs. Through this program, students will gain the capability to participate effectively in the formulation and implementation of policies in their own countries and in supporting, guiding, and monitoring action on global affairs at the multilateral level. Ultimately, both their own countries and the global system should benefit from the knowledge acquired.

### **Admission**

All applicants must satisfy the university's graduate admission requirements. Candidates for the MGA are recommended but not required to have two or more years of relevant professional experience.

### **Courses (33 credit hours)**

Students seeking the degree of Master of Global Affairs must complete 33 credit hours of coursework plus a master's project. The program core, required of all students, consists of 6 courses (18 credits). Students must also complete a concentration of 5 courses (15 credits). Students may elect either the concentration in International Security or the concentration in International Cooperation. Students are required to declare their concentration before beginning their second semester of enrollment in the program. In addition to coursework, students must complete a master's project consistent with department and university guidelines.

## Core Requirement (18 credit hours):

Students must complete four (4) courses in group 1, two (2) course in group 2

### Group 1: Complete all four (4) of the following:

- PPAD 527/5251 - International Organization in Global Governance (3 cr.)
- PPAD 540/5161 - Diplomacy: Theory and Practice (3 cr.)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
- PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)

### Group 2: Complete two of the following:

- LAW 509/5209 - International Law (3 cr.)
- PPAD 529/5151 - Issues in International Security (3 cr.)
- PPAD 502/5231 - Economics for Public Policy Analysis (3 cr.)
- POLS 561/5261 - Public Policy and Development (3 cr.)
- PPAD 524/5129 - Globalization and Development (3 cr.)
- PPAD 528/5252 - Theory and Practice of Negotiation (3 cr.)
- PPAD 508/5211 - Qualitative Analysis for Policy and Administration (3 cr.)
- PPAD 509/5212 - Applied Quantitative Analysis (3 cr.)

## Concentration Requirement (15 credit hours):

Students must complete 5 courses in one of the following two areas. In addition to the courses shown for each concentration, students may select a course from the core list shown above as a Group 2 concentration course, if not taken as a core course (i.e., a course may be counted toward only one requirement) or, with advisor approval, may substitute an appropriate offering of PPAD 5199 - Selected Topics in Public Policy and Administration.

### MGA Concentration 1: International and Regional Security

5 courses (15 credits) required

#### Group 1: Required for all students in the concentration

- PPAD 532/5154 - Contemporary Security Issues in the Middle East (3 cr.)
- PPAD 530/5152 - Conflict Prevention and Resolution (3 cr.)
- PPAD 539/5258 - Role of Force: Strategy and Statecraft (3 cr.)

### Group 2: Complete two of the following:

- PPAD 531/5153 - Armament, Arms Control and Disarmament (3 cr.)
- MEST 580/5280 - Selected Topics (3 cr.)
- POLS 554/5254 - Comparative Foreign Policy: Theories and Applications (3 cr.)
- PPAD 000/5225 - Regionalism and Regional Integration (3 cr.)
- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)
- PPAD 591/5198 - Practicum (3 cr.)
- MRS 500/5102 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)
- PPAD 524/5129 - Globalization and Development (3 cr.)
- PPAD 509/5212 - Applied Quantitative Analysis (3 cr.)

## MGA Concentration 2: International Cooperation in the Global System

5 courses (15 credits) required

### Group 1: Required for all students in concentration

- PPAD 000/5225 - Regionalism and Regional Integration (3 cr.)
- PPAD 534/5156 - Multilateral and Bilateral Cooperation for Development (3 cr.)
- PPAD 533/5155 - Governance of the Global Economy (3 cr.)

### Group 2: Complete two of the following:

- PPAD 516/5132 - Social and Environmental Policy (3 cr.)
- PPAD 591/5198 - Practicum (3 cr.)
- POLS 554/5254 - Comparative Foreign Policy: Theories and Applications (3 cr.)
- PPAD 520/5133 - Global Health Issues and Policies (3 cr.)
- MRS 501/5103 - International Migration & Development (3 cr.)
- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)

## Capstone Project

Students must complete a capstone project that addresses an issue or a challenge in global affairs with relevance to their concentration. The project should be directed towards an external client engaged in this issue. If a member of the client's staff is not available, the client role may be performed by an alternate designated by the department. The preparation of the capstone project plan and final report must comply with departmental guidelines with regard to client involvement, content, format, and dates. Once the project plan is approved by the supervisor and/ or the client, the student will enroll in PPAD 5293, the capstone project, where they will complete the necessary components per the departmental guidelines and client's specification. The capstone project may be completed as a group or individual project with client and faculty permission.

## Master of Public Administration

### Master of Public Administration



The Master of Public Administration is administered by the Department of Public Policy and Administration in the School of Global Affairs and Public Policy. The program prepares students for leadership and upper management positions in public service. Students, who are generally mid-career at entry, pursue careers in government, nonprofit organizations, international development agencies, academia, and the private sector.

### **Program objectives**

The mission of the MPA Program is to support effective and efficient administration of government and nonprofit organizations and better public governance in Egypt and the Middle East by preparing professionals for careers in public service with the highest ethical standards, strong competencies in public governance, excellent leadership and communication skills, a sound understanding of the use of evidence and analysis in public service settings, and a commitment to building a better future for the people of Egypt and the region.

### **Admission**

All applicants must satisfy the university's graduate admission requirements. Candidates for the MPA or DPA are recommended but not required to have two or more years of relevant professional experience.

### **Courses (33 credit hours)**

Students seeking the degree of Master of Public Administration must complete 33 credit hours plus a thesis or 39 credit hours and a comprehensive examination. The program core, required of all students, consists of 6 courses (18 credits). Students must complete a concentration of 5 courses (15 credits). Students may elect either the concentration in Nonprofit Management, Human Resources Management in the Public and Nonprofit Organizations and Public Sector Reform and Innovation. Students are required to declare their concentration before beginning their second semester of enrolment in the program. In addition to coursework, students must complete a thesis, or opt to sit for a comprehensive examination after taking two additional courses. Students who choose to write a thesis, must do so in accordance with department and university guidelines for theses preparation. Additionally, students have the option to complete at least one enrolment in thesis courses (PPAD 5298 or PPAD 5299, both non-credit).

## **Core Requirement (18 credit hours):**

Students must complete 6 courses in total under the Core requirements.

### **Complete all following five (5) courses:**

- PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)
- PPAD 501/5221 - Strategic Management for Government and Nonprofit Organizations (3 cr.)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
- PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.)
- PPAD 504/5222 - Fundamentals of Financial Planning and Management for Government and Nonprofit Organizations (3 cr.)

### **Group 2: Complete one (1) of the following:**

- PPAD 508/5211 - Qualitative Analysis for Policy and Administration (3 cr.)
- PPAD 509/5212 - Applied Quantitative Analysis (3 cr.)

## **Concentration Requirement (15 credit hours):**

Students must complete 5 courses in one of the following three areas.

### **Concentration One: Nonprofit Management - 5 courses (15 credits) required**

Group 1: Complete three of the following courses:

- PPAD 512/5114 - Management of Development Programs (3 cr.)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.)
- PPAD 526/5128 - Corporate Social Responsibility and NGO Partnerships (3 cr.)
- PPAD 000/5168 - Proposal Writing and Grant Management for Nonprofit Organizations (3 cr.)
- PPAD 000/5169 - Issues in Social Entrepreneurship (3 cr.)
- PPAD 000/5170 - Volunteer Management (3 cr.)
- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)

Complete any two PPAD courses in consultation with the Department Advisor.

## Concentration Two: Human Resources Management in the Public and Nonprofit Organizations- 5 courses (15 credits) required

Group 1: Complete three of the following courses:

- PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)
- PPAD 000/5171 - International and Comparative Human Resources Management (3 cr.)
- PPAD 519/5124 - Leadership and Communication for Public Affairs (3 cr.)
- PPAD 000/5172 - Compensation Management (3 cr.)
- LAW 509/5209 - International Law (3 cr.)
- PPAD 000/5173 - Public Administration, Technology, and Innovation (3 cr.)

Group 2: Complete any two PPAD courses in consultation with the Department Advisor.

## Concentration Three: Public Sector Reform and Innovation - 5 courses (15 credits) required

Group 1: Complete three of the following courses:

- PPAD 513/5223 - International Models of Public Management (3 cr.)
- PPAD 000/5173 - Public Administration, Technology, and Innovation (3 cr.)
- PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)
- PPAD 511/5122 - Administrative Environment and Public Policy in Egypt and the Middle East (3 cr.)
- PPAD 519/5124 - Leadership and Communication for Public Affairs (3 cr.)
- PPAD 515/5202 - Public Policy Theory & Practice (3 cr.)

Group 2: Complete any two PPAD courses in consultation with the Department Advisor.

## Internship (PPAD 5198): 3 credits Graded Pass-Fail

Students are strongly encouraged to undertake an internship within their concentration, ideally in conjunction with their thesis work. This course is considered as one of the elective courses (Group 2).

## Thesis

Students are required to write a thesis on some aspect of public administration relevant to their concentration. The preparation of the thesis and the thesis itself must comply with Departmental and AUC guidelines with regard to content, format, dates, and the review and supervision process. Students are responsible for familiarizing themselves with these guidelines and meeting formal deadlines. Students preparing the thesis normally develop a preliminary thesis proposal during PPAD 5201, a required core course, but may prepare an alternative thesis proposal if desired. Once the proposal is approved, students may enrol in PPAD 5298 (optional), the thesis research seminar, in the first semester in

which they are working on the research component and write-up of their thesis. Thereafter, if additional work is required to complete the thesis, students can enrol each semester in PPAD 5299. Students who choose to enrol in PPAD 5298 (optional) and PPAD 5299 must pay 3 credits of tuition for the first enrolment and thereafter pay 1 credit of tuition each semester, until the thesis is successfully defended and approved by the Dean. PPAD 5298, the thesis research seminar, is optional and is designed to support the applied research required for the thesis and the writing of the thesis itself. Students will be required to read and comment on the work of other students, both orally and in writing, and to present draft thesis chapters.

## Non-Thesis Track

Students who do not wish to undertake a thesis can choose to substitute the thesis with two additional PPAD 3 credit courses, with the approval of the program director, and then sit for a comprehensive examination after completing all program course requirements. A comprehensive examination is usually offered in mid-December and mid-April. Students not registered for courses or thesis credit hours and planning to sit for the comprehensive examination in any semester must register for comprehensives (PPAD 5288) in that semester and pay tuition equivalent to one graduate credit hour.

Comprehensive examination may be repeated once. A student who fails the comprehensive examination a second time would be dismissed from the degree program after the end of the semester in which the examination was retaken.

## Dual Degree Option BSc/CENG-MPA

Students enrolled in the School of Science and Engineering may apply to complete the MPA on an accelerated basis in conjunction with completion of the BSc. in Construction Engineering. At present, this option is open only to students completing the BSc. in Construction Engineering. Students interested in this option should consult with their advisors during the Fall of their fourth year for potential admission to the program in their fifth year. The program is jointly administered by the Department of Public Policy and Administration in the School of Public Affairs and the School of Sciences and Engineering. Admission is based on the recommendation of the student's SSE advisor and review by the PPAD department. Students who wish to be admitted to this dual degree should have a minimum GPA of 3.2. The program prepares students for careers in public service with the highest ethical standards, strong competencies in environmental analysis and management as well as public governance, excellent leadership and communication skills, a sound understanding of the use of evidence and analysis in public service settings, and a commitment to building a better future for the people of Egypt and the region. Students pursue careers in government, nonprofit organizations, international development agencies, academia, and the private sector.

Students electing the dual degree option begin taking graduate courses in their ninth semester and receive both the BSc. and the MPA upon the completion of their coursework and master's thesis, normally at the end of their 6th year. The following course sequence has been developed for this option, but students should consult their advisor in CENG to ensure that all SSE requirements are met:

Students who seek to register in this dual degree should complete four 400-level courses that are related to business or public administration, public policy, economics, political science or global affairs. Courses will need to be approved by the department prior to registration

Additionally, students must take the seven PPAD graduate courses listed below and two thesis registration.

### SEMESTER X

PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)

PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)

PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.)

**SEMESTER XI**

PPAD 501/5221 - Strategic Management for Government and Nonprofit Organizations (3 cr.)

PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)

PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)

PPAD 000/5174 - Internship in Public and Non-Profit Organizations (3 cr.)

**SEMESTER XII**

- PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.) (MPA Credit)
- PPAD 516/5132 - Social and Environmental Policy (3 cr.) (MPA Credit)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.) (MPA Credit)
- PPAD 599/5299 - Research Guidance (0 cr.) (MPA Credit)

**Thesis**

Students are required to write a thesis on some aspect of public administration relevant to their area of study. The preparation of the thesis and the thesis itself must comply with Departmental and AUC guidelines with regard to content, format, dates, and the review and supervision process. Students are responsible for familiarizing themselves with these guidelines and meeting formal deadlines. Students preparing the thesis normally develop a preliminary thesis proposal during PPAD 5201, a required core course, but may prepare an alternative thesis proposal if desired. Once the proposal is approved, students should enroll in PPAD 5298, the thesis research seminar, in the first semester in which they are working on the research component and write-up of their thesis. Thereafter, if additional work is required to complete the thesis, students can enroll each semester in PPAD 5299. Students must pay 3 credits of tuition for the first enrollment in PPAD 5298 and PPAD 5299 and thereafter pay 1 credit of tuition each semester, until the thesis is successfully defended and approved by the Dean.

**Public Policy (MPP)****Master of Public Policy**

The Master of Public Policy is administered by the Department of Public Policy and Administration in the School of Global Affairs and Public Policy. The program prepares students for leadership positions in public service and for careers as policy analysts. Students, who are generally in the early part of their career at entry, pursue careers in government, nonprofit organizations, international development agencies, academia, consulting firms, and the private sector.

**Program objectives**

The mission of the MPP Program is to support evidence-based policy-making and better public governance in Egypt and the Middle East by preparing professionals for careers in public service with the highest ethical standards, strong competencies in public governance, excellent leadership and communication skills, capability to develop and use evidence and analysis in public service settings, and a commitment to building a better future for the people of Egypt and the region.

**Admission**

All applicants must satisfy the university's graduate admission requirements. Candidates for the MPP or DPP should have adequate preparation in quantitative analytic methods. Relevant professional experience is desirable but not required.

### **Courses (33 credit hours)**

Students seeking the degree of Master of Public Policy must complete 33 credit hours plus a thesis or 39 credit hours and a comprehensive examination. The program core, required of all students, consists of 6 courses (18 credits). Students must complete a concentration of 5 courses (15 credits). Students may elect either the concentration in Social and Environmental Policy or the concentration in Government Regulation and Promotion of the Private Sector. Students are required to declare their concentration before beginning their second semester of enrollment in the program and to identify an area of professional concentration at that time. In addition to coursework, students must complete a thesis, or opt to sitting for a comprehensive examination after taking two additional courses. Students writing a thesis, consistent with department and university guidelines, will complete at least one enrollment in the thesis courses (PPAD 5298 or PPAD 5299, all are non-credit).

## **Core Requirement (18 credit hours):**

Students must complete six (6) courses in group 1

### **Group 1: Complete all six (6) of the following:**

- PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)
- PPAD 502/5231 - Economics for Public Policy Analysis (3 cr.)
- PPAD 503/5232 - Role of Government in a Market-Oriented Economy (3 cr.)
- PPAD 515/5202 - Public Policy Theory & Practice (3 cr.)
- PPAD 508/5211 - Qualitative Analysis for Policy and Administration (3 cr.)
- PPAD 509/5212 - Applied Quantitative Analysis (3 cr.)

## **Concentration Requirement (15 credit hours):**

Students must complete 5 courses in one of the concentrations below. In addition to the courses shown for each concentration, students may select a course from the core list shown above as a Group 3 concentration course if not taken as a core course (i.e., a course may be counted towards only one requirement). Students may substitute up to two courses for those shown with permission of the department. Students who have completed at least 4 core courses and who have a GPA of 3.5 or better may petition the department to complete a concentration in another policy field, such as urban policy or health policy, which must include at least 3 PPAD courses.

## **MPP Concentration 1: Policies for Sustainable Development - 5 courses (15 credits) required**

Students should select concentration courses based on their chosen area of specialization, which may include health and social services policy, anti-poverty policy, environmental policy, or an area defined by the student.

### **Group 1: Complete two (2) of the following**

- PPAD 516/5132 - Social and Environmental Policy (3 cr.)
- PPAD 525/5127 - Reforming Delivery of Social Services (3 cr.)
- PPAD 524/5129 - Globalization and Development (3 cr.)

### **Group 2: Complete three (3) of the following:**

- PPAD 520/5133 - Global Health Issues and Policies (3 cr.)
- PPAD 541/5136 - Gender in Public Policy and Administration (3 cr.)

- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
- PPAD 522/5135 - Promotion of Local Economic Development (3 cr.)
- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)

## MPP Concentration 2: Promotion and Regulation of the Private Sector Development – 5 courses (15 credits) required

Students should select concentration courses based on their chosen area of specialization, which may include financial markets; telecommunications, power, and water; private sector development; regional economic development, or a topic identified by the student.

### **Group 1: Required for all students in concentration**

- PPAD 521/5134 - Government Regulation of Business and Investment (3 cr.)
- PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)

### **Group 2: Complete two (2) courses from the following**

- PPAD 518/5123 - Governance, Accountability, and Stakeholder Negotiations (3 cr.)
- PPAD 524/5129 - Globalization and Development (3 cr.)

## MPP Concentration 3: Media Policy - 5 courses (15 credits) required

### Group 1: Required for all students in the concentration:

- JPMC 590/5290 - Special Topics (3 cr.)
- JPMC 550/5250 - Seminar in International Communication (3 cr.)
- JPMC 570/5270 - Seminar in Mass Communication and National Development (3 cr.)

### Group 2: Complete two of the following:

- JPMC 580/5280 - Impact of Television: Issues and Developments (3 cr.)
- PPAD 511/5122 - Administrative Environment and Public Policy in Egypt and the Middle East (3 cr.)
- LAW 510/5210 - Introduction to International Human Rights Law and Critique (3 cr.)
- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)

## MPP Concentration 4: Data Analytics and program Evaluation - 5 courses (15 credits) required

Students should select concentration courses based on their chosen area of specialization, which may include program evaluation and data analysis and survey data analysis , or an area defined by the student.

### Group 1: Required for all students in the concentration:

- PPAD 000/5180 - Introduction to Data Analytics (3 cr.)
- PPAD 000/5179 - Big Data Analytics for Public Policy (3 cr.)
- PPAD 000/5178 - Program Evaluation (3 cr.)

### Group 2: Complete two (2) Courses from the following:

- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)
- PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)

- PPAD 000/5173 - Public Administration, Technology, and Innovation (3 cr.)
- PPAD 000/5174 - Internship in Public and Non-Profit Organizations (3 cr.)

## Practicum (PPAD 5198): 3 credits Graded Pass-Fail

Students are strongly encouraged to undertake a practicum within their concentration, ideally in conjunction with their thesis work. P/F graded.

## Thesis

Students are required to write a thesis on some aspect of public policy relevant to their concentration. The preparation of the thesis and the thesis itself must comply with Departmental and AUC guidelines with regard to content, format, dates, and the review and supervision process. Students are responsible for familiarizing themselves with these guidelines and meeting formal deadlines. Students preparing the thesis normally develop a preliminary thesis proposal during PPAD 5201, a required core course, but may prepare an alternative thesis proposal if desired. Once the proposal is approved, students can enroll in PPAD 5298, the thesis research seminar, in the first semester in which they are working on the research component and write-up of their thesis. Thereafter, if additional work is required to complete the thesis, students must enroll each semester in PPAD 5299. Students must pay 3 credits of tuition for the first enrollment in PPAD 5298 and PPAD 5299 and thereafter pay 1 credit of tuition for each semester, until the thesis is successfully defended and approved by the Dean.

PPAD 5298, the thesis research seminar, is designed to support the applied research required for the thesis and the writing of the thesis itself. Students will be required to read and comment on the work of other students, both orally and in writing, and to present draft thesis chapters.

## Non-Thesis Track

Students who do not wish to undertake a thesis can choose to substitute the thesis with two additional PPAD 3 credit courses, with the approval of the program director, and then sit for a comprehensive examination after completing all program course requirements. A comprehensive examination is usually offered in mid-December and mid-April. Students not registered for courses or thesis credit hours and planning to sit for the comprehensive examination in any semester must register for comprehensives (PPAD 5288) in that semester and pay tuition equivalent to one graduate credit hour.

Comprehensive examination may be repeated once. A student who fails the comprehensive examination a second time would be dismissed from the degree program after the end of the semester in which the examination was retaken.

## Global Affairs (Graduate Diploma)

The Diploma Program requires the completion of 18 credit hours of coursework in the Public Policy and Administration Department, including at least 12 credit hours from the courses making up the MGA degree.

## Public Administration (Graduate Diploma)

### Program Requirements

The Diploma Program requires the completion of 18 credit hours of coursework in the PPAD department, including at least 12 credit hours from the courses making up the MPA core.

## **Public Policy (Graduate Diploma)**

### **Program Requirements**

The Diploma Program requires the completion of 18 credit hours of coursework in the PPAD department, including at least 12 credit hours from the courses making up the MPP core.

## **The Cynthia Nelson Institute for Gender and Women's Studies**

*Director:* M. Rieker

*Affiliated Faculty:* M. Al Sharmani (SRC), S. Altorki (SAPE), I. Elnur (POLS), A. Lorite Escorihuela (Law), N. Farah (POLS), F.I Ghazoul (ECLT), B. Ibrahim (Gerhart Center), V. Kotini (ECLT), H. Lutfi (ARIC), S. Mehrez (ARIC), T. Monforte (Law), A. Pine (SAPE), H. Rizzo (SAPE), R. Saad (SRC), H. Sabea (SAPE), M. Said (ECON), H. Sayed (Law), A. Shalakany (Law), H. Sholkamy (SRC), R. Switzer (PHIL), M. Tadros (POLS), R. Tutwiler (DDC)

## **Gender Studies Minor**

The minor in gender studies provides students with basic knowledge of gender concepts and theory from a cross-cultural perspective.

Fifteen credits are required for a minor in Gender and Women's Studies.

### **Required**

ANTH 380/3105 - Fieldwork Methods (3 cr.)

GWST 000/4000 Contemporary Debates in Gender and Women's Studies (3 cr.)

### **Select two 300 level courses**

ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)

ANTH 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)/ SOC 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)

ARIC 305/3104 - Arabic Literature and Gender (3 cr.)

ECLT 345/3045 - Literature and Gender (3 cr.)

FILM 000/3150 - Women and Film (3 cr.)

### **Select one 400 level course**

SOC 435/4040 - Gender and Power in Development (3 cr.)

ANTH 425/4030 - Women, Islam and the State (3 cr.)



Additionally: There are numerous 300 and especially 400 level special topics gender courses offered in the departments on a yearly basis. The IGWS Advisory Committee will assemble and approve these on a semester by semester basis and make these additional elective options available on a Gender and Women's Studies Minor website.

## **Gender and Women's Studies in the Middle East/North Africa, with specializations in Geographies of Gender and Justice, Gendered Political Economies, and Gender and Women's Studies in the Middle East/ North Africa (M.A.)**

### **Master of Arts in Gender and Women's Studies in the Middle East/North Africa**

The graduate program in Gender and Women's Studies offers advanced study in **three** tracks:

- Geographies of Gender and Justice
- Gendered Political Economies
- Gender and Women's Studies in the Middle East/ North Africa

The graduate program in Gender and Women's studies prepares graduates for a wide variety of professional careers. Specialists in gender and women's studies are being hired as consultants in international development agencies, local NGO's, national government agencies, all of which hire people that have special training in understanding gender relations. Students wishing to pursue doctoral work will find that interdisciplinary training in gender and women's studies equips them with theoretical and methodological strengths in most disciplines and applied research fields. Consistent with the mission of the School of Global Affairs and Public Policy, Gender and Women's Studies is an interdisciplinary graduate program.

### **Geographies of Gender and Justice**

Geographies of Gender and Justice offers advanced study of contemporary practices and problems of justice ranging from international justice regimes to national legal cultures to social and economic justice claims with a particular focus on the global south.

### **Gendered Political Economies**

The specialization in Gendered Political Economies engages with shifts in the gendering of economic and political trajectories of late modernity. It deals with issues relating to poverty, labor politics, political economies of desire, migration, mobility and development histories and practices. The aim is to provide students with a solid grounding in the nexus between gender and modalities for reorganizing the political economic order in the contemporary world.

### **Gender and Women's Studies in the Middle East/ North Africa**

The Gender and Women's Studies in the Middle East, North Africa focus offers an interdisciplinary field of analysis that draws its questions and approaches from the humanities and social sciences through investigating how relations of gender are embedded in social, political and cultural formations. It provides students with an interdisciplinary and transnational perspective with special emphasis on the Middle East and North African region.

## **Core Requirements**

There are two core requirements for students in all specializations:

- GWST 500/5100 - Theorizing Gender (3 cr.)
- GWST 505/5205 - Gender and Feminist Research Methodologies (3 cr.)

## Specialization in Geographies of Gender and Justice

There are three required courses:

- GWST 502/5102 - Justice: Histories and Theories (3 cr.)
- GWST 508/5108 - Women and Human Rights (3 cr.)
- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)

### **Electives:**

The remaining three courses are 500 level electives or two 500 level electives and one 400 level elective. The list of electives are reviewed by the IGWS Graduate Advisory Committee every academic year. The list of electives for any given semester is available on the IGWS graduate center website.

## Specialization in Gendered Political Economics

There are three required courses:

- GWST 506/5106 - Reading Capital (3 cr.)
- GWST 000/5109 - Theorizing the Urban (3 cr.)
- GWST 507/5107 - Critical Geographies: Reading the Global South (3 cr.)

### **Electives:**

The remaining three courses are 500 level electives or two 500 level electives and one 400 level elective. The list of electives are reviewed by the IGWS Graduate Advisory Committee every academic year. The list of electives for any given semester is available on the IGWS graduate center website.

## Specialization in Gender and Women's Studies in the Middle East and North Africa

There are three required courses:

- GWST 501/5101 - Visual, Literary, and Critical Approaches to Gender in MENA (3 cr.)
- GWST 504/5104 - Mobilities: Gender and Migration (3 cr.)
- LAW 000/5221 - Law and Patriarchy (3 cr.)

### **Electives:**

The remaining three courses are 500 level electives or two 500 level electives and one 400 level elective. The list of electives are reviewed by the IGWS Graduate Advisory Committee every academic year. The list of electives for any given semester is available on the IGWS graduate center website.

## MA Thesis

All students must complete a thesis according to university regulations. Students must register for GWST 5299. Before commencing work on the thesis, the student must have a thesis proposal approved by the IGWS Graduate

Advisory Committee. Students should familiarize themselves with the specific procedural requirements of the IGWS thesis. Guidelines are available in the IGWS office and on the web.

## Admission

Applicants seeking admission to the graduate program should have an undergraduate degree of high standing in the social sciences or humanities with an overall grade of gayyid giddan or a grade point average of 3.0 or above. Those who lack this background but who are exceptionally well qualified may be admitted provisionally. Provisional admission usually involves additional non-credit coursework to prepare the applicant for graduate work over one or two semesters. Provisionally accepted students must successfully complete the required prerequisites before being admitted to enroll in GWST graduate courses. Students are admitted to the graduate degree program in the fall and spring semester.

## Gender and Women's Studies in the Middle East and North Africa (Graduate Diploma)

### Course Requirements

Six courses (18 credit hours) are required for the diploma. Diploma students must take two required courses (GWST 5100 and GWST 5205) and four GWST elective courses.

The diploma option allows students to pursue a disciplinary M.A. at AUC and at the same time acquire gender studies qualifications.

## Center for Migration and Refugee Studies

*Director:* I. Awad

*Associate Director:* A. Ullah

The Center for Migration and Refugee Studies (CMRS), was first established in 2000 and was expanded in 2008 into a Regional Center encompassing all forms of international mobility, whether voluntary or forced, economic or political, individual or collective, temporary or permanent. Consistent with the mission of the School of Global Affairs and Public Policy, our programs are all multidisciplinary.

CMRS activities include Graduate Education, Research and Outreach activities.

CMRS offers a Master of Arts in Migration and Refugee Studies, a Graduate Diploma in Forced Migration and Refugee Studies and a Graduate Diploma with a Specialization in Psychosocial Intervention for forced migrants and refugees.

The CMRS research program includes a systematic and comparative inventory of the situation regarding migration and refugee movements across the Middle East and North Africa (MENA), as well as in-depth studies of emerging issues in the region.

CMRS outreach includes disseminating knowledge on migration and refugee issues beyond the university's gates, as well as providing a range of educational services to refugee communities.

## Migration and Refugee Studies with concentrations in Migration, and in Refugee Studies (M.A.)

### Master of Arts

The MA program in Migration and Refugee studies is an interdisciplinary degree program that aims to provide graduates with critical knowledge, research methods and analytical skills of current theoretical, legal, political, economic, social, demographic and psychological issues in migration and refugee studies. The knowledge and skills acquired may be applied in careers within institutions such as governmental, non-governmental and international agencies, as well as universities, research organizations and private corporations dealing with the multitude of issues connected with migration and refugee movements. Students have the option of pursuing concentrations in migration or in refugee studies.

It is possible to work towards the MA in Migration and Refugee Studies with other MAs and Diplomas in the fields of Humanity and Social Sciences simultaneously or sequentially. For more information, see Dual Graduate Degrees under the Academic Requirements and Regulations section: Graduate Academic Requirements & Regulations

### Admission

Applicants seeking admission to the Master's program should have an undergraduate degree of high standing (equivalent of a B grade or higher) within the field of Humanities and/or Social Sciences and meet the university's language proficiency. Pre-requisites may be assigned, depending on the student's academic background. Students with related work, research or volunteer experience will be given priority.

## Requirements:

### Course Requirements

The MA program requires the successful completion of 8 courses (24 credit hours). All students must take the following 5 core courses:

- MRS 507/5100 - Introduction to Migration and Refugee Studies (3 cr.)
- MRS 518/5101 - International Refugee Law (3 cr.)
- MRS 500/5102 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)
- MRS 501/5103 - International Migration & Development (3 cr.)
- MRS 576/5204 - Research Methods in Migration and Refugees Studies (3 cr.)

For a concentration in migration, students should choose 3 courses from the following electives:

- MRS 504/5104 - Mobilities: Gender and Migration (3 cr.)
  - MRS 508/5208 - Special Topics in Migration and Refugee Studies (3 cr.)  
(When relevant to migration)
  - MRS 509/5209 - Migration, Integration and Citizenship (3 cr.)
  - MRS 528/5228 - Migration in International Law (3 cr.)
  - MRS 584/5284 - Practicum: Internship or Research (3 cr.)  
(Supervised internship with organization working on migration issues)
- With Center approval, students may take a course offered by another department or center.**

For a concentration in refugee studies, students should choose 3 courses from the following electives:

- MRS 512/5112 - Psychosocial Issues in Forced Migration (3 cr.)
- MRS 505/5205 - Palestinian Refugee Issues (3 cr.)
- MRS 508/5208 - Special Topics in Migration and Refugee Studies (3 cr.)  
(When relevant to refugee studies)
- MRS 584/5284 - Practicum: Internship or Research (3 cr.)  
(Supervised internship with organization working on refugee issues)  
With Center approval, students may take a course offered by another department or center.

To take the degree without a concentration, students may choose 3 courses from any of the electives listed above.

## Thesis Requirements

All students must complete a thesis according to university regulations. Before commencing work on the thesis, the student must present a thesis proposal for approval by CMRS. The thesis proposal should comprise a research question, including a set of hypotheses, the sources of information and an outline of the research method to be used – and should not exceed 2000 words. After the acceptance of the thesis proposal, students must register for course MRS 5299 "Research Guidance and Thesis". After the completion of the thesis, it must be defended in an oral examination during which questions may be asked regarding any aspect of the thesis itself or of courses taken in the program particularly as they may relate to the thesis.

## Time Line

Completion of the Masters Degree in Migration and Refugee Studies will normally take 2 years.

## Migration and Refugee Studies (Graduate Diploma)

### Specialized Graduate Diploma in Migration and Refugee Studies

#### Admission

Applicants seeking admission to the Graduate diploma should have an undergraduate degree of high standing (equivalent of a B grade or higher) within the field of humanities and or Social Sciences and meet the university's language proficiency exam.

## Course Requirements

The Graduate Diploma requires the successful completion of 6 courses (18 credit hours). These include four required core courses plus two elective courses.

### All students must take:

- MRS 500/5102 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)
- MRS 501/5103 - International Migration & Development (3 cr.)

- MRS 507/5100 - Introduction to Migration and Refugee Studies (3 cr.)
- MRS 518/5101 - International Refugee Law (3 cr.)

Two electives are to be chosen from the CMRS list of electives offered each semester.

## Time Line

Completion of the Graduate Diploma in Migration and Refugee Studies will normally take 1 year. It does not require the completion of a thesis. Students who finish the diploma can develop it into an MA by taking the two extra required courses of the MA program and complete a thesis.

## Psychosocial Interventions for Forced Migrants and Refugees (Graduate Diploma)

### Specialized Graduate Diploma in Psychosocial Intervention for Forced Migrants and Refugees

*The diploma is offered by the Center for Migration and Refugee Studies (CMRS) in collaboration with the Psychology unit of the SAPE department.*

#### Admission

Applicants seeking admission to the Graduate diploma in - Psychosocial Intervention for forced migrants and refugees should have an undergraduate degree of high standing (no less than a GPA of 3.00) within the field of humanities and/or Social Sciences and meet the university's language proficiency exam. Pre-requisites may be assigned, depending on the student's academic background. Students with related work, research or volunteer experience will be given priority.

Applicants must display through a written personal statement in their applications the following traits: leadership, compassion, cultural sensitivity, social responsibility, emotional maturity, good mental health, and ethical standards. Recommendation letters will be required.

Graduates of this new specialized diploma will acquire core competencies that qualify them to think critically and analytically about migration and refugee issues and plan and implement holistic culturally sensitive interventions that minimize or alleviate the psychosocial issues affecting forced migrants and refugees at individual, family, group, community and societal levels. They will learn to plan, manage and implement state-of-the-art interventions that make an impact on the psychosocial well-being of refugee adults and children without discrimination due to ethnicity, gender, religion or capacities. These interventions can be implemented during and after emergencies in urban, rural or camp locations. They will include but not be limited to the provision of humanitarian relief that supports human rights and dignity, provision of basic psychological first aid and psychosocial support, facilitation of psycho-education and support for families and groups, community and child focused activities in support of psychosocial well-being, advocacy, referral, protection, psycho-education and peace building.

## Course Requirements

The specialized graduate diploma in applied psychosocial intervention requires the successful completion of 6 courses with 19 credit hours. These will consist of 5 core courses, plus one elective. The practicum course:

- MRS 513/5213 - Practicum in Psychosocial Interventions for Forced Migrants and Refugees (2 cr.) will be taken twice, once in the Fall and once in Spring; each semester will count for 2 credit hours.  
**The remaining four core courses are:**
- MRS 507/5100 - Introduction to Migration and Refugee Studies (3 cr.)

- MRS 512/5112 - Psychosocial Issues in Forced Migration (3 cr.)
  - PSYC 502/5210 - Community Psychology and Systems Theory (3 cr.)
  - MRS 514/5214 - Psychosocial Interventions for Forced Migrants and Refugees (3 cr.)
- The one elective can be selected based on student interests, with approval from the Director of the psychosocial program.

## Time Line

The Graduate Diploma in Psychosocial Intervention can be finished in one year of full time study or two years of part-time study. It does not require the completion of a thesis. Students who finish the diploma can develop it into an MA by taking the MA required courses and completing a thesis.

On the other hand, following completion of the Graduate Diploma in Psychosocial Intervention for forced migrant and refugees, if a student wants to undertake the FMRS Diploma in refugee studies, he/she will need to take one or two courses only of the four core courses depending on the electives taken in the psychosocial diploma plus two electives of the FMRS diploma.

## Kamal Adham Center for Television and Digital Journalism

Director: H. Amin

The Kamal Adham Center for Television and Digital Journalism is designed to prepare graduate students for careers in television broadcasting and news reporting in the digital age. Through its master's program, the Center offers graduates the opportunity to become reporters, producers, television anchors, hosts and media professionals at the top television and satellite channels locally and internationally.

The 33-credit hour curriculum provides comprehensive knowledge of the literature and practice of television journalism and news media. It is a practical program that provides intensive and hands-on exposure to the skills needed for producing both field reports and in-studio shows. The program courses focus on editorial and technical skills, such as scriptwriting in English and Arabic, camera use, editing and studio operations, as well as courses on interviewing, talk show hosting and voice coaching. Students learn to use the latest HD and 3D cameras and digital equipment that is comparable to facilities found in major news organizations around the world.

### Master of Arts

- Television and Digital Journalism (M.A.)

## Television and Digital Journalism (M.A.)

### Master's Degree in Television & Digital Journalism

The Kamal Adham Center for Television and Digital Journalism is designed to prepare graduate students for careers in television broadcasting and news reporting in the digital age. Through its master's program, the Center offers graduates the opportunity to become reporters, producers, television anchors, hosts and media professionals at the top television and satellite channels locally and internationally.

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for producing both field reports and in-studio shows. The program courses focus on editorial and technical skills, such as scriptwriting in English and Arabic, camera use, editing and studio operations, as well as courses on interviewing, talk show hosting and voice coaching. Students learn to use the latest HD and 3D cameras and digital equipment that is comparable to facilities found in major news organizations around the world.

### **Admission**

Applicants are required to have a minimum GPA of 3.00 (on a 4.00 scale) or its equivalent of gayyid giddan (very good) in an undergraduate degree from an accredited college or university. Applicants with relevant work experience, but with a GPA slightly lower than 3.0 may still be considered for admission by the Center's graduate committee.

In addition to general language requirements established by AUC, the applicant must demonstrate a proficiency in English at an advanced level. All applicants will be personally interviewed by the director of the program in order to assess their level of communication and spoken language skills. Some applicants will be asked to complete, with a minimum grade of B, one to three undergraduate courses in broadcast writing and production as prerequisites.

Applicants must submit official transcripts of all university degrees, an updated curriculum vitae, two recommendation letters from relevant, credible sources and a personal statement of purpose. Applicants with media experience must submit samples of their work.

Since the Television and Digital Journalism Master's is a practical and hands-on program, requiring daily assignments outside of normal scheduled classes, students are expected to be available to take classes and complete assignments during the day and evening hours. Students are advised not to hold full-time employment that might conflict with fulfilling the program's requirements.

### ***Admission checklist:***

- Proof of English Language proficiency
- Official transcripts
- Curriculum Vitae
- Two letters of recommendation
- Personal statement of purpose
- Samples of published/broadcast work if applicable
- Director interview

## **TV & Digital Journalism Master's Courses**

A minimum of 11 courses totaling 33 credit hours is required for the degree. All students must take the following:

- TVDJ 507/5207 - Practicum: TV or Special Video Assignment (3 cr.)
- TVDJ 537/5237 - TV Digital News Gathering and Script Writing (3 cr.)
- TVDJ 538/5238 - Arabic TV Script Writing (3 cr.)
- TVDJ 539/5239 - TV Presentation and Voice Coaching (3 cr.)
- TVDJ 541/5241 - Field and Studio Digital Camera Production (3 cr.)
- TVDJ 542/5242 - Digital Video Editing (3 cr.)
- TVDJ 545/5245 - TV Studio News Reporting (3 cr.)
- TVDJ 546/5246 - TV Digital Journalism Capstone (3 cr.)
- TVDJ 559/5259 - TV Interviewing and Talk Show Hosting (3 cr.)

## **Electives**



All students must also take two (2) 500-level courses offered either by the Department of Journalism and Mass Communication or departments and/or Centers of the School of Global Affairs and Public Policy. All electives must be approved by the advisor to ensure relevance to the program.

## Thesis and Comprehensive Exams

The Master's degree in Television and Digital Journalism is a professional degree. In lieu of comprehensive exams and a thesis, students are required to complete a capstone project. Those students who desire a thesis degree in preparation for eventual PhD study at an Egyptian university must, in addition to the requirements above, take JRMCMC 5200, JRMCMC 5202, JRMCMC 5204 and JRMCMC 5250, sit for comprehensives and enroll for a thesis.

## Middle East Studies Program

*Director:* R. Mason

### Middle East Studies (B.A.)

Middle East Studies is an interdisciplinary program. Middle East Studies courses are taught by faculty members from Anthropology, Arabic Studies, Economics, History, Management, Political Science, and Sociology. Through intensive study of the region's history, culture, and current issues, students gain a comprehensive understanding of the modern Middle East. See faculty listings under departmental descriptions.

#### **Bachelor of Arts**

A minimum GPA of 2.7 is required in order to declare and maintain a major in the Middle East Studies program.

A total of 120 credits is required for the bachelor's degree in Middle East Studies:

#### Core Curriculum (40 credits)

Non-Arabic speaking students must take six hours of colloquial or literary Arabic.

#### Concentration Requirements (45 credits)

Apart from the Core requirements, students must take two courses from the 200 and 300-level courses in each of the following six field fields: Anthropology, Arab Studies, Economics, History, Political Science and Sociology. In addition, the student must take a total of three, 400-level courses selected from the above fields. The rest of the courses beyond the Core and Middle East Studies major must be advanced level courses, unless they are part of the requirements of a Minor.

In the case of ARIC and HIST courses, if the student takes one of the courses listed below as part of the Core requirements, the student must take another course from the Core courses listed under these fields.

#### 200 and 300-level course requirements (36 credits)

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- ANTH 312/3301 - Anthropologies of Middle East and North Africa (3 cr.)
- ARIC 246/2346 - Survey of Arab History (3 cr.)

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)
- HIST 355/3213 - State and Society in the Middle East, 1699-1914 (3 cr.)
- HIST 356/3214 - State and Society in the Middle East, 1906-present (3 cr.)
- POLS 203/2003 - Introduction to Political Science II (3 cr.)
- POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)
- SOC 303/3303 - Social Movements (3 cr.)
- SOC 370/3085 - Environmental Issues in Egypt (3 cr.)

### Choose one of the following

- ARIC 343/3343 - Birth of Muslim Community and Rise of the Arab Caliphates (3 cr.)
- ARIC 321/3321 - Zawiyas, Harems, Coffee shops, Everyday Life in the Pre-Modern Mideast (3 cr.)
- ARIC 353/3353 - Muslim Political Thought (3 cr.)

### 400-level course requirements (9 credits)

In addition to the above courses, students are required to take three 400-level courses from the following list:

- ANTH 425/4030 - Women, Islam and the State (3 cr.)
- ANTH 450/4050 - Critical Approaches to Development (3 cr.)  
OR ANTH 460/4560 - Development Studies Seminar (3 cr.)
- ARIC 439/5142 - Islamic Law (3 cr.)
- ARIC 451/5133 - Islamic Institutions (3 cr.)
- ARIC 454/5134 - Modern Movements in Islam (3 cr.)
- ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.)
- HIST 412/4290 - Selected Topics in Modern Egyptian History (3 cr.)  
OR HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)
- HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)
- MEST 430/4301 - Special Topics in Middle East Studies (3 cr.)
- POLS 420/4420 - Issues in Middle East Politics (3 cr.)
- POLS 423/4523 - The Political Economy of Poverty and Inequality (3 cr.)
- POLS 442/4542 - Environmental Politics (3 cr.)
- SOC 450/4106 - Critical Approaches to Development (3 cr.)  
OR
- SOC 460/4560 - Development Studies Seminar (3 cr.)

### Electives (29 -41 credits)

Depending on the number of credit hours needed to complete the 120 stated above.

## Middle East Studies (M.A.)

Consistent with the mission of the School of Global Affairs and Public Policy, Middle East Studies is an interdisciplinary academic program designed to provide students with a comprehensive understanding of the peoples, societies and economies of the region. The graduate program offers courses in Arabic language and literature, anthropology, economics, gender and women's studies, history, law, political science and sociology with the purpose of

introducing students to a variety of methodologies for studying the Middle East. The graduate program focuses on the period from the 18th century onwards and addresses issues of religion, ecology, history, economy, society, polity, gender, and culture. Given the geographical location of Cairo, the program as a whole concentrates on the Arab region. The program is intended for students who wish to pursue a variety of careers such as academia, diplomacy, other government service, work with NGOs, development, business, finance, journalism, public relations and cultural affairs.

### **Master of Arts**

The master's degree program in Middle East Studies is an interdisciplinary degree program. Applicants for admission should have an undergraduate degree of high standing (GPA of 3.0 or higher). Prerequisites are often assigned depending on the individual student's academic background. The program is designed to meet the needs of aspiring professionals who need in-depth knowledge of the modern Middle East as well as those intending to pursue an academic career.

### **Admission**

Students are normally admitted to the MA degree program in the fall only. The application deadline for fall 2019 is February 1 for application with a fellowship and April 1 for application without a fellowship. Students who are offered admission must indicate their intention to enroll by May 15 and pay a deposit to hold their place.

### **Language**

To obtain the MA each candidate must demonstrate, in addition to the normal university requirements in English, proficiency in Modern Standard Arabic up to the completion of ALNG 1101-1102-1103.

Proficiency is tested by an examination administered by the Arabic Language Institute. Students who have no background in Arabic are strongly advised to enroll in the summer intensive course (20 contact hours a week, 12 credits) of the Arabic Language Unit before beginning their MA program.

## **Courses**

Ten courses are required for the MA degree (Eight for those who choose to write an MA thesis and enroll in MEST 5298 and MEST 5299. The following two courses are required:

- MEST 569/5201 - A Critical Introduction to Middle East Studies (3 cr.)
- MEST 570/5202 - Interdisciplinary Seminar in Middle East Studies (3 cr.)

### **Students must choose three of the following 8 courses:**

An approved 400 or 500 level course in modern Arabic literature.

- ARIC 451/5133 - Islamic Institutions (3 cr.)
- ARIC 460/5135 - Selected Topics in Middle Eastern History, 600-1800 AD (3 cr.)
- ARIC 000/5137 - International Trade 1000 - 1700: Egypt and the Mediterranean - Red Sea Trade (3 cr.)
- ARIC 542/5231 - Seminar on the Nineteenth-Century Middle East (3 cr.)  
/HIST 5222
- ARIC 543/5232 - Seminar on the Twentieth-Century Middle East (3 cr.)  
/ HIST 5223
- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- GWST 501/5101 - Visual, Literary, and Critical Approaches to Gender in MENA (3 cr.)
- LAW 505/5205 - Islamic Law Reform (3 cr.)

- MEST 430/4301 - Special Topics in Middle East Studies (3 cr.)
- POLS 535/5235 - Middle East Politics (3 cr.)
- SOC/ANTH 503/5290 - Middle Eastern Societies and Cultures (3 cr.)

## Note

The other five courses (or three for thesis writers) may be selected from 400 or 500 level courses related to the Middle East in Anthropology/Sociology, Arabic Studies, Economics, Gender and Women's Studies, History, Law, Middle East Studies, Migration & Refugee Studies, Public Policy & Administration and Political Science. No more than two 400 level courses may be counted towards the degree and only one course originally at the 400 level, but for which requirements are added to raise it to 500 level may be applied towards the degree. Students must consult with their advisor to ensure an adequate coverage of social science and history.

## Thesis

Students opting to do a thesis must complete a thesis in accordance with university regulations. Before commencing work on the thesis, the student must have a thesis proposal approved by three faculty members.

## Comprehensive Examination

Students not opting to do a thesis will, after the completion of all course requirements, take a comprehensive examination administered by an interdisciplinary examining board. An oral examination will be given following the written test.

## Middle East Studies (Graduate Diploma)

The diploma program in Middle East Studies is designed to fill the need for familiarity with modern Middle Eastern culture and society, particularly for students who have not been exposed to an intensive study of the Middle East at the undergraduate level.

Students are expected to finish the program in two semesters, though they may take up to four semesters to complete their requirements.

### Admission

An applicant should have an undergraduate degree of high standing (a GPA of 3.0 or above). Prerequisites may be assigned depending on the applicant's academic background.

### Language

To obtain the diploma each candidate must demonstrate, in addition to the normal university requirements in English, proficiency in Modern Standard Arabic up to the completion of ALNG 1101-1102-1103.

### Courses

Five courses are required for the Diploma, from at least three departments. Students can take a maximum of two courses at the 400 level. Students must take three of the following courses:

- ARIC 451/5133 - Islamic Institutions (3 cr.)
- ARIC 543/5232 - Seminar on the Twentieth-Century Middle East (3 cr.)

or

HIST 5223

ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)

MEST 569/5201 - A Critical Introduction to Middle East Studies (3 cr.)

POLS 535/5235 - Middle East Politics (3 cr.)

SOC/ANTH 503/5290 - Middle Eastern Societies and Cultures (3 cr.)

The remaining two courses must be related to the Middle East, from Arab & Islamic Civilizations, Economics, Gender and Women's Studies, History, Law, Middle East Studies, Political Science, Anthropology/Sociology, Migration & Refugee Studies or Public Policy & Administration.

## **Prince Alwaleed Bin Talal Bin Abdulaziz Alsaud Center for American Studies and Research**

**Prince Alwaleed Bin Talal Bin Abdulaziz Alsaud Center for American Studies and  
Research  
School of Global Affairs and Public Policy**

*Director:* M. Shahin

### **American Studies Minor**

The minor in American Studies at AUC is an interdisciplinary program in which students take a minimum of five courses (15 credits) among specified offerings involving the study of the history or culture of the United States and the Americas. Students are required to take ECLT 209 /HIST 2019 (Introduction to American Studies), and four other courses as electives from among courses offered on American issues and topics in anthropology, journalism, history, literature, philosophy, sociology, political science, and other disciplines. Courses listed under the heading "Selected Topics" may be included if the content is relevant to the United States and the Americas.

### **Requirements:**

- ECLT 209/2019 - Introduction to American Studies (3 cr.)

**And at least four of the following:**

- AMST 299/2096 - Selected Topics for Core Curriculum (3 cr.)
- AMST 301/3100 - The US and the World Economy (3 cr.)
- AMST 310/3010 - American Literature to 1900 (3 cr.)
- AMST 311/3011 - Modern American Literature (3 cr.)
- AMST 356/3016 - American Philosophy (3 cr.)
- AMST 400/4001 - Selected Topics in American Studies (3 cr.)
- AMST 444/4444 - Media Law and Policy (3 cr.)
- ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)
- ANTH 390/3305 - Selected People and Culture Areas (3 cr.)

See footnote one.

- ECLT 308/3008 - Modern European and American Literature (3 cr.)
- HIST 201/2501 - History of American Civilization to the Nineteenth Century (3 cr.)
- HIST 202/2502 - History of Modern American Civilization (3 cr.)
- HIST 401/4588 - Selected Topics in the History of the United States (3 cr.)
- POLS 303/3403 - American Government and Politics (3 cr.)
- POLS 415/4615 - U.S. Foreign Policy (3 cr.)
- SOC 303/3303 - Social Movements (3 cr.)
- SOC 307/3304 - Social Class and Inequality (3 cr.)  
See footnote one.
- SOC 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)  
See footnote one.
- SOC 408/4020 - Criminology (3 cr.)  
See footnote one.

## Notes:

Footnote one: when instructor and the Dean of GAPP deem course content appropriate

Footnote two: with permission of the instructor

See departmental announcements or AUC Catalog entries under departmental headings for complete course descriptions.

# School of Humanities and Social Sciences

## Department of Applied Linguistics

**Department of Applied Linguistics**  
**School of Humanities and Social Sciences**

Chair: R. Bassiouney

*Associate Professors:* R. El Essawi, M. Plumlee, Z. Taha, R. Williams

*Assistant Professors:* L. Fredricks, A. Gebril

*Professors Emeriti:* Y. El-Ezabi, F. Perry, P. Stevens

Applied Linguistics is an interdisciplinary field of inquiry that addresses a broad range of language-related issues in order to improve the lives of individuals and conditions in society. It draws on a wide range of theoretical, methodological, and educational approaches from various disciplines—from the humanities to the social, cognitive, medical, and natural sciences—as it develops its own knowledge-base about language, its users and uses, and their underlying social and material conditions. The Department of Applied Linguistics at AUC has as its primary focus the application of linguistic knowledge to language pedagogy, particularly the Teaching of Arabic as a Foreign Language and the Teaching of English to Speakers of Other Languages.

### Linguistics Minor

The linguistics minor is administered by the Department of Applied Linguistics. The minor offers courses that help students understand how language is used for effective communication in different fields such as politics, the media, and business. It also aims to help students understand how language relates to community and identity. In addition, the minor aims to equip students with research skills and the tools to collect and analyze data. Furthermore, the minor offers courses in language teaching and using computers for linguistic analysis.

## Requirements (9 credits):

- LING 252/2200 - Introduction to Linguistics (3 cr.)
- LING 000/2220 - Language and Society (3 cr.)
- LING 000/3310 - Linguistic Fieldwork (3 cr.)

## And two of the following elective courses (6 credits)

LING 200/2201 - Languages of the World (3 cr.)

LING 268/2210 - Principles and Practice of Teaching English (3 cr.)

LING 000/2230 - Language and Communication (3 cr.)

LING 3075 / ANTH 352/3075 - Language in Culture (3 cr.)

LING 000/3320 - Language and Politics (3 cr.)

LING 000/3330 - Introduction to Corpus Linguistics (3 cr.)

LING 000/3340 - Language Assessment (3 cr.)

LING 000/4410 - Introduction to Computational Linguistics (3 cr.)

## Teaching Arabic as a Foreign Language (M.A.)

*Associate Professors:* Z. Taha, R. El Essawi (Director TAFL program)

Interest in the Arabic language has increased greatly throughout the world. With this has come a demand for professionals trained in the field. Based on modern theory and practice, the master's degree and the diploma programs in Teaching Arabic as a Foreign Language (TAFL) are especially designed to meet this need.

The master's degree requires two years' residence and covers the following areas: linguistics, second language acquisition, and methods of teaching foreign languages. Practice teaching is also required. The courses have been structured to promote research as well as to develop highly trained teachers. In addition, a number of issues related to the role of Arabic in modern society are freshly examined, such as current methods of teaching Arabic to children, reform of the writing system, grammar reform movements, and the problem of diglossia. The TAFL program seeks to inspire new approaches to these problems.

### **Admission:**

- Applicants for the Master of Arts degree in TAFL should preferably hold a Bachelor of Arts degree specializing in Arabic language, Islamic studies, Middle East area studies, or a modern language. Applicants should also meet general university admission requirements.

- Applicants who are not specialized in Arabic language will need to:

Take an entrance exam to be offered by the TAFL program to show that the applicant has adequate command of Arabic to qualify for admission into the program.

Take up to 12 additional credit hours before they start their courses in the TAFL program. The number of credit hours an applicant needs to take will be decided by the academic advisor based on the applicant's performance in the entrance exam, his/her undergraduate GPA, and his/her previous teaching experience. Applicants need to finish such courses with a GPA of 3.0 or more.

### **Language**

Native speakers of Arabic who are holding degrees other than Arabic language or Islamic studies must demonstrate in an examination that their proficiency in Arabic is adequate for study in the program.

For non-native speakers of Arabic the level of language proficiency required for admission is Superior as specified by the guidelines of the American Council for the Teaching of Foreign Languages (ACTFL). Those with less but showing exceptional promise may be recommended for AUC preparatory training in Arabic for a period not to exceed one year. An applicant who is not a native speaker of English must have sufficient command of English to qualify for admission as an AUC graduate student. Those with less but showing exceptional promise may be recommended for AUC preparatory training for a period not to exceed one year.

• Applicants for the Master of Arts degree in TAFL should preferably have teaching experience prior to admission into the program or concurrently with the program. Applicants with no or little experience in teaching are required to work as unpaid teacher assistants for at least one semester before graduation.

**For graduation the following is required:**

- A minimum of 30 graduate credit hours and a thesis are required unless the student is not specialized in Arabic where s/he will be required to finish up to 42 credit hours as indicated in section entitled "Admission" (additional courses are listed under collateral requirements).
- Both specialized and non-specialized students have to take the core courses indicated below.
- Electives should complete the required number of credit hours. Choice will depend upon the thesis topic and the student's undergraduate field of study and must be approved by the adviser. While they are normally selected from among 500-level TAFL courses, with the adviser's approval, electives may include up to two non-TAFL courses. No more than two 400-level courses may be counted toward the degree.
- In some circumstances and with the adviser's approval, a candidate may be allowed to replace the thesis with two additional courses, increasing the total number of minimum credit hours required from 30 to 36 if student is specialized in Arabic. If student is not specialized in Arabic, he/she will need to finish up to 54 credit hours instead of 42. In such cases candidate would be required to take a comprehensive examination instead of writing a thesis.
- Students planning to write a thesis must attend a non-credit thesis seminar (Seminar for Thesis Writers) at least one (preferably two) semesters prior to registering for Research Guidance and Thesis course.
- The student writing a thesis must produce a professional paper on some aspect of TAFL. The thesis must be prepared under the guidance and close supervision of a faculty adviser and a designated committee.

**Courses**

**A. For students who specialized in Arabic Language:**

**I. Core requirements:**

- APLN 501/5201 - Principles of Linguistic Analysis (3 cr.)
- APLN 503/5202 - Second Language Acquisition (3 cr.)
- APLN 510/5203 - Methods of Teaching a Foreign Language I (3 cr.)
- APLN 511/5204 - Methods of Teaching Arabic to Non-native Speakers II (3 cr.)
- APLN 520/5302 - Research Methods in Applied Linguistics (3 cr.)
- APLN 553/5205 - Sociolinguistics (3 cr.)
- APLN 555/5206 - Seminar on Challenges Facing AFL Teachers (3 cr.)

**II. Electives:**

- APLN 507/5310 - Computer Assisted Language Learning (CALL) (3 cr.)
- APLN 540/5270 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)
- APLN 515/5101 - The Phonetics of Arabic (3 cr.)
- APLN 550/5322 - Language Pragmatics (3 cr.)
- APLN 551/5323 - Discourse of Analysis for Language Teachers (3 cr.)



- APLN 563/5211 - Language Variation and Change (3 cr.)
- (All TESOL electives are open for TAFL students upon agreement of academic advisor.)

**B. For students not specialized in Arabic Language:**

**I. Collateral requirements**

(The number of courses taken is to be decided by the academic advisor based on result of entrance exam.)

- APLN 515/5101 - The Phonetics of Arabic (3 cr.)
- APLN 516/5102 - The Linguistics of Arabic (3 cr.)
- APLN 551/5103 - Advanced Arabic Grammar (3 cr.)
- APLN 515/5101 - The Phonetics of Arabic (3 cr.)

**II. Core requirements**

- APLN 501/5201 - Principles of Linguistic Analysis (3 cr.)
- APLN 503/5202 - Second Language Acquisition (3 cr.)
- APLN 510/5203 - Methods of Teaching a Foreign Language I (3 cr.)
- APLN 511/5204 - Methods of Teaching Arabic to Non-native Speakers II (3 cr.)
- APLN 520/5302 - Research Methods in Applied Linguistics (3 cr.)
- APLN 553/5205 - Sociolinguistics (3 cr.)
- APLN 555/5206 - Seminar on Challenges Facing AFL Teachers (3 cr.)

**III. Electives:**

- APLN 507/5310 - Computer Assisted Language Learning (CALL) (3 cr.)
  - APLN 540/5270 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)
  - APLN 550/5322 - Language Pragmatics (3 cr.)
  - APLN 551/5323 - Discourse of Analysis for Language Teachers (3 cr.)
  - APLN 563/5211 - Language Variation and Change (3 cr.)
- (All TESOL electives are open for TAFL students upon agreement of academic advisor.)

**Note regarding required and elective courses:**

Both required and elective courses are divided into two phases.

Phase one courses include:

APLN 5201

APLN 5202

APLN 5203

APLN 5204

Phase two courses include:

APLN 5102

APLN 5205

APLN 5206

and/or other elective courses that the student proposes to take in order to finish required credits. Students will have to finish phase one courses before moving to phase two courses.

**Comprehensive Examination**

The comprehensive examination consists of a written examination followed by an oral examination. It is required only of students not writing theses and may not be taken more than twice.

### **Thesis**

The thesis is usually required for graduation. In some circumstances and with the adviser's approval, a candidate may be allowed to replace the thesis with two additional courses, increasing the total number of minimum credit hours required from 30 to 36. In such cases the candidate would be required to take the comprehensive examination.

The student writing a thesis must produce a professional paper on some aspect of TAFL. The thesis must be prepared under the guidance and close supervision of a faculty adviser and a designated committee.

## **Teaching English to Speakers of Other Languages (M.A.)**

Professor Emeriti: Y. El-Ezabi, E. F. Perry, P. Stevens

Professors: R. Bassiouney (Department Chair), Amira Agameya

Associate Professors: A. Gebril (Program Director)

The graduate programs in Teaching English to Speakers of Other Languages (TESOL) are designed to enhance knowledge, skills, and effectiveness of teachers, researchers, and administrators in the profession. These programs attract an international student body and combine rigorous academic standards with an appropriate balance between theory and practice.

### **Admission**

It is desirable that applicants for the Master of Arts degree in TESOL have teaching experience prior to admission into the program; they may also acquire this experience concurrent with the program.

### **Language**

Applicants who are not native speakers of English will be required to demonstrate on the TOEFL with TWE that their command of English is adequate for study in the program.

## **Courses**

Required of all students:

- APLN 510/5300 - Methods of TESOL I (3 cr.)
- APLN 501/5301 - Principles of Linguistic Analysis (3 cr.)
- APLN 520/5302 - Research Methods in Applied Linguistics (3 cr.)
- APLN 500/5303 - English Grammar (3 cr.)
- APLN 503/5304 - Second Language Acquisition (3 cr.)
- APLN 502/5305 - Assessment in Language Learning (3 cr.)
- APLN 511/5397 - Methods of TESOL II (3 cr.)

### **For thesis writers:**

For thesis writers, a minimum of 33 graduate hours plus the thesis is required. For non-thesis writers, a minimum of 36 graduate hours is required plus a comprehensive examination.

## Electives

In choosing electives, students with assistance of their advisors, are to choose at least one course from two of the groups listed below.

### 1. Education and research:

- APLN 507/5310 - Computer Assisted Language Learning (CALL) (3 cr.)
- APLN 570/5311 - Thesis Proposal Writing (3 cr.)
- APLN 531/5312 - Second Language Reading and Writing: Theory and Practice (3 cr.)
- APLN 540/5370 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)

### 2. Linguistics:

- APLN 521/5320 - English Syntax (3 cr.)
- APLN 548/5321 - Corpus Linguistics (3 cr.)
- APLN 550/5322 - Language Pragmatics (3 cr.)
- APLN 551/5323 - Discourse of Analysis for Language Teachers (3 cr.)
- APLN 540/5370 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)

### 3. Cross-linguistic, cross-cultural studies:

- APLN 550/5322 - Language Pragmatics (3 cr.)
- APLN 525/5330 - Language Transfer, Contrastive Analysis, and Error Analysis (3 cr.)
- APLN 553/5331 - Sociolinguistics (3 cr.)
- APLN 540/5370 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)

## Note

In the case of APLN 5370 Selected Topics in Applied Linguistics, the course topic must relate to the general category.

## Capstone Portfolio

As a part of their graduation requirements, students will submit a capstone portfolio at the end of their final semester. The capstone portfolio will include various items of graded student work from core and elective courses showing that students have successfully achieved MATESOL program learning outcomes. The capstone portfolio will be submitted as a final assignment in APLN 511/5397 - Methods of TESOL II (3 cr.) .

## Comprehensive Examination

The Comprehensive Examination consists of a written examination followed by an oral examination. It is required only of students not writing theses, and may not be taken more than twice.

## Thesis

The thesis as a requirement for graduation is optional. The student who chooses to write a thesis must produce a professional paper on some aspect of TESOL/applied linguistics. The thesis must be prepared under the guidance and close supervision of a faculty adviser and a designated committee, and must be defended to the satisfaction of the department. The thesis defense is not open to the public.

## TAFL (Graduate Diploma)

### Complete the following six TAFL courses:

The diploma program in TAFL is designed for qualified teachers of Arabic who meet the same admission requirements as those for the masters degree. The diploma is awarded to those who successfully complete the following six TAFL courses:

- APLN 516/5102 - The Linguistics of Arabic (3 cr.)
- APLN 510/5203 - Methods of Teaching a Foreign Language I (3 cr.)
- APLN 511/5204 - Methods of Teaching Arabic to Non-native Speakers II (3 cr.)
- APLN 507/5210 - Computer Assisted Language Learning (CALL)/Computer Operations Techniques (3 cr.)
- APLN 502/5305 - Assessment in Language Learning (3 cr.)

## Notes

One three-hour elective course to be decided upon by the student

A maximum of one appropriate course may be accepted, with departmental approval, as transfer credit toward the diploma in lieu of APLN 5305 , APLN 5203, APLN 5102, or an acceptable elective.

## TESOL (Graduate Diploma)

The Diploma program is designed for qualified teachers of English who meet the same admission requirements as those for the Master of Arts degree.

### The Diploma is awarded to those who successfully complete the following six TESL courses:

- Two three-hour additional courses to be decided upon by the student in consultation with the academic adviser
- APLN 500/5303 - English Grammar (3 cr.)
- APLN 501/5301 - Principles of Linguistic Analysis (3 cr.)
- APLN 503/5304 - Second Language Acquisition (3 cr.)
- APLN 510/5300 - Methods of TESOL I (3 cr.)

### A maximum of one appropriate course may be accepted

With departmental approval, as transfer credit toward the Diploma in lieu of the following:

- APLN 501/5301 - Principles of Linguistic Analysis (3 cr.)
  - APLN 503/5304 - Second Language Acquisition (3 cr.)
  - APLN 510/5300 - Methods of TESOL I (3 cr.)
  - APLN 511/5397 - Methods of TESOL II (3 cr.)
- or an acceptable elective

## Department of Arab and Islamic Civilizations

### Department of Arab and Islamic Civilizations School of Humanities and Social Sciences

*Professor Emeritus:* M. El Rabie, H. Sakkout

*Distinguished University Professor:* N. Hanna

*Professors:* S. Mehrez, B. O'Kane, M. Serag

*Visiting Professor:* N. El-Naggar

*Associate Professor Emeriti:* H. Lutfi, E. Sartan

*Associate Professors:* A. Elbendary (Chair), E. Fernandes, E. Kenney

*Assistant Professor:* P. Held, D. Heshmat, A. Khan

### Arabic Studies, with specializations in Arabic Literature, Middle Eastern History and Islamic Art and Architecture (B.A.)

The department of Arab and Islamic Civilizations provides a multi-disciplinary framework for the study of the history and culture of the Middle East since the rise of Islam. It seeks to explain the thought, movements, processes, institutions and identities of Arab-Islamic civilization. These include but are not limited to aesthetic and intellectual production, political and religious thought, cross-cultural interaction, commerce and economic relations, government, and social, political and religious loyalties. The study and appreciation of these fields forms an important part of the university's mission to give students a greater awareness and appreciation of the heritage of the Middle East.

#### Bachelor of Arts

The objective of the Bachelor of Arts is to develop a broad awareness of Arab-Islamic civilization and to develop in students the ability to examine critically the different aesthetic, intellectual and cultural components of this civilization. Each student is required to fulfill Arabic language requirements and take a common core of courses from Arabic Literature, Islamic Studies, Middle Eastern History and Islamic Art and Architecture. Students should find opportunities in any line of work where knowledge of Middle Eastern culture or analytical and communication skills are important.

A total of 120 credits is required for the degree in Arabic Studies.

#### Language Requirements

Students must demonstrate their proficiency in Arabic at the advanced level, either by completing ALNG 312/3502 or its equivalent, or by taking a proficiency test, or by holding the Thanawiya 'Amma. Students must reach this level of proficiency before their senior year. The department may give permission for deferral until the senior year in exceptional cases. However, students should note that advanced-level proficiency is a prerequisite for enrollment in certain Arabic literature courses, as described below. Students who are required to take Arabic language proficiency courses may use a maximum of 15 hours of their elective credits to take language courses in Intermediate or Advanced Arabic. Elementary Arabic courses may not be taken for credit.

Students should have the Thanawiya 'Amma certificate, evidence of advanced-level proficiency or consent of instructor before enrolling in any Arabic literature course which is taught in Arabic, or in ARIC 5114 for which the readings are in Arabic.

## Core Curriculum (40 credits)

ARIC majors must fulfill their Core Curriculum Arab History and Arabic Literature requirements by taking any 300-level Arabic literature course and any Middle Eastern history course from the core curriculum list other than ARIC 3343. They should take the introductory 200-level courses required by their major before fulfilling their Core Curriculum requirements.

## Concentration requirements (39 credits)

All students must take 15 credit hours as follows:

### Arabic literature (3 credits)

- ARIC 201/2101 - Introduction to Classical Arabic Literature (3 cr.)

### Middle Eastern history (3 credits)

- ARIC 246/2346 - Survey of Arab History (3 cr.)

### Islamic Studies (6 credits)

- ARIC 335/3435 - Introduction to the Study of Islam (3 cr.)
- ARIC 435/5141 - Studies in the Qur'an (3 cr.)

### Islamic Art and Architecture (3 credits)

Any 2000-level course in Islamic Art & Architecture

## Additional Requirements

Each student must take another 24 credits of ARIC courses, chosen with the help of the advisor. These must include two additional 400-level courses.

## Specializations

Students are encouraged to specialize in one of three fields: Middle Eastern History, Arabic Literature, or Islamic Art and Architecture, as part of their BA degree in Arabic Studies.

## Specialization in Middle Eastern History

Students who wish to specialize in Middle Eastern History should take:

A minimum of five courses (15 cr.) from the following list:

- ARIC 343/3343 - Birth of Muslim Community and Rise of the Arab Caliphates (3 cr.)
- ARIC 344/3344 - Caliphs and Sultans in the Age of Crusades and Mongols (3 cr.)
- ARIC 345/3345 - Gunpowder Empires: Ottomans, Safavids and Mughols (3 cr.)
- ARIC 353/3353 - Muslim Political Thought (3 cr.)
- ARIC 319/3319 - Islamic Spain and North Africa (711-1492 A.D.) (3 cr.)
- ARIC 321/3321 - Zawiyas, Harems, Coffee shops, Everyday Life in the Pre-Modern Mideast (3 cr.)
- ARIC 323/3323 - Marriage and the Family in the Medieval and Early Modern Middle East (3 cr.)
- ARIC 324/3324 - Non-Muslim Communities in the Muslim World (3 cr.)
- ARIC 336/3336 - Studies in Ibn Khaldun (3 cr.)
- ARIC 337/3337 - Shi'i Muslims in History (3 cr.)

In addition to, a minimum of two courses (6 cr.) from the following list:

- ARIC 451/5133 - Islamic Institutions (3 cr.)
- ARIC 460/5135 - Selected Topics in Middle Eastern History, 600-1800 AD (3 cr.)
- ARIC 000/5137 - International Trade 1000 - 1700: Egypt and the Mediterranean - Red Sea Trade (3 cr.)
- ARIC 404/5113 - Sira and Hadith (3 cr.)
- ARIC 439/5142 - Islamic Law (3 cr.)

And at least one course (3 cr.) from the following list:

- HIST 355/3213 - State and Society in the Middle East, 1699-1914 (3 cr.)
- HIST 356/3214 - State and Society in the Middle East, 1906-present (3 cr.)
- HIST 454/4219 - Modern Movements in Islam (3 cr.)
- HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)
- HIST 440/4217 - Colonialism and Imperialism in the Middle East and South Asia (3 cr.)

## Specialization in Arabic Literature

Students who wish to specialize in this field must complete 24 credits in Arabic literature. At least of 18 of these 24 credits should be taken in the courses listed below. It is expected that the readings for these classes will be in Arabic. A student may take up to two classes in which translated texts are used, provided they read the texts in the original Arabic.

ARIC 417/5114 - Special Studies in Arabic Texts (3 cr.) , as appropriate.

- ARIC 305/3104 - Arabic Literature and Gender (3 cr.)
- ARIC 306/3106 - Arabic Literature and Film (3 cr.)
- ARIC 307/3107 - The Writer and the State (3 cr.)
- ARIC 308/3108 - Colloquial and Folk Literature (3 cr.)
- ARIC 309/3097 - Selected Themes and Topics in Arabic Literature (3 cr.)
- ARIC 310/3197 - Selected Themes and Topics in Arabic Literature in Translation (3 cr.)
- ARIC 314/3114 - The Arabic Novel (3 cr.)
- ARIC 315/3115 - Arabic Drama (3 cr.)
- ARIC 316/3116 - The Arabic Short Story (3 cr.)

- ARIC 401/5110 - Senior Seminar in Arabic Texts (3 cr.)
- ARIC 402/5111 - Senior Seminar in Arabic Literature in Translation (3 cr.)
- ARIC 403/5112 - Arabic Literary Criticism (3 cr.)

## Electives (32 credits)

Depending on the number of credits needed to complete the 20 credits, the student is strongly advised to use some of their electives to take a suitable minor or minors.

### Language Requirement

Student may use up to 15 credit hours of electives to satisfy the Arabic language requirements for the ARIC degree.

## Specialization in Islamic Art and Architecture

In addition to the Islamic Art and Architecture courses ( ARIC 2206 and ARIC 270/2270) stipulated in the Arabic Studies core requirements, the students must take an additional 8 courses (24 credit hours), of which two must be of the 400-level, from among the following:

- ARIC 270-271/2270-2271 - From Andalusia to Indonesia: Introduction to Islamic Art and Architecture (3 cr. per semester)

### 7 courses (21 credit hours) from among the following courses:

- ARIC 368/3268 - The Art of the Book in the Islamic World (3 cr.)
- ARIC 369/3269 - The Arts of Fire: Ceramics and Glass of the Islamic World (3 cr.)
- ARIC 370/3270 - The Age of Transition: Early Islamic Art and the Pre-Islamic Past (3 cr.)
- ARIC 371-372/3271-3272 - Islamic Architecture in Egypt and Syria (3 cr. per semester)
- ARIC 464/5121 - Islamic Art and Architecture in India and Pakistan (3 cr.)
- ARIC 465-466/5122-5123 - Islamic Architecture in Turkey, Persia and Central Asia (3 cr.)
- ARIC 467/5124 - Islamic Architecture in Spain and North Africa (3 cr.)
- EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
- EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)

### Notes:

In addition to the core and specialization requirements an additional 26-38 credit hours can be devoted to electives.

## Arab and Islamic Civilizations Minor

### Requirements (15 credits):

Any five courses offered by the department (ARIC).

## Arabic Literature Minor



## Program Requirements (15 credits):

Students should take two (2) introductory courses in sequence either:

- ARIC 201/2101 - Introduction to Classical Arabic Literature (3 cr.)
  - ARIC 202/2102 - Introduction to Modern Arabic Literature (3 cr.)
- Or

- ARIC 203/2103 - Classical Arabic Literature in Translation (3 cr.)
- ARIC 204/2104 - Modern Arabic Literature in Translation (3 cr.)

Students will also take three (3) courses from the following, depending on the student's area of interest:

- ARIC 305/3104 - Arabic Literature and Gender (3 cr.)
- ARIC 306/3106 - Arabic Literature and Film (3 cr.)
- ARIC 307/3107 - The Writer and the State (3 cr.)
- ARIC 308/3108 - Colloquial and Folk Literature (3 cr.)
- ARIC 309/3097 - Selected Themes and Topics in Arabic Literature (3 cr.)
- ARIC 310/3197 - Selected Themes and Topics in Arabic Literature in Translation (3 cr.)
- ARIC 314/3114 - The Arabic Novel (3 cr.)
- ARIC 315/3115 - Arabic Drama (3 cr.)
- ARIC 316/3116 - The Arabic Short Story (3 cr.)
- ARIC 401/5110 - Senior Seminar in Arabic Texts (3 cr.)
- ARIC 402/5111 - Senior Seminar in Arabic Literature in Translation (3 cr.)
- ARIC 403/5112 - Arabic Literary Criticism (3 cr.)

## Classical/Medieval Islamic History Minor

### Requirements (15 credits):

5 courses from the following, depending on the student's area of interest:

- ARIC 320/3020 - Introduction to Sufism (3 cr.)
- ARIC 321/3321 - Zawiya, Harems, Coffee shops, Everyday Life in the Pre-Modern Mideast (3 cr.)
- ARIC 322/3322 - Land, Trade and Power: a History of Economic Relations in the Middle East, 600-1800 A.D. (3 cr.)
- ARIC 323/3323 - Marriage and the Family in the Medieval and Early Modern Middle East (3 cr.)
- ARIC 324/3324 - Non-Muslim Communities in the Muslim World (3 cr.)
- ARIC 336/3336 - Studies in Ibn Khaldun (3 cr.)
- ARIC 343/3343 - Birth of Muslim Community and Rise of the Arab Caliphates (3 cr.)

- ARIC 344/3344 - Caliphs and Sultans in the Age of Crusades and Mongols (3 cr.)
- ARIC 345/3345 - Gunpowder Empires: Ottomans, Safavids and Mughols (3 cr.)
- ARIC 353/3353 - Muslim Political Thought (3 cr.)
- ARIC 440/5131 - Arabic Historical Literature (3 cr.)
- ARIC 451/5133 - Islamic Institutions (3 cr.)
- ARIC 460/5135 - Selected Topics in Middle Eastern History, 600-1800 AD (3 cr.)

## Islamic Art and Architecture Minor

This minor gives a greater appreciation of the cultural heritage of the Arab-Islamic world to interested students.

### Requirements (15 credits):

- ARIC 206/2206 - The City of Cairo (3 cr.)
- ARIC 270-271/2270-2271 - From Andalusia to Indonesia: Introduction to Islamic Art and Architecture (3 cr. per semester)

### Two of the following:

- ARIC 370/3270 - The Age of Transition: Early Islamic Art and the Pre-Islamic Past (3 cr.)
- ARIC 371-372/3271-3272 - Islamic Architecture in Egypt and Syria (3 cr. per semester)
- ARIC 368/3268 - The Art of the Book in the Islamic World (3 cr.)
- ARIC 369/3269 - The Arts of Fire: Ceramics and Glass of the Islamic World (3 cr.)
- ARIC 465-466/5122-5123 - Islamic Architecture in Turkey, Persia and Central Asia (3 cr.)

## Islamic Studies Minor

The minor is designed for students, particularly those coming from abroad, who wish to gain a deeper knowledge and appreciation of Islam as a culture.

### Requirements (15 credits):

- ARIC 404/5113 - Sira and Hadith (3 cr.)
- ARIC 435/5141 - Studies in the Qur'an (3 cr.)
- ARIC 451/5133 - Islamic Institutions (3 cr.)

### And two of the following:

- ARIC 336/3336 - Studies in Ibn Khaldun (3 cr.)
- ARIC 353/3353 - Muslim Political Thought (3 cr.)
- ARIC 354/3405 - Islamic Philosophy (3cr.)
- ARIC 454/5134 - Modern Movements in Islam (3 cr.)
- ARIC 463/5101 - Selected Topics in the History of Islamic Thought and Institutions (3cr.)

## **Arabic Studies, with specializations in Islamic Art and Architecture, Arabic Language and Literature, Middle Eastern History and Islamic Studies (M.A.)**

The department of Arab and Islamic Civilizations (ARIC) offers Master's degrees in Arabic Studies with emphases in four fields: Islamic Art and Architecture, Middle Eastern History, Islamic Studies, Arabic Language and Literature. The degree program is designed to give students a solid academic background in the ideas and traditions that form the foundation of the important contributions of the Arab and Muslim peoples to human civilization. Course offerings cover the Arab and Islamic world from the seventh century to the modern era. All students must write a master's thesis based on research using original Arabic language sources. There is no comprehensive exam option. The master's degree in Arabic Studies is best-suited for students who hope to pursue a career in academia, but it will also prove invaluable to students who want to go into diplomacy, government service, journalism, and similar fields.

The student may choose one of the following areas of specialization:

1. Arabic Language and Literature
2. Islamic Art and Architecture
3. Middle Eastern History
4. Islamic Studies

### **Courses**

The student must take a minimum of eight courses in his/her area of specialization.

#### **These must include**

##### **For Arabic Language and Literature specialization**

Choose one of the following:

- ARIC 504/5210 - Seminar on a Selected Work or Author in Classical Arabic Literature (3 cr.)
- OR
- ARIC 507/5211 - Seminar on Modern Arabic Literature: Nineteenth Century (3 cr.)
- ARIC 508/5212 - Seminar on Modern Arabic Literature: Twentieth Century (3 cr.)

##### **For Islamic Art and Architecture specialization**

Choose one of the following:

- ARIC 575-576/5222-5223 - Special Studies in Islamic Art and Architecture (3 cr.)

##### **For Islamic Studies Specialization**

Choose one of the following:

- ARIC 435/5141 - Studies in the Qur'an (3 cr.)
- Or
- ARIC 525/5241 - Seminar on Selected Topics in Sira or Hadith (3 cr.)

Students may also choose one of the following:

- ARIC 526/5242 - Seminar on Selected Topics in Islamic Law and Legal Theory (3 cr.)  
Or
- ARIC 527/5243 - Selected Topics in Islamic Theology, Sufism or Philosophy (3 cr.)

## For Middle Eastern History specialization

Choose one of the following:

- ARIC 530/5230 - Seminar on a Selected Topic in Medieval Arab/Islamic History, 600-1800 A.D. (3 cr.)  
OR
- ARIC 542/5231 - Seminar on the Nineteenth-Century Middle East (3 cr.)  
OR
- ARIC 543/5232 - Seminar on the Twentieth-Century Middle East (3 cr.)

## Additional Requirements

5100 level courses may be taken as part of the M.A. program in which case extra readings and research will be required of the graduate students. See below:

- ARIC 510-511/5213-5214 - Special Studies in Classical Arabic Literature (3 cr.)
- ARIC 512-513/5215-5216 - Special Studies in Modern Arabic Literature (3 cr.)
- ARIC 521-522/5202-5203 - Special Studies in Islamic Thought and Institutions (3 cr.)
- ARIC 560 - 561/5233-5234 - Special Studies in Middle Eastern History (3 cr.)
- ARIC 575-576/5222-5223 - Special Studies in Islamic Art and Architecture (3 cr.)

## Notes:

Subject to departmental approval, up to two courses may be taken outside the area of specialization.

Courses on 19th - 20th century Middle Eastern history are taught by the Department of History.

## Admissions

The history unit has a preference for applicants who already have some academic background in Arabic and Islamic studies and who have studied the Arabic language at the university level for at least one year.

## Language

To be eligible for the master of arts degree in Arabic Studies the student must reach an acceptable level of proficiency in advanced literary Arabic as established by examinations. The student whose degree concentration is Arabic language and literature is expected to go beyond this minimum requirement. The student whose degree concentration is Islamic Art & Architecture is expected to attain the equivalence of ALNG 2101-2102-2103 by test. The student whose degree concentration is history must reach the ALNG 3103-3104 level or its equivalent before writing his/her thesis. To be eligible for the degree of master of arts in Arabic studies, the student must also demonstrate through examination a reading knowledge of at least one major language other than English, preferably French or German. If the student's research can be performed successfully without knowledge of a third language, the department may exempt the student from this requirement.

## Thesis

A thesis is required in all three branches of the master of arts in Arabic studies. The thesis must be written in English and submitted in accordance with university regulations.

## Arabic Studies (Graduate Diploma)

An opportunity for students who do not plan to pursue doctoral research or academic careers to study the history, culture, religion, literature, and material culture of the Arab and Islamicate worlds.

An opportunity for students with a background in history, literature, art history, etc. to complement their knowledge with specific study pertaining to the Arab and Islamicate worlds.

### Requirements:

Students will take six (6) courses from at least two different disciplinary specializations taught in the department of Arab & Islamic Civilizations.

Two (2) of the six (6) courses should be chosen from the following list:

ARIC 504/5210 - Seminar on a Selected Work or Author in Classical Arabic Literature (3 cr.)

ARIC 507/5211 - Seminar on Modern Arabic Literature: Nineteenth Century (3 cr.)

ARIC 508/5212 - Seminar on Modern Arabic Literature: Twentieth Century (3 cr.)

ARIC 575-576/5222-5223 - Special Studies in Islamic Art and Architecture (3 cr.)

ARIC 530/5230 - Seminar on a Selected Topic in Medieval Arab/Islamic History, 600-1800 A.D. (3 cr.)

ARIC 560 - 561/5233-5234 - Special Studies in Middle Eastern History (3 cr.)

ARIC 524/5240 - Seminar on Selected Topics in Qur'anic Studies (3 cr.)

ARIC 527/5243 - Selected Topics in Islamic Theology, Sufism or Philosophy (3 cr.)

### Admission Requirements:

Same as for existing MA programs taught in the department. If a student in good standing decides during the course of their diploma that they would like to transfer to an MA program, they may apply via the standard procedure for graduate admissions.

## Department of English & Comparative Literature

**Department of English and Comparative Literature**  
**School of Humanities and Social Sciences**

Chair: T. Abdel Nasser (Acting Chair F. Ghazoul)

Professors: F. Ghazoul, W. Melaney  
Associate Professor: T. Abdel Nasser  
Assistant Professors: B. Beckett, M. MacDonald, M. Moraw, O. Tofighian

## English and Comparative Literature (B.A.)

### Bachelor of Arts

The program in English and Comparative Literature provides the undergraduate student with an understanding of the role which literature plays in presenting men and women with images of themselves, their society, and their culture and introduces them to the different questions and answers which literature has given to the central problems of human experience.

To major in English and Comparative Literature students must have taken at least one ECLT course with not less than a C grade and be registering for the required program of the major.

A total of 120 credits is required for the bachelor's degree in English and comparative literature:

### Core Curriculum (40 credits)

### Concentration Requirements (42 credits)

- ECLT 200/2010 - Introduction to Literature (3 cr.)  
OR
- ECLT 202/2012 - Global Literature in English (3 cr.)
- 
- ECLT 201/2011 - Survey of British Literature (3 cr.)
- 
- ECLT 301/3001 - Medieval Literature (3 cr.)  
Or
- ECLT 409/4009 - Greek Classics in Translation (3 cr.)  
Or
- ECLT 410/4010 - Classics of the Ancient World (3 cr.)
- 
- ECLT 302/3002 - Literature of the Renaissance (3 cr.)  
Or
- ECLT 303/3003 - Seventeenth-Century Literature (3 cr.)  
Or
- ECLT 360/3060 - Shakespeare (3 cr.)
-

- ECLT 304/3004 - Eighteenth-Century Literature (3 cr.)  
Or
- ECLT 305/3005 - Romanticism (3 cr.)  
Or
- ECLT 306/3006 - Nineteenth-Century European Literature (3 cr.)
- 
- ECLT 308/3008 - Modern European and American Literature (3 cr.)  
Or
- ECLT 348/3048 - Contemporary Literature (3 cr.)
- 
- ECLT 310/3010 - American Literature to 1900 (3 cr.)  
Or
- ECLT 311/3011 - Modern American Literature (3 cr.)
- 
- ECLT 411/4011 - History of Literary Criticism (3 cr.)
- ECLT 412/4012 - Modern Literary Criticism (3 cr.)

Three additional courses to be chosen from the following courses (9 credits):

- ECLT 209/2019 - Introduction to American Studies (3 cr.)  
/HIST 209
- ECLT 330/3030 - Literature and Cinema (3 cr.)
- ECLT 332/3032 - World Literature (3 cr.)
- ECLT 333/3033 - African Literature (3 cr.)
- ECLT 344/3014 - Literature and Philosophy (3 cr.)
- ECLT 345/3045 - Literature and Gender (3 cr.)
- ECLT 346/3046 - Third World Literature (3 cr.)
- ECLT 347/3099 - Selected Topics (3 cr.)
- ECLT 352/3052 - Recurrent Themes in Literature (3 cr.)
- ECLT 353/3053 - Modern Drama (3 cr.)
- ECLT 370/3070 - Creative Writing (3 cr.)
- ECLT 447/4099 - Capstone Seminar: Selected Topics (3 cr.)

Any two Additional ECLT courses (6 cr.)

Collateral Requirements (3 credits)

**One** course in 300- or 400-level Arabic Literature (in Arabic or in translation).

## Electives (29-41 credits)

## English and Comparative Literature Minor

The minor in English and Comparative Literature introduces students to the analysis of the various literary genres and seeks to foster a critical appreciation and love of literature as well as an understanding of its role in society and culture.

## Requirements (15 credits):

Any five literature courses offered by the department, exclusive of 100-level courses.

## English and Comparative Literature (M.A.)

### Admission

An applicant for admission to the master's program in English and comparative literature should have a considerable background in the study of literature. Applicants who are not native speakers of English or graduates of English and comparative literature at AUC will be required to demonstrate on the TOEFL with TWE that their command of English is adequate for study in the program.

## Courses

A minimum of twenty-four graduate hours is required. Normally, eight courses are to be taken at the 5000 level. However, up to two of the eight courses might be taken at the 4000-level.

All students admitted to the graduate program will be required to take the following courses, unless they have taken these courses at the undergraduate level.

- ECLT 506/5106 - Greek Classics in Translation (3 cr.)
- ECLT 508/5108 - History of Literary Criticism (3 cr.)
- ECLT 509/5109 - Modern Literary Criticism (3 cr.)
- ECLT 555/5255 - Research Methods in Literature (3 cr.)

No more than two graduate-level courses may be transferred from another university.

With permission of the student's adviser and the chair of the department, a student may take graduate coursework in another department provided that its content is directly concerned with the area of the student's degree work. No more than two such courses will be accepted for credit toward the master's degree.

## Optional 5000 level courses:

- ECLT 507/5107 - Classics of the Ancient World (3 cr.)
- ECLT 510/5110 - Renaissance Writers (3 cr.)
- ECLT 512/5112 - Seventeenth-Century Writers (3 cr.)
- ECLT 514/5114 - Eighteenth-Century Writers (3 cr.)
- ECLT 516/5116 - The Romantic Movement (3 cr.)
- ECLT 517/5117 - Nineteenth-Century Writers (3 cr.)



- ECLT 523/5123 - Modern Poets (3 cr.)
- ECLT 531/5131 - The Modern Novel (3 cr.)
- ECLT 540/5140 - Readings in American Literature (3 cr.)
- ECLT 542/5142 - Readings in French Literature (3 cr.)
- ECLT 543/5143 - Readings in British Literature (3 cr.)
- ECLT 545-546/5199-5299 - Selected Topics (3 cr.)
- ECLT 000/5101 - Visual, Literary, and Critical Approaches to Gender in MENA (3 cr.)
- ECLT 588/5288 - Comprehensives (no cr.)
- ECLT 599/5298 - Research Guidance and Thesis (no cr.)

## Language

Before writing a thesis the student must demonstrate, in an examination, knowledge of either French or German. At the discretion of the department another modern language may be substituted, should it be more pertinent to the student's field of interest. The exam for both languages will take place in Spring and Fall of each year.

## Thesis

The department conceives of the thesis as a research paper at the recommended length of forty to sixty pages (10,000 to 15,000 words), double-spaced, standard font, which should demonstrate by its high quality the student's ability to handle the techniques of research and to write critically and pointedly about a given subject. The topic must be chosen from subjects in the student's area of concentration. It must be acceptable to the student's thesis director in the light of his/her special qualification and his/her judgment of the student's capability, and the availability of the required library facilities.

A proposal must be submitted to, and approved by, the first and second readers as well as the department chair. This should be approximately one to two thousand words. A working bibliography should be included. There will be a final defense of the thesis and related topics.

## Comparative Literary Studies (Graduate Diploma)

The Diploma is administered by the Department of English and Comparative Literature. It offers a program in Literature and Literary Studies, that is both multi-cultural and interdisciplinary, for students from Egypt and abroad. There is a demand-both intellectual and vocational-in our intertwined world to understand how different cultures and linguistic traditions represent themselves and imagine their world. The Program is designed to familiarize the students with the comparative approach to literature and the interdisciplinary nature of literary studies while highlighting how comparative literary studies contribute to new directions in professional and academic developments. It brings the tools and insights of literary and cultural criticism to bear on contemporary concerns from human rights to gender issues, particularly as influenced by, and in, the "global south." The program requires students to take eighteen credit hours of courses and seminars. The Diploma can be completed in two semesters by full-time students, but the Program can accommodate part-time students. Should the Diploma student in good standing decide during or after completion of the requirements to work towards an MA degree, the student may apply to transfer to the MA degree but must then meet the requirements of the MA program.

## Admission

Applicants seeking admission to the Graduate Diploma in Comparative Literary Studies must have completed an undergraduate degree in any field. They are required to meet the graduate admission standards of AUC and meet the

English language requirements of the Department of English and Comparative Literature. Information concerning these can be found in the AUC catalog and the Office of Graduate Admission.

## Curriculum

Students take a total of six courses and sit for an examination in a language of their choice other than English. Each diploma student is assigned a faculty advisor who will recommend courses and seminars, taking into consideration the vocational and intellectual interest of the student. Students can take up to six ECLT courses with at least four courses in ECLT and up to two graduate courses in specified departments and programs of HUSS/GAPP. These two basic models would allow one course to vary in kind:

- 6 ECLT courses. 18 cr.

Or

- 4 ECLT courses. 12 cr.
- 2 Humanities/Social Sciences courses relevant to comparative and interdisciplinary studies, approved by the student advisor and by the instructor of the course, from the following fields:

Arabic Literature (either in Arabic or in translation)  
 Gender and Women's Studies  
 Forced Migration and Refugee Studies  
 International Human Rights Law  
 Sociology/Anthropology

## Department of History

### Department of History

#### School of Humanities and Social Sciences

*Professors:* A. Ezz el Arab, K. Fahmy, R. Tutwiler (Professor of Practice)

*Associate Professors:* P. Ghazaleh (Chair), H. Kholoussy, M. Reimer

*Visiting Professors:* J. Capani, T. Gleason, M. Hojairi

The study of history lies at the foundation of a liberal education. It teaches crucial intellectual and analytical skills, and develops communicative abilities. It plays a key role in instilling curiosity and discernment, and in teaching people how not to be misled. Understanding the past allows us to better understand the present and to prepare intelligently for the future, and is especially important in an increasingly globalized and fast-changing world.

## History (B.A.)

### Bachelor of Arts

AUC's history major covers a range of European, American and Middle Eastern topics, and allows students the flexibility to develop and pursue their own interests. All courses develop in students an appreciation of the richness, complexity, and diversity of past civilizations, allowing them to examine the human experience in its fullest dimensions. The program as a whole gives students appropriate historical, academic and personal competencies, develops their intellectual sophistication, and provides a solid foundation for their future lives, preparing them for a wide variety of subsequent careers, from law or diplomacy to journalism or business.

Students interested in declaring History as their major must take at least two courses in History the year they join the major and pass an interview to be conducted by the Department Academic Adviser.

A total of 120 credits is required for a bachelor's degree in History.

## Core Curriculum (40 credits)

### Concentration Requirements (36 credits)

- HIST 420/4801 - Historical Theory and Methodology (3 cr.)  
"Major Capstone"

### Eleven additional history courses,

1. of which at least eight must be above the 2000 level
2. and four in subjects other than the history of the Middle East

Students must consult with their advisors to ensure that their courses provide an appropriate coverage of different historical periods.

### Electives:

38-50 credits, to be selected in consultation with a history faculty advisor.

## Honors Program in History (B.A.)

A total of 120 credits is required for a bachelor's degree in Honors Program in History.

### Core Curriculum (40 credits)

### Concentration Requirements (39 credits)

HIST 4801 : Historical Theory and Methodology. To be taken by all History majors (including Honors students) in their junior year.

HIST 4802 : Preparation for Thesis Writing. Limited to Honors students, to be taken in the first semester of the senior year.

HIST 4000 : Honors Thesis. To be taken in the second semester of the senior year.

#### Ten additional history courses

1. Of which at least seven must be above the 200 level
2. and 3 in subjects other than the history of the Middle East
3. Include one course at the 5000 level (3 credits)

### Electives (41 credits)

## Comparative Religion Minor

The minor in Comparative Religion is designed to allow students with an interest in religious studies to pursue their research by choosing from a selection of courses on various aspects of the subject both past and present.

### Requirements (15 credits):

- CREL 210/2603 - Religions of the World (3 cr.)

### Any two other CREL courses (6 credits)

### Either two further CREL courses or any two of the following courses (6 credits):

- ANTH 422/4025 - Religion in a Global World (3cr.)
- ARIC 320/3020 - Introduction to Sufism (3 cr.)
- ARIC 324/3324 - Non-Muslim Communities in the Muslim World (3 cr.)
- ARIC 335/3435 - Introduction to the Study of Islam (3 cr.)
- EGPT 440/4040 - Ancient Egyptian Religion and Ethics (3 cr.)
- EGPT 445/5160 - Selected Topics in Coptic Studies (3 cr.)
- PHIL 226/2112 - Philosophy of Religion (3 cr.)

### Notes:

With the approval of the CREL advisor, other 300 or 400 level courses on Islam from ARIC, HIST, POLS or PHIL may be substituted for the non-CREL courses listed above.

## History Minor

The minor in History is designed to provide students with a substantial introduction to the craft of history while allowing them to choose their own areas of interest.

### Requirements (15 credits):

Any five history courses offered by the department, exclusive of 100-level courses.

## Department of Philosophy

### Department of Philosophy

### School of Humanities and Social Sciences

*Professors:* E. Wolf-Gazo, G. Harman (Distinguished University Professor), W. Lammi (Emeritus), S. Stelzer

*Associate Professors:* C. Belo, R. Fincham (Chair), R. Switzer (Interim Dean of the School of Humanities and Social Sciences)

*Assistant Professors:* S. Singh, A. Topa, R. Weiss

*Core post-doctoral teaching fellow and assistant professor:* M. Marren, R. McIntyre

The study of philosophy involves engaging in a process of coming to terms with oneself, and thus with one's place in the world. This requires a clear and careful thinking of a wide ranging sort, questioning assumptions and attitudes, analyzing problems thoroughly and seeking their solutions through sound reasoning and evidence. Some of the major concerns addressed by philosophy are: moral and socio-political values, the nature of knowledge, the relation of the mind to the body, the principles of the sciences, the arts, and religion. Philosophy aims, in addition, comprehensively to situate these subjects in terms of underlying questions about the meaning of existence and the nature of reality.

## Philosophy (B.A.)

### Bachelor of Arts

The philosophy major stresses a firm grounding in both the history and the disciplines of philosophy. Thirty-six credit hours of philosophy course-work are required for the major in philosophy. A total of 120 credit hours are required for the bachelor's degree in philosophy. Declared majors must enroll in a minimum of 6 credit hours of philosophy every semester. Exception to the 6 credit per semester minimum requires written permission from the department. It is strongly recommended that students majoring in philosophy minor in another discipline and explore other areas of study offered by the university. To major in Philosophy students must have taken at least one PHIL course with not less than a C grade and be registering for the required program of the major.

### Core Curriculum (40 credits)

### Required Courses (9 credits)

- PHIL 221/2010 - Truth, Lies, and Logical Reasoning (3 cr.)
- PHIL 000/3101 - Classical Philosophy (3 cr.)
- PHIL 314/3102 - Modern Philosophy (3 cr.)

### Area Electives (9 credits)

Two of the following:

- PHIL 226/2112 - Philosophy of Religion (3 cr.)
- PHIL 230/2113 - Introduction to Ethics (3 cr.)
- PHIL 258/2117 - Political Philosophy (3 cr.)
- PHIL 310/3010 - Philosophy and Art (3 cr.)
- PHIL 000/3104 - Metaphysics and Epistemology (3 cr.)
- PHIL 382/3017 - Philosophy of Science and Technology (3 cr.)
- PHIL 360/5117 - Philosophy of Language (3 cr.)
- PHIL 000/5121 - Philosophical Logic (3 cr.)

One of the following:

- PHIL 500/5101 - Advanced Seminar in Classical Philosophy (3 cr.)
- PHIL 501/5122 - Advanced Seminar in Islamic Philosophy (3 cr.)
- PHIL 504/5123 - Kant and Idealism (3 cr.)
- PHIL 505/5124 - Advanced Seminar in Phenomenology (3 cr.)

## Electives in Philosophy (18 credits)

Any six courses in philosophy excluding 1000-level courses, PHIL 220/2100 - Philosophical Thinking (core curriculum requirement) (3 cr.) (core curriculum requirement) and PHIL 299/2099 - Selected Topics for Core Curriculum (3 cr.) .

## General Electives (44 credits)

### Philosophy Minor

The minor in philosophy introduces the student to the specific forms of philosophic questioning and to philosophic methods and modes of thought. It offers an opportunity for students to learn about the unique contribution philosophical traditions have made to civilization; moreover the minor shows students the close relationship philosophy has with the social sciences, the arts, and the natural sciences.

### Requirements (15 credits):

Any five philosophy courses, exclusive of 1000-level courses and PHIL 2100, selected in consultation with a member of the philosophy faculty.

### Philosophy (M.A.)

#### Mission and Goals:

The mission statement of the M.A. program in Philosophy (reflecting those of the Department and the University) is as follows:

Engaging in graduate study in philosophy is to engage in a process of coming to understand one's self and one's place in the world. The M.A. in Philosophy is devoted to this endeavor through its content and form. It engages students in asking questions about the possibility of knowledge, the nature of morality, beauty and aesthetic experience, the meaning of religious experience, the justification and limits of power, and the purpose and meaning of philosophical inquiry itself. And it holds that to be successful in this enquiry clear and careful thinking, the ability to question deeply held assumptions and attitudes, and a commitment to sound reasoning and careful appraisal of evidence is needed.

The goal of the M.A. in Philosophy is therefore to offer the highest quality liberal arts education to our graduate students. Philosophy postgraduates will finish this M.A. program with an in-depth knowledge of the professional discipline as well as the detailed understanding of the history of ideas more generally. This entails rigorous training in rational and critical thought, the close reading and interpretation of some of the history of philosophy's most challenging texts, exemplary intellectual responsibility, and the ability to clearly and effectively present the results of independently conducted research within the form of a M.A. thesis.

In the words of the executive director of the American Philosophical Association, "The skills that philosophy teaches you are wonderfully transferable." Our program aims at teaching students advanced philosophical skills, which they will be able to usefully apply either within the context of a future professional career or as preparation for entering a Ph.D. program at another institution. Students often register for graduate study in Philosophy because of their love of the discipline, rather than for any utilitarian purpose.

Nonetheless, a background in Philosophy can be professionally beneficial, insofar as employers and professional schools have become increasingly aware over the last couple of decades that philosophers tend to have the best training in thinking and writing, and are open and flexible.

## Requirements

The M.A. in Philosophy is aimed at any undergraduate with a background in the study of philosophy. A minimum of twenty-four graduate hours are required.

Eight courses must be taken, at least six of which must be taken within the Department of Philosophy at the 5000 level. Students are required to follow the Philosophy Graduate Core, a series of advanced 5000 level seminars that are open only to Masters students. Two such 5000 level seminars are taught each semester. The Department also offers a series of electives: a select number of undergraduate courses that can also be taken at the 5000 level.

A maximum of two courses may be taken within other departments at AUC, at either the 4000 or 5000 level but only with the Chair's approval. Students who are not native speakers of Arabic and who wish to write a thesis within the sphere of Islamic Philosophy will be strongly encouraged to elect for credit at least one of the courses (at an appropriate level) offered by the Arabic Language Institute. Although AUC does not currently offer formal instruction in modern European language, students intending to write a thesis within the sphere of Continental Philosophy will be required to have a basic reading knowledge of either French or German. Any student who wishes to write a thesis in the sphere of Continental Philosophy but who lacks such knowledge is strongly encouraged to privately arrange some tuition outside of AUC.

Before commencing work upon the thesis students will be required to write a thesis proposal. The thesis itself should take the form of a research paper of approximately 15,000 words in length. There will also be a final defense of the finished thesis.

The Philosophy Graduate Program Director organizes a series of (non-credit) seminars at the beginning of every academic year, which all graduate students are expected to attend in order to ensure that they possess the research and academic writing skills requisite for tackling the thesis (PHIL 5299 ). This training will be further reinforced by the course requirements for the Department's Philosophy Graduate Core courses, in which the students are required to find and engage with relevant secondary literature and write in a highly professional manner for the papers upon which they are examined.

## Breakdown of Courses

4 Philosophy Graduate Core courses and 4 optional courses (2 of which can be taken within other departments) and a thesis (PHIL 5299 (no cr.) ):

### Required Philosophy Graduate Core:

- PHIL 500/5101 - Advanced Seminar in Classical Philosophy (3 cr.)
- PHIL 501/5122 - Advanced Seminar in Islamic Philosophy (3 cr.)
- PHIL 504/5123 - Kant and Idealism (3 cr.)
- PHIL 505/5124 - Advanced Seminar in Phenomenology (3 cr.)

### Optional courses available for the MA are:

- PHIL 410/5112 - Advanced Seminar in Aesthetics (3 cr.)
- PHIL 000/5104 - Selected Topics in Contemporary Philosophy (3 cr.)
- PHIL 000/5109 - Applied Ethics (3 cr.)
- PHIL 360/5117 - Philosophy of Language (3 cr.)
- PHIL 458-558/5119 - Advanced Seminar in Political Philosophy (3 cr.)

- PHIL 000/5120 - Advanced Seminar in Feminist Philosophy (3 cr.)
- PHIL 403/5199 - Selected Topics in Philosophy (3 cr.)
- FILM 000/4350 - Philosophy and Film (3 cr.) / PHIL 000/5150 - Philosophy and Film (3 cr.)
- PHIL 000/5121 - Philosophical Logic (3 cr.)
- PHIL 000/5130 - Philosophy of Mind (3 cr.)

## Department of Political Science

### Department of Political Science School of Humanities and Social Sciences

Professor Emeriti: E. Hill, A. Lesch, E. Sullivan, S. El Musa, D. Tschirgi

Professors: W. Kazziha, B. Korany

Associate Professors: R. El Mahdi (Chair), I. El Nur, M. Kassem, J. Maswood

Assistant Professors: A. Adly, N. Badawi, C. Barker, A. Delatolla, T. El Gindi, M. Hefny, S. Molavi, H. Oberle, M. Pinfari, J. Sunday, N. Sika

Political Science is the systematic study of structures and processes pertaining to governing, policy making, and political life. It concerns ideas about governing and political participation, about rights and duties of governors and governed. Political science includes the study of modern state, its historical evolution, variations in its present configurations, and relations between and among nations, including institutions that organize these relations. It seeks to understand relationships between politics, the economy and society. The scope of Political Science is local, national, regional, international, and global. The program at AUC includes major fields and subfields of Political Science, viz: Comparative Politics, Development, International Relations, Political Economy, Political Theory and Philosophy, and Public and International law. The Middle East, Africa, and the Third World generally are emphasized in the program. As extra curricular enhancement, the Political Science Department sponsors a Model Arab League each year in the Fall and a Model United Nations in the spring.

### Honors Program in Political Science (B.A.)

Students may apply for admission to the Honors program following completion of 24 credit hours in Political Science or more with a minimum major GPA of 3.4 and must maintain this GPA to continue in the honors program.

Requirements: 45-48 credits in Political Science as follows:

A. Concentration requirements: 30 - 33 cr.

B. Political Science Specialization: 9-12 cr.

C. Honors Requirements: 9 cr.

#### A. Concentration Requirements: (30 or 33 cr.)

- POLS 203/2003 - Introduction to Political Science II (3 cr.)  
This course must be taken if, and only if, POLS 1001 was not taken during the Freshman year.
- POLS 204/2104 - Introduction to Research Methods in Political Science (3 cr.)
- POLS 000/2405 - History and International Politics (3 cr.)
- POLS 301/3201 - History of Political Theory I (3 cr.)
- POLS 302/3202 - History of Political Theory II (3 cr.)
- POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)
- POLS 310/3510 - Introduction to Development (3 cr.)



- POLS 313/3401 - Introduction to Comparative Politics (3 cr.)
- POLS 320/3620 - Introduction to International Relations Theories (3 cr.)
- POLS 350/3550 - Introduction to Political Economy (3 cr.)
- POLS 471/4371 - Introduction to Public International Law (3 cr.)

## B. Political Science Specialization: 9-12 crs.

If the student does not opt for a specific specialization the, 3-6 credits will be taken as electives toward an honors general degree. Courses for each specialization is stated in the Catalog.

## C. Honors Requirements: 9 crs.

POLS 400/4000 - The Discipline and Critical Social Theory (3 cr.)

POLS 404/4104 - Political Science Methods (3 cr.)

POLS 499/4099 - Senior Year Thesis (3 cr.)

## Other Requirements:

Students must complete the general electives and the collateral courses required of all Political Science majors to make up 120 credits total.

Any students with a failing grade in any of the Honors courses (POLS 4000 , POLS 4104 , and POLS 4099) will be automatically excluded from the Honors program. Such students will graduate only with a BA in Political Science.

# Political Science, with specializations in General Political Science, International Relations, Middle East Politics, Political Economy and Public and International Law (B.A.)

## Bachelor of Arts

Political Science at AUC is taught as a humanistic discipline with the overall objectives of fostering understanding of the contemporary world and developing knowledge about, and an appreciation of, the complex mechanisms, authoritative structures, and the allocation of values, which characterize contemporary human communities. Political Science at AUC requires students to develop abilities of comprehension and analysis, and skills for oral and written presentations. The graduate of Political Science is thus well equipped for life in the modern world, and to follow those professions and lines of work that require independence of thought, initiative, creativity in solving problems, and continuing self development. AUC graduates of Political Science are presently found in business, journalism, research, analytic writing, and public contact work. They occupy positions in public, private, development agencies, the diplomatic service, governmental ministries and agencies, and university teaching. A significant number of past graduates have subsequently completed M.A. and Ph.D. degrees.

For students to declare a major in Political Science, they should have a minimum of 2.5 GPA, and must take either POLS 1001 or POLS 2003. POLS 1001 fulfills the Social Science requirement at the primary level of the Core Curriculum and is not counted as part of the 45-48 credits required for the Political Science major. If POLS 1001 is not taken in the Freshman year, POLS 2003 must be taken after the Freshman Year by those wishing to major in Political Science. Students wishing to transfer from another major after their sophomore year will be considered on a case by case basis. Junior-year (3000-level) courses are required in four subfields and are prerequisites to the more advanced

courses and seminars (4000-level). Each semester, a selection of 3000 and 4000 level courses and seminars is offered from which students may choose courses to complete the requirements of the major.

A total of 120 credits is required for the bachelor's degree in Political Science:

*Core Curriculum (40 credits)*

*Political Science Requirements (45 - 48 credits) to be taken as follows:*

1. if POLS 1001 has already been taken in the Freshman Year:  
30 credits (10 courses) in the concentration plus 18 credits (6 courses) as electives.
2. if POLS 1001 has not been taken in the Freshman Year:  
33 credits (11 courses) in the concentration plus 12-15 credits (4-5 courses) as electives.

*Collateral requirements: (6 credits)*

*General Electives: (26-29 credits)*

### **All Political Science major and minor students must abide by the following regulations:**

ENGL 0210 is a prerequisite to POLS 1001 and POLS 2003

RHET 1010 is a prerequisite to POLS 2104 and all 3000 level POLS courses

RHET 1020 is a prerequisite to all 4000 level POLS courses

### **For all Political Science students:**

#### **Political Science concentration requirements (30-33 credits)**

- POLS 203/2003 - Introduction to Political Science II (3 cr.)  
This course must be taken if, and only if, POLS 1001 was not taken during the Freshman year.
- POLS 204/2104 - Introduction to Research Methods in Political Science (3 cr.)
- POLS 000/2405 - History and International Politics (3 cr.)
- POLS 301/3201 - History of Political Theory I (3 cr.)
- POLS 302/3202 - History of Political Theory II (3 cr.)
- POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)
- POLS 310/3510 - Introduction to Development (3 cr.)  
ECON 3053 can substitute for POLS 3510 for students double majoring in Political Science and Economics.  
ECON 3053 will fulfill the requirement in both majors
- POLS 313/3401 - Introduction to Comparative Politics (3 cr.)
- POLS 320/3620 - Introduction to International Relations Theories (3 cr.)
- POLS 350/3550 - Introduction to Political Economy (3 cr.)
- POLS 471/4371 - Introduction to Public International Law (3 cr.)

#### **Collateral requirements**

- HIST - One Modern History course (3 cr.)  
(not to be taken as an independent study) in addition to:
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

#### **General Electives**

Students may use 15 hours of elective credit to minor in a discipline of their choice. Minorng is optional. Courses taken as collateral requirements may count towards the minor.

Students have the choice to use the 15 elective credits in Political Science (or 12-15 elective credits if they had to take POLS 2003 to fulfill their concentration requirements) to obtain a BA in Political Science in:

1. General field in Political Science
2. Specialization in International Relations
3. Specialization in Middle East Politics
4. Specialization in Political Economy
5. Specialization in Public and International Law

Students opting for a double specialization are encouraged to take a combination of courses from the two specializations rather than limiting themselves to History courses required for one of the specializations.

## 1. Requirements for the General Political Science field:

Students must take four or five Political Science courses, one of which must be a major capstone.

*Collateral Requirements (6 credits)*

*General Electives (29 credits)*

## 2. Requirements for the Specialization in International Relations

To specialize in International Relations, Political Science majors must, as a minimum, take the following courses:

### **Requirements:**

- POLS 409/4609 - Seminar: International Organization (3 cr.)
- POLS 410/4610 - Global Security (3 cr.)
- POLS 411/4611 - Contemporary Foreign Policies (3 cr.)
- POLS 000/4608 - Critical Approaches to International Relations and the Global South (3 cr.)

### **Options:**

To further their understanding in this specialization, students have the option to take a number of recommended courses including:

- POLS 405/4605 - International Politics of the Middle East (3 cr.)
- POLS 414/4614 - Egyptian Foreign Policy (3 cr.)
- POLS 415/4615 - U.S. Foreign Policy (3 cr.)
- POLS 440/4640 - Seminar: Special Topics in International Relations for Undergraduates (3 cr.)

### **Collateral Requirements (6 credits)**

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

### **One additional history course chosen from among the following:**

- HIST 202/2502 - History of Modern American Civilization (3 cr.)
- HIST 308/3406 - Europe in the Age of Reason (3 cr.)
- HIST 356/3214 - State and Society in the Middle East, 1906-present (3 cr.)
- HIST 401/4588 - Selected Topics in the History of the United States (3 cr.)
- (when approved by POLS department)
- HIST 402/4488 - Selected Topics in European History (3 cr.)

- (when approved by POLS department)
- HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)

HIST 247/2204 - The Making of the Modern Arab World (3 cr.)

HIST 250/2301 - Colonial and Postcolonial Africa

HIST 333/3208 - Zionism and Modern Judaism (3 cr.)

HIST 357/3288 - Selected topics in Middle East History (3 cr.) (when approved by POLS Dept.)

HIST 331/3207 - History of Palestine/Israel (3 cr.)

HIST 350/3302 - Violence, War, and Conflict in Modern Africa (3 cr.)

POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)

HIST 412/4290 - Selected Topics in Modern Egyptian History (3 cr.) (when approved by the Pols Dept.)

HIST 430/4107 - The Environment in World History (3 cr.)

HIST 435/4216 - Social and Political History of Modern Cairo (3 cr.)

HIST 440/4217 - Colonialism and Imperialism in the Middle East and South Asia (3 cr.)

HIST 454/4219 - Modern Movements in Islam (3 cr.)

HIST 405/4188 - Selected Topics in World History (3 cr.) (when approved by POLS Dept.)

HIST 000/4224 - Egypt in the Modern World Market (3 cr.)

HIST 450/4303 - Global Capitalism and Africa: An Economic History (3 cr.)

## Electives (26-29 credits)

### 3. Requirements for the Specialization in Middle East Politics

To specialize in Middle East Politics, Political Science majors must, as a minimum, take the following three courses:

#### Requirements:

- POLS 354/3454 - Political and Social Thought in the Modern Arab World (3 cr.)
- POLS 420/4420 - Issues in Middle East Politics (3 cr.)
- POLS 422/4422 - Contemporary Egypt (3 cr.)

#### Options:

To further their understanding in this specialization, students have the option to take a number of *recommended* courses including:

- ARIC 439/5142 - Islamic Law (3 cr.)
- POLS 325/3425 - Government and Politics of Egypt (3 cr.)
- POLS 405/4605 - International Politics of the Middle East (3 cr.)
- POLS 414/4614 - Egyptian Foreign Policy (3 cr.)
- POLS 424/4524 - Political Economy of the Middle East and North Africa (3 cr.)
- POLS 430/4030 - Seminar: Special Topics in Political Science for Undergraduates (3 cr.)  
(If topic is applicable to the ME)
- POLS 440/5140 - Seminar: Special Topics in International Relations for both Undergraduates and Graduates (3 cr.) (when approved by the department)
- POLS 472/4372 - International Law in the Middle East (3 cr.)
- POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.)
- POLS 477/4377 - Law and Development (3 cr.)

## Collateral Requirements (6 credits)

- One Modern Middle East History course at the 3000 or 4000 level. (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

## General Electives (29 credits)

### 4. Requirements for the Specialization in Political Economy

To specialize in Political Economy, Political Science majors must, as a minimum, take the following courses:

#### Requirements:

- POLS 000/4551 - Theories of Political Economy (3 cr.)
- POLS 425/4525 - Global Political Economy (3 cr.)
- POLS 000/4526 - Political Economy of the Global South (3 cr.)

#### Options:

To further their understanding in this specialization, students have the option to take a number of recommended courses including:

- POLS 413/4513 - International Financial Institutions (3 cr.)
- POLS 423/4523 - The Political Economy of Poverty and Inequality (3 cr.)
- POLS 442/4542 - Environmental Politics (3 cr.)
- POLS 402/4502 - Political Economy of Egypt and the Middle East (3 cr.)

## Collateral Requirements (6 credits)

- One Modern History course (not to be taken as an independent study) in addition to:
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

## General Electives (29 credits)

### 5. Requirements for the Specialization in Public & International Law

To specialize in Public and International Law, Political Science majors must, as a minimum, take the following three courses:

#### Requirements:

POLS 472/4372 - International Law in the Middle East (3 cr.)  
POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.)  
POLS 478/4378 - Introduction to International Human Rights Law (3 cr.)

#### Options:

To further their understanding in this specialization, students have the option to take a number of elective courses in public and international law that may be offered by the political science department or the law department.

Note: Registration in graduate courses offered by the law department may require the approval of the department and/or the instructor.

## Dual Degree Option in Political Science (B.A.) and International Human Rights Law (M.A.)

The Dual Degree option combines a BA in Political Science and an MA in International Human Rights Law. It is a dual degree, creating a synergy between the existing BA in Political Science and the existing MA in International Human Rights Law.

The dual degree option enables good students to prepare for a postgraduate degree while completing the requirements for the BA in Political Science. Non-law students who achieve a MA Degree under the auspices of the Law Department at AUC qualify for better jobs in Egypt or abroad, or pursue a legal education at prestigious law schools in the United States and elsewhere. The MA degree also provides students with the necessary expertise in international human rights law and with the intellectual, analytical and communication tools needed to intervene critically and effectively in the global policy debates confronting their societies as policy makers, academics, activists and international civil servants.

By the end of the sixth semester of the political science BA at AUC, and after successfully completing POLS 4371, the student has to declare her/his intention to pursue the Dual Degree by submitting a graduate admission application. The student should follow the application procedures for graduate studies. Admission decisions will be made by the Law Department's Admission Committee. Successful applicants will be admitted pending the fulfillment of two conditions: i) finishing the requirements of their undergraduate degrees with at least B (GPA 3); and ii) obtaining an average of at least a B+ (GPA of at least 3.3) across the three cross-listed 'Dual Degree' Law courses. Places are limited.

Students enrolled in the dual degree will receive a political science BA degree certificate upon the completion of their undergraduate course requirements. Many students feel the need to work in parallel to the pursuit of an MA degree. We believe that students who fulfill the pols BA requirement should not be denied the opportunity to do so.

Under this structure, dual-degree students will be required to take three 400-level courses that are cross-listed under LAW and POLS. These three "Dual Degree" cross-listed courses (see below) will count for credit towards both the BA in Political Science and under the MA in International Human Rights Law.

The three 'Dual Degree' Law courses to be offered to undergraduates in the Political Science Department are the following: (a) POLS 471/4371 - Introduction to Public International Law (3 cr.) (b) POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) and (c) POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) The curriculum for the MA IHRL requires the completion of nine courses and a thesis, as indicated in the tentative plan below: 3 POLS/LAW undergraduate courses, 2 graduate regional human rights courses, 3 graduate elective courses, LAW 5227, and the thesis.

### **Tentative Plan for Full-time Students**

#### **SEMESTER VI (POLS undergraduate program)**

LAW/POLS 471/4371 - Introduction to Public International Law (3 cr.) (counts towards both concentrations in POLS for all students) (and MA IHRL credits)

[4 POLS courses or other courses as required to complete POLS BA degree]

#### **SEMESTER VII (POLS undergraduate program)**

LAW/POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) (counts towards both BA POLS and MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

#### **SEMESTER VIII (POLS undergraduate program)**

LAW/POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) (counts towards both BA POLS and MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

#### **SEMESTER IX (MA IHRL program)**

LAW 511/5211 - International Humanitarian Law (3 cr.) \* (1 out of 3 starred courses required)

LAW 514/5214 - Human Rights in the Middle East (3 cr.) \* (1 out of 3 starred courses required)

LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.) \* (1 out of 3 starred courses required)

LAW Electives\*\*

#### **SEMESTER X (MA IHRL program)**

LAW 000/5221 - Law and Patriarchy (3 cr.)

LAW Electives\*\*

LAW 527/5227 - Graduate Law Seminar (3 cr.)

#### **SEMESTER XI (MA IHRL program)**

LAW 599/5299 - Research Guidance/Thesis (no cr., pass/fail)

*\*\* Lists of LAW elective courses will be provided to students in the program prior to registration for each semester.*

## **International Relations Minor**

### **Requirements:**

- POLS 203/2003 - Introduction to Political Science II (3 cr.)  
This course must be taken if, and only if, POLS 1001 was not taken during the Freshman year.
- POLS 205/2403 - Europe in the Age of Revolution and Reform (1789-1914) (3 cr.)  
Or
- POLS 206/2404 - Europe in International Politics in the Twentieth Century (3 cr.)  
Students minoring in International Relations are strongly encouraged to take POLS 2404.
- POLS 320/3620 - Introduction to International Relations Theories (3 cr.)

### **Additional Requirements**

**Three** courses (**two** courses, if POLS 2003 had to be taken) chosen from:

- POLS 405/4605 - International Politics of the Middle East (3 cr.)
- POLS 409/4609 - International Organizations (3 cr.)
- POLS 410/4610 - Global Security (3 cr.)
- POLS 411/4611 - Comparative Foreign Policy Analysis (3 cr.)
- POLS 414/4614 - Egyptian Foreign Policy (3 cr.)
- POLS 415/4615 - U.S. Foreign Policy (3 cr.)
- POLS 413/4513 - International Financial Institutions (3 cr.)

- POLS 430/4030 - Seminar: Special Topics in Political Science for Undergraduates (3 cr.)
- POLS 440/4640 - Seminar: Special Topics in International Relations for Undergraduates (3 cr.)
- POLS 471/4371 - Introduction to Public International Law (3 cr.)
- POLS 440/5140 - Seminar: Special Topics in International Relations for both Undergraduates and Graduates (3 cr.) when approved by the department

## Middle East Politics Minor

The minor in Middle East politics is open to students majoring in disciplines other than political science. It requires successful completion of five courses selected from the following, which may be taken with the consent of the instructor:

### Requirements:

- POLS 203/2003 - Introduction to Political Science II (3 cr.)  
This course must be taken if, and only if, POLS 101 was not taken during the Freshman year.
- POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)

### Additional Requirements

**Four** courses (**three** courses if POLS 2003 had to be taken) selected from the following:

- POLS 325/3425 - Government and Politics of Egypt (3 cr.)
- POLS 354/3454 - Political and Social Thought in the Modern Arab World (3 cr.)
- POLS 405/4605 - International Politics of the Middle East (3 cr.)  
The requirement that POLS 3620 be taken as a prerequisite for POLS 4605 may be waived for minors with the consent of the instructor
- POLS 420/4420 - Issues in Middle East Politics (3 cr.)
- POLS 422/4422 - Contemporary Egypt (3 cr.)
- POLS 430/4030 - Seminar: Special Topics in Political Science for Undergraduates (3 cr.)  
Whenever content is relevant and subject to department approval. May be taken more than once for credit if content changes
- POLS 432/4432 - Seminar: Comparative Politics and/or Policies (3 cr.)  
Whenever content is relevant and subject to department approval.
- POLS 440/5140 - Seminar: Special Topics in International Relations for both Undergraduates and Graduates (3 cr.)  
when approved by the department

## Political Economy Minor

The minor in Political Economy is open to students majoring in disciplines other than Political Science.

### Requirements:

The Minor requires successful completion of :

- POLS 203/2003 - Introduction to Political Science II (3 cr.)



(This course must be taken if, and only if, POLS 1001 was not taken during the Freshman year)

- POLS 350/3550 - Introduction to Political Economy (3 cr.)
- POLS 425/4525 - Global Political Economy (3 cr.)

## Additional Requirements

Plus **two** courses (**one** course if POLS 2003 had to be taken) from the following:

- POLS 413/4513 - International Financial Institutions (3 cr.)
- POLS 423/4523 - The Political Economy of Poverty and Inequality (3 cr.)
- POLS 424/4524 - Political Economy of the Middle East and North Africa (3 cr.)
- POLS 442/4542 - Environmental Politics (3 cr.)
- POLS 430/4030 - Seminar: Special Topics in Political Science for Undergraduates (3 cr.) (when approved by POLS Department)
- POLS 430/5130 - Seminar: Special Topics in Political Science for both Undergraduates and Graduates (3 cr.) when approved by POLS Department
- POLS 440/4640 - Seminar: Special Topics in International Relations for Undergraduates (3 cr.) when approved by POLS Department
- POLS 440/5140 - Seminar: Special Topics in International Relations for both Undergraduates and Graduates (3 cr.) when approved by POLS Department

## Political Science Minor

**Requirements (15 credits) to be taken as follows:**

1. if POLS 1001 has already been taken in the Freshman Year:  
five Political Science courses at 300 or 400 level.
2. if POLS 1001 has not been taken in the Freshman Year:  
POLS 2003 plus four Political Science courses at 300 or 400 level.

## Political Science, Joint Program with University of Tübingen (Comparative and Middle East Politics and Society- CMEPS), with specializations in Comparative Politics, International Relations, and Development Studies (M.A.)

The Department of Political Science at the American University in Cairo and the Institute of Political Science at the University of Tübingen conduct a joint MA program in Comparative Middle East Politics and Society. Students are required to be enrolled full time, and the third semester of study takes place in the partner institution.

## Required Courses

- POLS 501/5201 - Comparative Theory (3 cr.)  
(1st semester)
- POLS 558/5258 - Comparative Politics of the Middle East (3 cr.)  
(2nd semester)
- POLS 530/5230 - Regime Change and Democratization (3 cr.)

- (or Tübingen equivalent 3rd semester)

  - POLS 545/5245 - Development Politics and International Cooperation (3 cr.)  
(3rd semester)

Plus- elementary German Proficiency.

Plus five more courses in consultation with the Graduate Advisor/Coordinator of the Joint Degree Program

Plus Thesis

## **Political Science, with specializations in Comparative Politics, International Relations, and Development Studies (M.A.)**

The graduate program in Political Science Department offers advanced study in the discipline of Political Science, with particular emphasis and specializations in three areas; Comparative Politics; International Relations, and; Development Studies (previously Professional Development).

The Political Science Department values its location in the heart of the Middle East and seeks, through its faculty, courses and activities, to link the discipline of political science to the thriving and complex political realities of Cairo, Egypt and the region. Its graduate programs offer students a thorough grounding in the theoretical underpinnings of the political phenomena as well as a deep understanding of political realities in Egypt, the Arab World and the international arena. The programs combine courses aimed at familiarizing students with the knowledge necessary for developing their understanding of these political realities with research seminars that are required for familiarizing students with research methods that they will need to independently analyze complex political phenomena.

The graduate programs are intended for students who would like to pursue academic careers as well as those presently working, or desiring to work, in international political bodies, government departments concerned with political issues, or in other public, private and international sectors where there is increasingly a need for persons who have a scientific understanding of the political realities of the Middle East and the World.

Students have the option of pursuing a one-year Graduate Diploma or a Master's degree in any of the three specializations offered by the Department. In addition to the requirements of each option, students will be able to choose elective courses covering the political topics closest to their interest. They are also encouraged to take up to two relevant courses from other departments and units of AUC. The Department works closely with its students to ensure that their chosen courses correspond to and serve their academic and professional goals.

Graduate students constitute an integral part of the academic life of the Political Science Department. They are encouraged to participate, individually and through their association, at the events and activities organized by the Department both inside AUC campus and in the thriving metropolis that constitutes its environment.

### **Comparative Politics**

The strength of Comparative Politics at AUC is in the areas of Third World Politics and Development, with greatest faculty expertise being in Egypt and the Middle East. Graduate studies in Comparative Politics seek to increase students' knowledge about the political dynamics of disparate systems within the larger contexts of state and society, political economy, interstate and regional relations. It seeks to develop skills of analysis and writing in order to enhance students' understanding of their region of interest and its relations with the world. Comparative Politics is particularly

suitable for students who wish to pursue a career in academia, research, journalism, political consultancy, or similar positions in which a solid political background and analytical abilities are required.

### **International Relations**

International Relations include examination of current world politics as well as the many dimensions of the international system. This includes regional relations, foreign policies of selected states, as well as Middle Eastern international and interstate relations, and international political economy. The International Relations option seeks to provide greater depth of understanding of the forces operating in the international arena and the constraints that face foreign policy makers. Practice in analyzing current world and regional events and in the skills of written and oral presentation is provided as well as extra curricular activities that are designed to give students the opportunity to put their academic learning into practice. International Relations option is valuable for students who are working or seek to work in foreign relations, either in their own government or in international organizations. The field also prepares students for employment in other kinds of positions that require the ability to analyze and write about national or international politics.

### **Development Studies**

Development Studies (previously Professional Development) is designed for those who have an interest in studying the developing world. The program includes (but is not limited to) courses with practical components and requires an internship usually done in the summer between the first and second years. Development Studies (previously Professional Development) seeks to prepare students to assume positions of greater responsibility in development agencies and organizations by expanding their understanding of the development field, its aims, objectives, methods of operation, and the broad scope of development work in the world today. It seeks to develop students' critical and analytical capacities, and provide practice in linguistic and writing skills needed for development work. Creativity in finding solutions to development problems is encouraged so that graduates may have an impact in their chosen areas of work in development. Practice in preparing project documents is included in the program. Development Studies (previously Professional Development) is designed for those who are either presently working in development organizations or who are seeking to enter a development career.

### **Admission**

The applicant for admission to the master's program should have an acceptable bachelor's degree in political science or in a closely related social science (preferably with a minor in political science), and a grade-point average of at least 3.00 (an overall grade of gayyid giddan for graduates from Egyptian universities). Applicants with deficiencies in their preparation may be required to take appropriate courses at the undergraduate level.

### **The requirements for the specializations are as follows**

All specializations have gateway courses that situate each specialization within its theoretical context and provide students with analytic tools for other courses. These introductory courses also prepare students for research and analysis needed for writing original seminar papers and for the thesis.

## **Requirements**

### **Specialization in Comparative Politics**

A specialization in Comparative Politics requires the following courses.

- POLS 501/5201 - Comparative Theory (3 cr.)
- POLS 504/5204 - Advanced Political Science Methods (3 cr.)

- POLS 000/5206 - Foundations of Political Philosophy (3 cr.)
- POLS 530/5230 - Regime Change and Democratization (3 cr.)
- POLS 558/5258 - Comparative Politics of the Middle East (3 cr.)

Plus one course from the following:

- POLS 502/5202 - Scope and Method of Developmental Analysis (3 cr.)
- POLS 503/5203 - International Relations Theories (3 cr.)
- POLS 525/5225 - International Political Economy (3 cr.)

In addition, two courses to be chosen in consultation with the Graduate Studies Director, for a total of 24 credit hours.

## Specialization in International Relations

A specialization in International Relations requires the following course.

- POLS 503/5203 - International Relations Theories (3 cr.)
- POLS 000/5206 - Foundations of Political Philosophy (3 cr.)
- POLS 504/5204 - Advanced Political Science Methods (3 cr.)
- POLS 000/5208 - Critical Approaches to International Relations Theories (3 cr.)

Plus one course from the following:

- POLS 501/5201 - Comparative Theory (3 cr.)
- POLS 502/5202 - Scope and Method of Developmental Analysis (3 cr.)
- POLS 525/5225 - International Political Economy (3 cr.)

Plus two courses from the following:

- POLS 000/5209 - Race, Gender, and Sexuality in International Relations (3 cr.)
- POLS 510/5210 - Global Governance and World Order(s) (3 cr.)
- POLS 554/5254 - Comparative Foreign Policy: Theories and Applications (3 cr.)
- POLS 555/5255 - Conflict and Security in Global Politics (3 cr.)

In addition, one course to be chosen in consultation with the Graduate Studies Director, for a total of 24 credit hours.

## Specialization in Development Studies

A specialization in Development Studies (previously Professional Development) requires the following courses:

- POLS 502/5202 - Scope and Method of Developmental Analysis (3 cr.)
- POLS 504/5204 - Advanced Political Science Methods (3 cr.)
- POLS 000/5206 - Foundations of Political Philosophy (3 cr.)
- POLS 585/5285 - Project Seminar (3 cr.)

- POLS 586/5286 - Skills in Development Practice and Internships (3 cr.)

Plus one course from the following:

- POLS 501/5201 - Comparative Theory (3 cr.)
- POLS 503/5203 - International Relations Theories (3 cr.)
- POLS 525/5225 - International Political Economy (3 cr.)

In addition, two courses to be chosen in consultation with the Graduate Studies Director, for a total of 24 credit hours.

## Note

With department approval, students may take relevant courses outside the department.

## Thesis

A thesis, written in English and submitted in accordance with university regulations, is required of all specializations for the master's degree in Political Science. Students, working with a supervisor of their choice, should submit a detailed thesis prospectus to the department for approval. Once approved, students must register for thesis supervision until graduation. The thesis must be defended in an oral examination.

The Department encourages its students to familiarize themselves with procedures regarding committee selection, writing of the thesis, presentation to the supervisor and readers, and defense of the thesis. It strongly encourages them to plan ahead their program in order to successfully meet the procedural requirements within the specified time frame.

## Political Science (Graduate Diploma)

The Diploma in Political Science is designed as a one-year (two semesters) program for students who wish to enhance their professional qualifications or pursue an academic interest in the field of politics. The Diploma Program requires the completion of any six courses chosen from the graduate offerings in Political Science, which include Middle East Politics, International Relations, Development Studies, Political Economy, and Comparative Politics.

### Admission

Requirements for admission to the Diploma program are the same as those for admission to the graduate degree program of the department. Should a student in good standing decide during or after completion of the requirements for the Diploma that he/she wishes to work towards the MA degree he/she may apply to transfer to one of the degree specializations

## Department of Psychology

### Psychology

Professor Emeritus: O. Farrag  
 Professors: C. Forden, H. Zaky  
 Associate Professors: M. Amer (chair), H. Henry, J. Johnson-Pynn  
 Associate Professors of Practice: H. Kotb, J. Mendoza, Y. Saleh

Assistant Professors: K. Ellis, A. P. Goursaud, I. Hassaballa

The mission of the Department of is to lead, promote and advance the discipline of Psychology as a basic and applied science in Egypt, the wider Arab world, and beyond, and to further understanding of human behavior, thinking, and emotion through teaching, research, and community engagement. Undergraduate students gain a solid grounding in the theory, methodology, and core content areas of contemporary psychology, and graduate students gain essential knowledge and skills for competent professional practice.

### **Programs**

#### **Bachelor of Arts**

- Psychology (B.A.)

#### **Minors**

- Psychology Minor

#### **Master of Arts**

- Community Psychology (M.A.)
- Counseling Psychology (M.A.)

#### **Graduate Diploma**

- Community Psychology (Graduate Diploma)
- Inclusive Education (Graduate Diploma) The Graduate Diploma in Inclusive Education is offered by the Departments of Psychology (HUSS) and International & Comparative Education (GSE).

## **Psychology (B.A.)**

Psychology is the multifaceted scientific study of human behavior and mental processes. The program at AUC emphasizes physical, cognitive, emotional, personal, and social development from conception to death. Biopsychosocial development is studied against a background of major theoretical and applied domains of psychology, concentrating on important influences of individual, group, and multicultural dynamics.

### **Bachelor of Arts**

The mission of the Bachelor of Arts is to provide undergraduate students with a solid grounding in the theory, methodology, and core content areas of contemporary psychology by involving them in experiential learning, community engagement, and scientific research. This foundation of knowledge is enriched by incorporation of cultural diversity, local context, and interdisciplinary perspectives. The program will prepare students wishing to continue further studies leading to a professional career in psychology.

Students who intend to seek the Psychology degree must have taken PSYC 1000 and have obtained a grade of "B" or higher. In addition, students must have successfully taken or be currently enrolled in PSYC 2000. Admission is competitive. A combination of discipline-relevant factors, including performance in PSYC 1000 and PSYC 2000, GPA and evidence of commitment to the field of psychology will be used to determine eligibility.

A total of 120 credit hours is required for the bachelor's degree in psychology:

## Core Curriculum (40 credits)

Students must take one of the following for the science requirement:

- BIOL 103/1010 - Introduction to Life Sciences (3 cr. + 1 cr. lab)
- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)

## Concentration Requirements (49 credits)

- PSYC 201/1000 - Introduction to Psychology (3 cr.)
- PSYC 207/2000 - Introduction to Psychological Statistics (3 cr.)
- PSYC 208/2100 - Research Methods for Psychology (3 cr. + 1 cr. lab)
- PSYC 301/3010 - Social Psychology (3 cr.)
- PSYC 304/3040 - Lifespan Development (3 cr.)
- PSYC 308/3080 - Cognitive Psychology (3 cr.)
- PSYC 313/3130 - Learning and Behavioral Psychology (3 cr.)
- PSYC 315/3150 - Psychological Testing and Assessment (3 cr.)
- PSYC 327/3270 - Theories of Personality (3 cr.)
- PSYC 342/3420 - Abnormal Psychology (3 cr.)
- PSYC 380/3800 - Biopsychology (3 cr.)
- PSYC 403/4030 - History and Systems of Psychology (3 cr.)

## Additional Requirements

- **One** additional 300-level psychology course
- **Three** additional 400-level psychology courses (not including PSYC 4001 or PSYC 4002 )

## Collateral Requirements (24 credits)

**Six** courses to be approved by the adviser in addition to:

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- SOC 201/2101 - Introduction to Sociology (3 cr.)

## Electives (7 credits)

## Community Based Learning Requirement

Students must complete at least one designated community-based learning course (in psychology or from another department). Semester abroad experience can also meet this requirement.

## Psychology Minor

The minor in psychology provides a general introduction to the field without the depth of methodological training required of majors. The minor exposes students to individual and contextual perspectives in psychology.

Students who intend to seek a minor in Psychology must have taken PSYC 1000 and have obtained a grade of "B" or higher. Admission is competitive. A combination of discipline-relevant factors, including performance in PSYC 1000 and GPA will be used to determine eligibility. Students should declare the minor after completing PSYC 1000 to be eligible to register for subsequent courses for the minor.

## Core requirements (3 credits)

- PSYC 201/1000 - Introduction to Psychology (3 cr.)

## General Requirements (6 Credits)

Students must select at least one course from each of the groups listed below

- Individual Context (3 credits)
  - PSYC 327/3270 - Theories of Personality (3 cr.)
  - or
  - PSYC 342/3420 - Abnormal Psychology (3 cr.)

- Social Context (3 credits)
  - PSYC 301/3010 - Social Psychology (3 cr.)
  - or
  - PSYC 330/3003 - Community Psychology (3 cr.)

## Additional Requirements (6 credits)

Two additional psychology courses (not including PSYC 2099). Selection of courses for the Minor should be approved in consultation with the designated Psychology faculty and may complement the student's major. Completion of courses that emphasize interdisciplinary content, community engagement, and experiential learning is encouraged.

## Community Psychology (M.A.)

### Master of Arts in Community Psychology

The Community Psychology degree places its graduates at the forefront of advancing global trends towards multicultural and systemic community psychology practice. Courses prepare students to work with communities, schools, governments, international or multilateral organizations and/or nongovernmental organizations to develop, implement, and evaluate psychosocial interventions that promote psychological and physical health and well-being. The program exposes students to methods of community psychology practice that are ethically responsible and culturally appropriate to Egypt and the region. The program emphasizes experiential learning and intensive mentoring.

#### Admission

The applicant should have a minimum of 3.0 GPA in undergraduate studies; if the student has a Masters in a related field already, a 3.0 GPA will also be expected at that level. Applicants should have taken an introduction to psychology course and completed previous coursework in statistics and research methods relevant to the social sciences. It is preferred that applicants have completed an undergraduate major in psychology or a related field, or have relevant work experience. Admission is competitive, and dependent on successful interview.

While applications are accepted and evaluated during both the fall and spring application periods, the program course



sequence only starts in the fall semester. Admitted students with course prerequisite requirements and/or English language requirements, must complete these requirements before being allowed to enroll in the program classes. Completion of these prerequisites can take up to a year, so applicants who do not have an undergraduate degree in psychology are encouraged to apply during the fall application period in order to have enough time to meet the prerequisite requirements before the start of the program.

### **Language Requirement**

The applicant should demonstrate proficiency in the English language in accordance with AUC standards.

## **Courses (36 credit hours)**

Course work for the Master of Art requires the completion of 36 credits as follows:

### **1. Core courses**

15 credits Required / 5 courses

- PSYC 500/5200 - Fundamentals of Counseling (3 cr.)
- PSYC 502/5210 - Community Psychology and Systems Theory (3 cr.)
- PSYC 505/5230 - Ethics and Professional Issues (3 cr.)
- PSYC 508/5220 - Applied Research Design and Statistical Analysis (3 cr.)
- PSYC 540/5270 - Group Work (3 cr.)

### **2. Specialization courses**

9 credits Required / 3 courses

- PSYC 525/5253 - Consultation to Non-Profit Organizations (3 cr.)
- PSYC 530/5233 - Community Assessment and Program Evaluation (3 cr.)
- PSYC 535/5243 - Prevention and Intervention in Communities (3 cr.)

### **3. Elective**

3 credits Required / 1 Elective course

### **4. Internship/Final Project**

6 credits Required 8 months

- PSYC 596/5283 - Internship in Community Psychology (3 cr.)

In order to ensure that students are ready for community practice, they will be assessed for professional competence by a team of faculty members prior to approval for enrollment in internship. If a student fails to meet the minimum competency standards outlined in the graduate handbook, they will not be allowed to register.

### **5. Thesis**

A thesis must be written in English and submitted in accordance with university regulations. Students should familiarize themselves with procedures regarding committee selection, writing of the thesis, presentation to the supervisor and readers, and defense of the thesis. Complying with the procedural requirements within the specified time sequences is the responsibility of the student.

- PSYC 599/5299 - Research Guidance and Thesis (3 cr.)

## **Counseling Psychology (M.A.)**

### **Master of Arts in Counseling Psychology**

The Counseling Psychology program will help students develop skills and knowledge that are needed to provide counseling services to individuals, couples, and groups struggling with psychosocial issues and mental illness. The program emphasizes experiential learning and exposes students to methods of psychological practice that are ethically responsible and culturally appropriate to Egypt and the region.

#### **Admission**

The applicant should have a minimum of 3.0 GPA in undergraduate studies; if the student has a Masters in a related field already, a 3.0 GPA will also be expected at that level. The applicant should have also completed an undergraduate major in psychology and/or the completion of a minimum of 12 credits (or equivalent) in psychology or related social/behavioral sciences including: Statistics, Research Design, and Abnormal Psychology. Admission is competitive, and dependent on successful interview.

While applications are accepted and evaluated during both the fall and spring application periods, the program course sequence only starts in the fall semester. Admitted students with course prerequisite requirements and/or English language requirements, must complete these requirements before being allowed to enroll in the program classes. Completion of these prerequisites can take up to a year, so applicants who do not have an undergraduate degree in psychology are encouraged to apply during the fall application period in order to have enough time to meet the prerequisite requirements before the start of the program.

#### **Language Requirement**

The applicant should demonstrate proficiency in the English language in accordance with AUC standards.

## **Courses (48 credit hours)**

Course work for the Master of Art requires the completion of 48 credits as follows:

### **1. Core Courses**

18 credits Required / 6 courses

- PSYC 500/5200 - Fundamentals of Counseling (3 cr.)
- PSYC 502/5210 - Community Psychology and Systems Theory (3 cr.)
- PSYC 504/5202 - Advanced Lifespan Development (3 cr.)
- PSYC 505/5230 - Ethics and Professional Issues (3 cr.)
- PSYC 508/5220 - Applied Research Design and Statistical Analysis (3 cr.)
- PSYC 540/5270 - Group Work (3 cr.)

## 2. Specialization courses

24 credits/ 8 courses

- PSYC 000/5122 - Physiological Psychology (3 cr.)
- PSYC 510/5241 - Theories of Counseling and Psychotherapy (3 cr.)
- PSYC 515/5251 - Psychological Assessment (3 cr.)
- PSYC 506/5261 - Psychopathology and Resilience across Cultures (3 cr.)
- PSYC 000/5271 - Career Development and Counseling (3 cr.)
- PSYC 550/5281 - Couples Counseling and Human Sexuality (3 cr.)
- PSYC 580/5264 - Practicum I in Counseling Psychology (3 cr.)
- PSYC 581/5274 - Practicum II in Counseling Psychology (3 cr.)

## 3. Internship

6 credits Required 8 months.

- PSYC 590/5284 - Internship in Counseling Psychology (3 cr. + 3 cr.)

## 4. Optional Thesis

A thesis is not required for the MA in Counseling Psychology. However, students may wish to complete a thesis if they want to explore a specific research area or if they are planning to enroll in a Ph.D. program. Students who decide to complete a thesis may substitute PSYC 5299, Research Guidance and Thesis for enrollment in PSYC 5281 Couples Counseling and Human Sexuality.

The optional thesis must be written in English and submitted in accordance with university regulations. Students should familiarize themselves with procedures outlined in the graduate handbook regarding committee selection, writing of the thesis, presentation to the supervisor and readers, and defense of the thesis. Complying with the procedural requirements within the specified time sequence is the responsibility of the student.

## 5. Professional Competence Requirements

In order to ensure that students have the maturity and professional skills needed to act as a counselor, they will complete a standardized assessment for professional competence administered by a faculty committee prior to approval for enrollment in Practicum I, Practicum II, and Internship. If a student fails to meet competency standards they will not be allowed to continue in the program.

It is an ethical violation for a student to practice psychological counseling and testing beyond their level of competence. If a student is found to be working or volunteering in a capacity that is beyond their competence, they will be reviewed for dismissal from the program.

## Community Psychology (Graduate Diploma)

The Community Psychology diploma places its graduates at the forefront of advancing global trends towards multicultural and systemic community psychology practice. Courses prepare students to work with communities, schools, governments, international or multilateral organizations and/or nongovernmental organizations to develop, implement, and evaluate psychological interventions that promote social, psychological, and physical health and well-being. The program exposes students to methods of community psychology practice that are ethically responsible and culturally appropriate to Egypt and the region.

The diploma aims to complement students' existing knowledge and disciplinary specializations by providing training in understanding communities from a psychological and systems perspective while preparing students to intervene in communities on issues of importance.

### **Admission**

At a minimum, applicants must meet at least one of two requirements: a) have at least two years relevant full-time work experience, or b) have completed or be near completion a Master's degree in a related discipline. It is expected that candidates have a minimum GPA of 3.0 out of 4.0 in previous academic studies and current academic studies if currently enrolled in a graduate program. Admission is competitive, and dependent on successful interview.

### **Language Requirement**

The applicant should demonstrate proficiency in the English language in accordance with AUC standards.

## **Courses (18 credit hours)**

Course work for the Graduate Diploma requires the completion of 18 credits as follows:

### **Required Courses**

12 credits Required / 4 courses

- PSYC 502/5210 - Community Psychology and Systems Theory (3 cr.)
- PSYC 525/5253 - Consultation to Non-Profit Organizations (3 cr.)
- PSYC 530/5233 - Community Assessment and Program Evaluation (3 cr.)
- PSYC 535/5243 - Prevention and Intervention in Communities (3 cr.)

### **Electives**

6 credits Required / 2 courses

Students should take two additional electives that best meet their professional goals, with approval from the graduate advisor and the department in which the course is offered. Students will be encouraged to take a course related to research methodology if they have not already completed a graduate-level research course.

### **Notes**

Students will be encouraged to complete the diploma in one year.

## **Department of Sociology, Egyptology and Anthropology**

**Department of Sociology, Egyptology and Anthropology**  
**School of Humanities and Social Sciences**

**Sociology**

Professor Emeritus : S. Ibrahim

Professor: M. Abaza

Associate Professors: A. Holmes, H. Rizzo (chair)

Assistant Professors: G. Heck, D. Makram Ebeid, I. Morrison

Assistant Professor and Post-Doctoral fellow: N. Derbal, I. Eickhof

Sociology is the systematic study of society with special attention to social interaction and the social making of humans. It investigates the forces that hold society together and that threaten to pull it apart through the analysis of interaction at every level from micro-group interaction to competition of nation states and large-scale social change including revolutions and social movements. Having as its goal a holistic understanding of human society, human beings and their lives, sociology is relevant to a wide range of other disciplines and every day life issues. As a result, sociology has a broad scope that includes culture, family, gender, crime, religion, politics, development, population, and urbanization, among others. Besides their coursework, sociology majors are given the opportunity to carry out supervised field research as a part of their undergraduate program.

### **Egyptology**

Professor Emeritus: F. Haikal, K. Weeks

Professors: S. Ikram, J. Swanson (Associate Provost)

Associate Professor: M. Ayad

Assistant Professors: L. Sabbahy

Egyptology is the scientific study of the history and culture of Ancient Egypt, from the earliest times to the Arab conquest, a time span covering some 4,600 years. Egyptology covers all aspects of Ancient Egyptian civilization, from language and religion to art, architecture and social structure.

### **Anthropology**

Professor Emeritus: D. Cole, N. Hopkins

Professor: S. Altorki

Associate Professor: R. Saad, H. Sabea

Assistant Professors: R. Aly, M. Khayyat, M. Schwab

Assistant Professor and Post-Doctoral fellow: Y. Moataz

Cultural Anthropology encompasses a wide range of subjects relating to culture, such as political systems, kinship, the media, religion and ritual, economics, youth, gender and sexuality, migration, rural and urban lives, language, art, war, and violence to name a few. Anthropology approaches these fields of inquiry through ethnographic research that sees people's everyday practices and ways of life as the most important source of knowledge about the world. Anthropology offers a unique perspective on humanity and provides students with excellent research, writing and people skills that are invaluable in a broad range of careers. Our approach to teaching anthropology promotes hands-on ethnographic research and innovative theoretical engagement with emergent issues of both local and global concern.

### **Sociology - Anthropology**

Professor Emeriti: A. Cole, N. Hopkins , S. Ibrahim

Professors: S. Altorki, M. Abaza

Associate Professors: A. Holmes, H. Rizzo, H. Sabea, R. Saad

Assistant Professors: R. Aly, G. Heck, M. Khayyat, D. Makram Ebeid, I. Morrison, M. Schwab

Assistant Professor and Post-Doctoral Fellow: N. Derbal, Y. Moataz, I. Eickhof

The graduate program in sociology and anthropology equips students with a thorough grounding in the theory and research methods of both disciplines. It offers a unique opportunity for students to conduct original research amidst an intellectually stimulating environment. Its longstanding tradition of combining scholarship with a commitment to

social, economic and political justice makes the program a dynamic environment for learning and research. The program emphasizes an interdisciplinary approach to social theory and research and has broad applications. The program accepts qualified applicants from a variety of academic and professional backgrounds especially those who are talented and interested in acquiring alternative and critical perspectives on society and politics. Our students conduct research in Egypt and throughout the Middle East on topics such as: urban transformation, gender, religious and social movements, memory and politics of the past, migration environment, health, the family, poverty, ethnicity and nationalism, media, activism, art and expressive culture, and violence.

## **Anthropology (B.A.)**

The undergraduate program aims to present the main themes and trends in cultural and social anthropological thought and practice and thereby to nurture critical, intercultural, and reflexive perspectives as part of liberal education. In doing so, it seeks to foster understanding of the transformation of society and culture in Egypt and the region. The program also engages with other parts of the world, such as Africa, South Asia and Latin America. Our aim is to prepare students for graduate studies and for living and working in an increasingly complex and changing world. Upon graduation our students are well-positioned to pursue careers in teaching, research and applied anthropology, such as in international development agencies, non-governmental organizations, private sector, social service, media, and heritage preservation.

To declare a major in Anthropology:

- 1) A student must earn a B in "Introduction to Cultural Anthropology" ANTH 2101
- 2) A student must have an overall GPA at the time of the declaration of C+ (2.3 GPA)
- 3) Successful interview by unit head at the time of declaring the major

Upper-division (300-400 level) courses are normally taken during the junior and senior years. Students must take ANTH 3102 and ANTH 3104 during the junior year. Students must take ANTH 4107 in their last full academic year. Most of the other courses are offered in alternate years and so may be taken in any order. Courses at the 500-level are also open to selected advanced undergraduates.

A total of 120 credits is required for the bachelor's degree in anthropology:

### **Core Curriculum (40 credits)**

Students with Thanawiya'Amma art or equivalent background should take BIOL 100 (Introductory Biology); those with Thanawiya 'Amma science or equivalent must take BIOL 104 (Unity of Life).

### **Concentration Requirements (42 credits)**

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- ANTH 309/3102 - History of Social Theory (3 cr.)  
cross listed with SOC 3102
- ANTH 311/3104 - Contemporary Anthropological Theory (3 cr.)
- ANTH 380/3105 - Fieldwork Methods (3 cr.)
- ANTH 495/4107 - Senior Seminar (3 cr.)  
See footnote one

One of the following people-and-culture courses:

- ANTH 312/3301 - Anthropologies of Middle East and North Africa (3 cr.)
- ANTH 382/3302 - Anthropologies of Africa (3 cr.)
- ANTH 384/3303 - Anthropologies of Latin America (3 cr.)
- ANTH 386/3304 - Anthropologies of Asia (3 cr.)
- ANTH 390/3305 - Selected People and Culture Areas (3 cr.)

## Additional Requirements

**Eight** additional anthropology courses, of which three must be at the 400 level.

Please select from the following courses:

- ANTH 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- ANTH 210/2005 - Arab Society (3 cr.)
- ANTH 000/2006 - Youth Cultures (3 cr.)
- ANTH 000/2007 - Anthropology of the Occupied: Palestine/ Israel (3 cr.)
- ANTH 299/2099 - Selected Topics for Core Curriculum (3 cr.)
- ANTH 240/2201 - Introduction to Community Development (3 cr.)
- ANTH 302/3015 - Global Families: Kinship and Relatedness in Late Modernity (3 cr.)
- ANTH 303/3020 - Social Movements (3 cr.)
- ANTH 320/3040 - States, Capital and Rural Lives (3 cr.)
- ANTH 321/3045 - The Urban Experience (3 cr.)
- ANTH 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)
- ANTH 340/3202 - Participatory Action Research in Community Settings (3 cr.)
- ANTH 341/3070 - Anthropology and Film (3 cr.)
- ANTH 352/3075 - Language in Culture (3 cr.)
- ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)
- ANTH 370/3085 - Environmental Issues in Egypt (3 cr.)
- ANTH 372/3090 - Public Anthropology (3 cr.)
- ANTH 400/4099 - Selected Topics in Anthropology (3 cr.)
- ANTH 402/4405 - Independent Study (1-3 cr.)
- ANTH 407/4015 - Psychological Anthropology (3 cr.)
- ANTH 000/4020 - Anthropology of Violence (3 cr.)
- ANTH 422/4025 - Religion in a Global World (3cr.)
- ANTH 425/4030 - Women, Islam and the State (3 cr.)
- ANTH 440/4203 - Practicum in Community Development (3 cr.)
- ANTH 445/4499 - Selected Topics in Coptic Studies (3 cr.)
- ANTH 450/4050 - Critical Approaches to Development (3 cr.)
- ANTH 455/4055 - Seminar in African Studies (3 cr.)
- ANTH 460/4560 - Development Studies Seminar (3 cr.)
- ANTH 462/4065 - Culture, Economy and the Everyday (3 cr.)
- ANTH 492/4070 - Political Anthropology (3 cr.)
- ANTH 000/4075 - Migrants and Transnationals (3 cr.)

## Collateral Requirements (21 credits)

- Two 300 or 400 level courses in the social sciences

## Electives (11-23 credits)

Total 120 Credits

### Notes:

Footnote one: Cross listed with Sociology

## Egyptology (B.A.)

Egyptology is the scientific study of the history and culture of Ancient Egypt, from the earliest times to the Arab conquest, a time span covering some 4,600 years. Egyptology covers all aspects of Ancient Egyptian civilization, from language and religion to art, architecture and social structure.

### Bachelor of Arts in Egyptology

The Program aims at preparing students for careers in Egyptology and the preservation and management of Egypt's material heritage. Research, writing, critical thinking and presentation skills are also stressed. Students will:

1. Acquire knowledge, appreciation and understanding of Ancient Egypt's cultural heritage and its legacy in the world.
2. Master the research tools upon which a career in Egyptology must depend, including Ancient Egyptian language and scripts as well as skill in excavation and site analysis.
3. Prepare properly to assume the responsibility of caring for, maintaining and preserving Ancient Egypt's unique cultural heritage.

A student in good standing with the university who wishes to declare a major in Egyptology should have passed an Egyptology course (e.g. EGPT 2020 or EGPT 2551) with a grade of B- or higher. Additionally, a writing sample showing the student's writing ability should be submitted to the Egyptology faculty, who will then arrange for a personal interview with the student prior to declaration. The writing sample should demonstrate linguistic ability commensurate with the demands of Egyptology.

A total of 120 credits is required for the bachelor's degree in Egyptology:

### Core Curriculum (40 credits)

### Concentration Requirements (48 credits)

#### All Twelve of the following (36 credits):

- EGPT 343/3211 - History of Ancient Egypt I: Pre-Dynastic Through Middle Kingdom Egypt (3 cr.)
- EGPT 344/3212 - History of Ancient Egypt II: Middle Kingdom through Ptolemaic Egypt (3 cr.)
- EGPT 250/2250 - Ancient Egyptian Literature in Translation (3 cr.)
- EGPT 253/2251 - Hieroglyphics I (3 cr.)
- EGPT 254/2252 - Hieroglyphics II (3 cr.)



- EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
- EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)
- EGPT 304/5100 - Culture and Society of Ancient Egypt (3 cr.)
- EGPT 346/5130 - Societies and Culture of the Ancient Near East (3 cr.)  
or
- EGPT 348/5140 - Societies and Cultures of Ancient Nubia (3 cr.)
- EGPT 353/5151 - Hieroglyphics III (3 cr.)
- EGPT 402/5153 - Hieroglyphics IV (3 cr.) for those focussing in language OR any other EGPT upper level course, approved by the Egyptology Unit
- EGPT 440/4040 - Ancient Egyptian Religion and Ethics (3 cr.)

### From among the following (12 credits):

- EGPT 202/2020 - Ancient Egypt: An Introduction (3 cr.)
- EGPT 204/2210 - Introduction to Archaeology (3 cr.)
- EGPT 301/3010 - Temples, Tombs and Hieroglyphs (3 cr.)
- EGPT 341/5110 - Egypt in the First Millennium BC (3 cr.)
- EGPT 342/5120 - History of Egypt in the Graeco-Roman Era (3 cr.)
- EGPT 348/5140 - Societies and Cultures of Ancient Nubia (3 cr.)
- EGPT 400/5150 - Introduction to Coptic (3 cr.)
- EGPT 401/5152 - Introduction to Hieratic (3 cr.)
- EGPT 403/4030 - Independent Study in Egyptology (1-3 cr.) \*
- EGPT 445/5160 - Selected Topics in Coptic Studies (3 cr.) \*
- EGPT 459/5170 - Selected Topics in Cultural Resource Management and Museology (3 cr.) \*
- EGPT 491/5191 - Field Work (3 cr.)
- EGPT 499/5199 - Selected Topics in Egyptology (3 cr.) \*

\* These courses can be repeated as the subject matter changes

### Notes:

Students intending to pursue graduate studies in Egyptology at an Egyptian national university must take EGPT 5152 Introduction to Hieratic and EGPT 5150 Introduction to Coptic.

### Collateral Requirements (11-12 credits)

Courses in related disciplines, such as anthropology (e.g. Cultural Anthropology), history and art, Islamic art and archaeology, linguistics, or science (Archaeological Science), possibly to constitute a minor.

### Electives (20-21 credits)

## Sociology (B.A.)

Sociology is the systematic study of society with special attention to social interaction and the social making of humans. It investigates the forces that hold society together and that threaten to pull it apart through the analysis of interaction at every level from micro-group interaction to competition of nation states. Having as its goal a holistic understanding of human society, human beings and their lives, sociology is relevant to a wide range of other disciplines and everyday life issues. As a result, sociology has a broad scope that includes culture, family, gender, crime, religion,

politics, development, population, and urbanization, among others. Besides their coursework, sociology majors are given the opportunity to carry out supervised field research as a part of their undergraduate program.

## Bachelor of Arts

In addition to the possibility of pursuing advanced graduate work in sociology or related fields, majors are trained for employment in international development agencies, government, non-governmental organizations or the private sector in social and community services or research and managerial positions.

In order to declare the major in sociology, students must pass SOC 2101 with at least a "B". Continuation within the major is dependent on maintaining at least 2.5 GPA within their concentration requirements. Students must take SOC 4107 in their last full academic year. Courses at the 500-level are also open to selected advanced undergraduates.

Students need to fill out the application for declaration form. Upon review and approval of the application, students may be asked to sit for a short interview.

A total of 120 credits is required for the bachelor's degree in sociology:

## Core Curriculum (40 credits)

## Concentration Requirements (42 credits)

- SOC 201/2101 - Introduction to Sociology (3 cr.)
- SOC 204/3103 - Social Statistics (3 cr.)
- SOC 309/3102 - History of Social Theory (3 cr.)  
See footnote one.
- SOC 310/3104 - Contemporary Sociological Theory (3 cr.)
- SOC 381/3105 - Doing Survey Research in the Social Sciences (3 cr.)
- SOC 450/4106 - Critical Approaches to Development (3 cr.)  
See footnote one.
- SOC 495/4107 - Senior Seminar (3 cr.)  
See footnote one.

## One of either

- SOC 203/2301 - Social Problems of the Middle East (3 cr.)
- SOC 206/2302 - Arab Family Structure and Dynamics (3 cr.)

## One of either

- SOC 303/3303 - Social Movements (3 cr.)
- SOC 307/3304 - Social Class and Inequality (3 cr.)

## Additional Requirements

**Two additional 3000 level courses in sociology from among the following:**

- SOC 000/3305 - Selected Topics in Sociology (3 cr.)
- SOC 301/3010 - Social Psychology (3 cr.)
- SOC 304/3025 - Development Agencies (3 cr.)

- SOC 306/3030 - Sociology of Literature (3 cr.)
  - SOC 321/3045 - The Urban Experience (3 cr.)
  - SOC 322/3050 - Rural Sociology (3 cr.)
  - SOC 323/3055 - Fundamentals of Population Studies (3 cr.)
  - SOC 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)
  - SOC 340/3202 - Participatory Action Research in Community Settings (3 cr.)
  - SOC 370/3085 - Environmental Issues in Egypt (3 cr.)
- Three additional 4000 level courses in sociology from among the following:
- SOC 400/4099 - Selected Topics in Sociology (3 cr.)
  - SOC 402/4405 - Independent Study (3 cr.)
  - SOC 405/4005 - Sociology of Work (3 cr.)
  - SOC 406/4010 - Educational Sociology (3 cr.)
  - SOC 408/4020 - Criminology (3 cr.)
  - SOC 422/4025 - Religion in a Global World (3 cr.)
  - SOC 431/4035 - Political Sociology (3 cr.)
  - SOC 435/4040 - Gender and Power in Development (3 cr.)
  - SOC 440/4203 - Practicum in Community Development (3 cr.)
  - SOC 445/4499 - Selected Topics in Coptic Studies (3 cr.)
  - SOC 455/4055 - Seminar in African Studies (3 cr.)
  - SOC 460/4560 - Development Studies Seminar (3 cr.)
- Certain courses listed with other disciplines can be substituted with the approval of the adviser and unit head to our 3000 level and 4000 level requirement.

## Collateral Requirements (24 credits)

**Three** of the following courses:

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- ANTH 380/3105 - Fieldwork Methods (3 cr.)
- CSCE 102/1000 - Introduction to Computers and their Applications (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- JRMCM 200/2200 - Introduction to Mass Communication (3 cr.)
- POLS 101/1001 - Introduction to Political Science (3 cr.)
- PSYC 201/1000 - Introduction to Psychology (3 cr.)

## Additional Requirements

Five additional courses from any social science or humanities discipline, or relevant substitutes, to be approved by the advisor, at least three of which must be at the 300 or 400 level.

## Electives (14 credits)

## Notes

Footnote 1: Cross-listed with Anthropology

## Anthropology Minor

The minor in Anthropology provides students with a basic knowledge of anthropological method and theory from a cross-cultural perspective on selected aspects of the world's cultures and societies.

Fifteen credits are required for the minor in Anthropology: ANTH 2101 , ANTH 3105 and three additional anthropology courses of which at least one must be at the 400-level. Please select from the following:

ANTH 199/1099 - Selected Topics for Core Curriculum (3 cr.)  
 ANTH 000/2006 - Youth Cultures (3 cr.)  
 ANTH 000/2007 - Anthropology of the Occupied: Palestine/ Israel (3 cr.)  
 ANTH 299/2099 - Selected Topics for Core Curriculum (3 cr.)  
 ANTH 210/2005 - Arab Society (3 cr.)  
 ANTH 240/2201 - Introduction to Community Development (3 cr.)  
 ANTH 302/3015 - Global Families: Kinship and Relatedness in Late Modernity (3 cr.)  
 ANTH 303/3020 - Social Movements (3 cr.)  
 ANTH 309/3102 - History of Social Theory (3 cr.) cross listed with SOC 3102  
 ANTH 311/3104 - Contemporary Anthropological Theory (3 cr.)  
 ANTH 312/3301 - Anthropologies of Middle East and North Africa (3 cr.)  
 ANTH 320/3040 - States, Capital and Rural Lives (3 cr.)  
 ANTH 321/3045 - The Urban Experience (3 cr.)  
 ANTH 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)  
 ANTH 340/3202 - Participatory Action Research in Community Settings (3 cr.)  
 ANTH 341/3070 - Anthropology and Film (3 cr.)  
 ANTH 352/3075 - Language in Culture (3 cr.)  
 ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)  
 ANTH 370/3085 - Environmental Issues in Egypt (3 cr.)  
 ANTH 372/3090 - Public Anthropology (3 cr.)  
 ANTH 382/3302 - Anthropologies of Africa (3 cr.)  
 ANTH 384/3303 - Anthropologies of Latin America (3 cr.)  
 ANTH 386/3304 - Anthropologies of Asia (3 cr.)  
 ANTH 390/3305 - Selected People and Culture Areas (3 cr.)  
 ANTH 400/4099 - Selected Topics in Anthropology (3 cr.)  
 ANTH 402/4405 - Independent Study (1-3 cr.)  
 ANTH 407/4015 - Psychological Anthropology (3 cr.)  
 ANTH 000/4020 - Anthropology of Violence (3 cr.)  
 ANTH 422/4025 - Religion in a Global World (3cr.)  
 ANTH 425/4030 - Women, Islam and the State (3 cr.)  
 ANTH 440/4203 - Practicum in Community Development (3 cr.)  
 ANTH 445/4499 - Selected Topics in Coptic Studies (3 cr.)  
 ANTH 450/4050 - Critical Approaches to Development (3 cr.)  
 ANTH 455/4055 - Seminar in African Studies (3 cr.)  
 ANTH 460/4560 - Development Studies Seminar (3 cr.)  
 ANTH 462/4065 - Culture, Economy and the Everyday (3 cr.)  
 ANTH 492/4070 - Political Anthropology (3 cr.)  
 ANTH 000/4075 - Migrants and Transnationals (3 cr.)  
 ANTH 495/4107 - Senior Seminar (3 cr.)

## Community Development and Organizing Minor

The minor in Community Development provides students with theoretical and practical knowledge that enhances their understanding and vision of a strong civil society, one that is engaged and participatory. The required curriculum

includes hands-on community-based learning experiences to initiate the students' professional development in an applied setting. Students learn about the relevance and role of community and personal empowerment in response to population needs. The practicum model is designed with a broad educative focus meant to provide students not only with skills and techniques, but also opportunities for inquiry, for trying and testing new ideas within collaborative relationships, and for engaging community development in new ways.

Academic Advising will be provided to minors by the Anthropology, Sociology and Psychology faculty. Students need to consult the academic advisor that will be based in either the Department of Sociology, Egyptology, and Anthropology or the Department of Psychology in order to declare Community Development and Organizing as a minor.

Course requirements: 15 credits, including the following:

## Required Courses (9 credits)

- PSYC 240/2201 - Introduction to Community Development (3 cr.)
- PSYC 340/3202 - Participatory Action Research in Community Settings (3 cr.)
- AND
- SOC/ANTH/PSYC 4203 - Practicum in Community Development (3 cr.)

## Electives (6 credits) two of the following:

- ANTH 303/3020 - Social Movements (3 cr.)
- ANTH 370/3085 - Environmental Issues in Egypt (3 cr.)
- ANTH 372/3090 - Public Anthropology (3 cr.)
- ANTH 380/3105 - Fieldwork Methods (3 cr.)
- ANTH 450/4050 - Critical Approaches to Development (3 cr.)
- ANTH 460/4560 - Development Studies Seminar (3 cr.)
- SOC 203/2301 - Social Problems of the Middle East (3 cr.)
- SOC 307/3304 - Social Class and Inequality (3 cr.)
- SOC 435/4040 - Gender and Power in Development (3 cr.)
- SOC 304/3025 - Development Agencies (3 cr.)
- PSYC 330/3003 - Community Psychology (3 cr.)
- PSYC 430/4063 - Advanced Community Psychology (3 cr.)
- RHET 410/4260 - Writing for Project Funding (3 cr.)

## Coptic Studies Minor

The minor in Coptic Studies provides students with an introduction to the Coptic period as it follows on from the Pharaonic period and into the Islamic period. This interdisciplinary program, drawing primarily from the Egyptology and Arabic Studies, will cover religion, art, literature, & social and political history from the early days until the present. Influences between different groups, as manifested culturally, will also be studied. Although the main offerings for this minor are currently based in Egyptology and Arabic Studies, other offerings from Political Science, Religion, Art History, History, etc. can also be included, where appropriate.

The minor is supervised by the head of the Egyptology Unit in the SAPE Department.

## Requirements (15 credits):

- EGPT 400/5150 - Introduction to Coptic (3 cr.)

Any two of the following:

- EGPT 342/5120 - History of Egypt in the Graeco-Roman Era (3 cr.)
- EGPT 445/5160 - Selected Topics in Coptic Studies (3 cr.)

Any two of the following:

- ARIC 324/3324 - Non-Muslim Communities in the Muslim World (3 cr.)
- ARIC 344/3344 - Caliphs and Sultans in the Age of Crusades and Mongols (3 cr.)
- ARIC 370/3270 - The Age of Transition: Early Islamic Art and the Pre-Islamic Past (3 cr.)

**Notes:**

Appropriate courses from other departments may be substituted.

## Development Studies Minor

The purpose of the development studies minor is to offer students an introduction to the various social, political, economic, and cultural factors related to the process of development. The approach is interdisciplinary and comparative, with primary emphasis upon development-related issues.

Academic advising is provided through the Anthropology and Sociology units of the Department of Sociology, Egyptology, and Anthropology on behalf of an interdisciplinary group of faculty.

## Requirements (15 credits):

From the following lists of approved courses, three "development courses" from at least two disciplines other than the major, one "area studies course" not included in the major, and the Development Studies Seminar to be taken after or concurrent with the completion of other courses in the minor:

## Approved Development Courses:

- ANTH 320/3040 - States, Capital and Rural Lives (3 cr.)
- ANTH 321/3045 - The Urban Experience (3 cr.)
- ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)
- ANTH 372/3090 - Public Anthropology (3 cr.)
- ANTH 450/4050 - Critical Approaches to Development (3 cr.)
- ANTH 462/4065 - Culture, Economy and the Everyday (3 cr.)
- ANTH 492/4070 - Political Anthropology (3 cr.)
- ECON 310/4014 - Public Economics and Policy Analysis (3 cr.)
- ECON 312/3053 - Economic Development (3 cr.)
- POLS 310/3510 - Introduction to Development (3 cr.)
- POLS 323/3423 - Comparative Government and Politics: Developing Systems (3 cr.)
- POLS 460/4560 - Development Studies Seminar (3 cr.)

- SOC 303/3303 - Social Movements (3 cr.)
- SOC 304/3025 - Development Agencies (3 cr.)
- SOC 321/3045 - The Urban Experience (3 cr.)
- SOC 322/3050 - Rural Sociology (3 cr.)
- SOC 323/3055 - Fundamentals of Population Studies (3 cr.)
- SOC 431/4035 - Political Sociology (3 cr.)
- SOC 435/4040 - Gender and Power in Development (3 cr.)
- SOC 450/4106 - Critical Approaches to Development (3 cr.)

## Approved Area-Studies Courses:

- ANTH 312/3301 - Anthropologies of Middle East and North Africa (3 cr.)
- ANTH 382/3302 - Anthropologies of Africa (3 cr.)
- ANTH 384/3303 - Anthropologies of Latin America (3 cr.)
- ANTH 386/3304 - Anthropologies of Asia (3 cr.)
- ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)
- ECON 414/4094 - Economics of Egypt (3 cr.)
- ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.)
- POLS 206/2404 - Europe in International Politics in the Twentieth Century (3 cr.)
- POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)
- POLS 324/3424 - Comparative Government and Politics in Contemporary Eastern Europe and Russia (3 cr.)
- POLS 354/3454 - Political and Social Thought in the Modern Arab World (3 cr.)
- POLS 420/4420 - Issues in Middle East Politics (3 cr.)
- POLS 439/4439 - Government and Politics in the Modern Caucasus and Central Asia (3 cr.)
- SOC 203/2301 - Social Problems of the Middle East (3 cr.)

## Special Topics

Selected special topics courses may be accepted as part of "development courses" or "area-studies courses" by the approval of the Advisor:

- ANTH 400/4099 - Selected Topics in Anthropology (3 cr.)
- SOC 400/4099 - Selected Topics in Sociology (3 cr.)

## Egyptology Minor

Egyptology is the science and study of Ancient Egypt, including the different aspects of its material and nonmaterial culture. The minor in Egyptology is designed to provide students with a substantive introduction to Ancient Egyptian civilization through the study of its history, art and architecture, religion and literature.

## Requirements (15 credits):

Any three of the following (However a sequence from the Predynastic through the Ptolemaic period must be covered by taking the history or/and art sequences) :

- EGPT 343/3211 - History of Ancient Egypt I: Pre-Dynastic Through Middle Kingdom Egypt (3 cr.)
- EGPT 344/3212 - History of Ancient Egypt II: Middle Kingdom through Ptolemaic Egypt (3 cr.)
- EGPT 304/5100 - Culture and Society of Ancient Egypt (3 cr.)
- EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
- EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)

## Two from among the following

- EGPT 250/2250 - Ancient Egyptian Literature in Translation (3 cr.)
  - EGPT 253/2251 - Hieroglyphics I (3 cr.)
  - EGPT 254/2252 - Hieroglyphics II (3 cr.)
  - EGPT 440/4040 - Ancient Egyptian Religion and Ethics (3 cr.)
- Or any other course in the EGPT 5100 series

AND, if not taken for the requirement, any of the history or art sequences:

EGPT 3211 , EGPT 3212

EGPT 3201 , EGPT 3202

## Sociology Minor

The minor in sociology introduces students to the central concepts and methods of the field. Emphasis is on the theoretical perspectives of sociology in the study of society, culture, and the individual.

## Requirements (15 credits)

Prerequisites for these courses must be completed in order to minor in sociology.

- SOC 201/2101 - Introduction to Sociology (3 cr.)
- SOC 309/3102 - History of Social Theory (3 cr.)  
See footnote one
- SOC 381/3105 - Doing Survey Research in the Social Sciences (3 cr.)  
One 3000-level sociology course from among the following:
- SOC 000/3305 - Selected Topics in Sociology (3 cr.)
- SOC 204/3103 - Social Statistics (3 cr.)
- SOC 301/3010 - Social Psychology (3 cr.)
- SOC 303/3303 - Social Movements (3 cr.)
- SOC 304/3025 - Development Agencies (3 cr.)
- SOC 306/3030 - Sociology of Literature (3 cr.)
- SOC 307/3304 - Social Class and Inequality (3 cr.)
- SOC 310/3104 - Contemporary Sociological Theory (3 cr.)
- SOC 322/3050 - Rural Sociology (3 cr.)
- SOC 323/3055 - Fundamentals of Population Studies (3 cr.)
- SOC 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)
- SOC 340/3202 - Participatory Action Research in Community Settings (3 cr.)
- SOC 370/3085 - Environmental Issues in Egypt (3 cr.)



One 4000-level sociology course from among the following:

- SOC 400/4099 - Selected Topics in Sociology (3 cr.)
- SOC 402/4405 - Independent Study (3 cr.)
- SOC 405/4005 - Sociology of Work (3 cr.)
- SOC 406/4010 - Educational Sociology (3 cr.)
- SOC 408/4020 - Criminology (3 cr.)
- SOC 422/4025 - Religion in a Global World (3 cr.)
- SOC 431/4035 - Political Sociology (3 cr.)
- SOC 435/4040 - Gender and Power in Development (3 cr.)
- SOC 440/4203 - Practicum in Community Development (3 cr.)
- SOC 445/4499 - Selected Topics in Coptic Studies (3 cr.)
- SOC 450/4106 - Critical Approaches to Development (3 cr.)
- SOC 455/4055 - Seminar in African Studies (3 cr.)
- SOC 460/4560 - Development Studies Seminar (3 cr.)
- SOC 495/4107 - Senior Seminar (3 cr.)

Certain courses listed with other disciplines can be substituted with the approval of the adviser and unit head to our 3000 level and 4000 level requirement.

#### Notes

Footnote 1: Cross listed with Anthropology

## **Egyptology and Coptology MA, with tracks in Art, Archaeology and History; Language, Literature and Religion; and Coptology (M.A.)**

### **Master of Arts in Egyptology & Coptology**

The graduate program in Egyptology/Coptology at AUC offers an outstanding opportunity to study Egyptology/Coptology at the graduate level in Egypt.

There are 3 different possible tracks for the MA:

Art, Archaeology and History  
Language, Literature and Religion  
Coptology

The graduate program will help prepare students for careers in Egyptology/Coptology and for further studies in the discipline. It takes full advantage of being located in Egypt where students can visit and study the monuments in context, as well as gain practical experience in their chosen field. The program is designed to expose students to different aspects of the discipline, teach them to think critically and creatively, and put into practice the academic skills that they are acquiring. To ensure AUC graduates a high quality of academic opportunity and flexibility, these programs follow international guidelines for similar degrees at accredited institutions in the USA and Europe.

### **Requirements**

The MA consists of a total of 27 credits: 8 courses (7 classroom courses, 1 of field-work, appropriate to each candidate's interest, which can be substituted for an alternative class for the Coptology MA), and a thesis. 4 are core courses, and 4 can be chosen by the student. Thus, for students with an archaeological interest this will be more excavation focused, and for students who are more philologically inclined, this will be more epigraphic in nature. If students have a non-Egyptology background, up to a year of additional course work of prerequisites might be required, although obtaining an A- or above on placement tests in the requisite subjects would waive them. These classes will be

drawn from the undergraduate offerings, but for graduate students will require extra work in the form of a more extensive reading list, more detailed and longer papers, and more challenging exams. Some of these courses can be taken, with instructors' consent, while taking graduate courses.

We also require students to have a reading knowledge of either French or German prior to writing a thesis, which would be tested by a language exam. If the student's research can be performed successfully without knowledge of a second language, the department may exempt the student from this requirement.

A thesis is required in all three branches of the MA in Egyptology and Coptology. The thesis must be written in English and submitted in accordance with university regulations.

A maximum of two 400-level courses may be taken as part of the MA program. Approved 300 and 400 level courses may be taken at the 500 level in special circumstances.

### **Admission Criteria**

Applicants seeking admission to the graduate program should have an undergraduate degree of high standing (3.0 equivalent to a B or higher), and pass the Egyptology Unit's English language proficiency test (if deemed necessary). Admission will only be in the fall semester. To continue in the program, a 3.0 average must be maintained.

### **Breakdown of Courses for Each Track:**

## **Egyptology: Art, Archaeology, and History (after fulfilling prerequisites):**

4 core courses and 4 optional courses and a thesis (EGPT 5992)

### **Required:**

- EGPT 540/5180 - Advanced Method and Theory: Archaeological and Historical (3 cr.)
- EGPT 598/5991 - Research Seminar: Research Design and Writing (3 cr.)
- EGPT 541/5420 - Material Culture: Looking at Artifacts in Context (3 cr.) or EGPT 542/5430 - Site Analysis (3 cr.)

If a student has had no field experience, s/he should take

- EGPT 591/5191 - Field Work (3 cr.)

If the student has had sufficient field experience, the fourth course should be chosen from the list below, in consultation with the advisor.

### **Optional:**

Four choices from other courses depending on individual interest (if students were AUC undergraduates, they will have to take courses that they have never taken before):

- EGPT 510/5100 - Culture and Society of Ancient Egypt (3 cr.)
- EGPT 512/5130 - Art, Societies, and Cultures of the Ancient Near East (3 cr.)

- EGPT 530/5120 - Graeco-Roman Egypt (3 cr.)
- EGPT 519/5199 - Selected Topics in Ancient Egyptian Art and Culture (3 cr.)  
\*\* Can be taken more than once if the subject matter changes.
- EGPT 521/5140 - Societies and Cultures of Ancient Nubia (3 cr.)
- EGPT 522/5220 - Ancient Egyptian Religion and Ethics (3 cr.)
- EGPT 525/5230 - Settlement and Daily Life in Ancient Egypt (3 cr.)
- EGPT 526/5240 - Death and Burial in Ancient Egypt (3 cr.)
- EGPT 533/5330 - Coptic Art and Architecture (3 cr.)
- EGPT 545/5170 - Selected Topics in Cultural Resource Management and Museology (3 cr.)  
\*\* Can be taken more than once if the subject matter changes.
- EGPT 560/5440 - The Iconography of Ancient Egypt (3 cr.)  
ANY language class (Egyptian texts-from amongst the offerings for the philologists) If appropriate for people who wish to specialize in conservation.
- EGPT 000/5030 - Independent Study and Guided Readings (3 cr.)  
Cannot be taken more than twice.

## Egyptology: Language, Literature, and Religion (after fulfilling prerequisites):

4 core courses and 4 optional courses and a thesis (EGPT 5992)

### Required:

- EGPT 598/5991 - Research Seminar: Research Design and Writing (3 cr.)
- EGPT 504/5510 - Advanced Hieratic (3 cr.)

Any two from the below, depending on level, and in consultation with advisors:

- EGPT 561/5550 - Advanced Readings in Ancient Egyptian Religion Texts (3 cr.)
- EGPT 500/5151 - Hieroglyphics III (3 cr.)
- EGPT 501/5153 - Hieroglyphics IV (3 cr.)
- EGPT 562/5560 - Advanced Readings in Historical Literature from the Old Kingdom to the Late Period (3 cr.)

### Optional:

Four choices from other courses depending on individual interest, including:

- EGPT 502/5520 - Introduction to Demotic (3 cr.)
- EGPT 503/5530 - Ptolemaic Hieroglyphs (3 cr.)
- EGPT 505/5150 - Introduction to Coptic (3 cr.)
- EGPT 521/5140 - Societies and Cultures of Ancient Nubia (3 cr.)
- EGPT 522/5220 - Ancient Egyptian Religion and Ethics (3 cr.)
- EGPT 530/5120 - Graeco-Roman Egypt (3 cr.)
- EGPT 510/5100 - Culture and Society of Ancient Egypt (3 cr.)
- EGPT 512/5130 - Art, Societies, and Cultures of the Ancient Near East (3 cr.)

- EGPT 519/5199 - Selected Topics in Ancient Egyptian Art and Culture (3 cr.)  
\*\* Can be taken more than once if the subject matter changes.
- EGPT 591/5191 - Field Work (3 cr.)
- EGPT 545/5170 - Selected Topics in Cultural Resource Management and Museology (3 cr.)  
\*\* Can be taken more than once if the subject matter changes.
- EGPT 000/5030 - Independent Study and Guided Readings (3 cr.)  
Cannot be taken more than twice.

## Coptology:

4 core courses and 4 optional courses and a thesis (EGPT 5992)

## Required:

- EGPT 505/5150 - Introduction to Coptic (3 cr.)
- EGPT 506/5540 - Advanced Coptic Texts (3 cr.)
- EGPT 598/5991 - Research Seminar: Research Design and Writing (3 cr.)
- EGPT 533/5330 - Coptic Art and Architecture (3 cr.)  
Or
- EGPT 539/5160 - Selected Topics in Coptic Studies (3 cr.)

## Choices:

Four choices from other courses depending on individual interest:

- EGPT 530/5120 - Graeco-Roman Egypt (3 cr.)
- EGPT 531/5320 - The Romano-Byzantine World and Egypt (3 cr.)
- EGPT 532/5310 - Classical Art and Archaeology (3 cr.)
- EGPT 533/5330 - Coptic Art and Architecture (3 cr.)
- EGPT 539/5160 - Selected Topics in Coptic Studies (3 cr.)  
\* The Selected Topics classes will change from semester to semester, depending on staffing options and student interest. Topics might range from: The study of Coptic Literature; Coptic Music; The Monastery of Abu Mena; Art in Monastic Devotional Practice, etc.
- ARIC 575-576/5222-5223 - Special Studies in Islamic Art and Architecture (3 cr.)
- EGPT 000/5030 - Independent Study and Guided Readings (3 cr.)  
Cannot be taken more than twice.

## Prerequisites

For students who have no background in Egyptology certain prerequisites will be required. Some of their MA coursework can also be taken during the time that they are working on their prerequisites.

**The prerequisites are:**

## Fall

- EGPT 253/2251 - Hieroglyphics I (3 cr.)
- EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
- EGPT 343/3211 - History of Ancient Egypt I: Pre-Dynastic Through Middle Kingdom Egypt (3 cr.)

## Spring

- EGPT 254/2252 - Hieroglyphics II (3 cr.)
- EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)
- EGPT 344/3212 - History of Ancient Egypt II: Middle Kingdom through Ptolemaic Egypt (3 cr.)

## MA Thesis

After completing the coursework, each student will prepare a statement of their research intent and methodology for the MA Thesis. The Research Methods and Theory Class will prepare for this. Once this statement is accepted by the committee, the student will be free to research and write, while continuing to meet with his/her committee head on a regular basis. The student's committee must accept the completed thesis, which will be viva voce.

## Sociology-Anthropology (M.A.)

The graduate program in sociology and anthropology equips students with a thorough grounding in the theory and research methods of both disciplines. Drawing on the expertise of faculty in sociology, anthropology, and other disciplines, it offers a unique opportunity for students to conduct original fieldwork-based research amidst an intellectually stimulating environment. Its longstanding tradition of combining scholarship with a commitment to social, economic and political justice makes the program a dynamic environment for learning and research. Our students conduct fieldwork in Egypt and throughout the Middle East on topics such as urban transformation, gender, religious and social movements, memory and politics of the past, migration, environment, health, the family, poverty, ethnicity and nationalism, media, activism, art and expressive culture, and youth cultures.

The program emphasizes an interdisciplinary approach to social theory and research and has broad applications. It has prepared many of our students for doctoral programs in the social sciences at universities in North America, Europe and other parts of the Global South, as well as other career paths in social research, NGOs, development agencies, and international and non-profit organizations.

Located at the heart of the Middle East, the faculty and students engage critically with the region and the representation of its people, cultures, and politics. The vibrant and cosmopolitan city of Cairo makes the program's location ideal for students interested in conducting fieldwork in the Middle East, North Africa, and the Arab world, as well as its connections to the Mediterranean region, Sub-Saharan Africa, and the larger 'global south'. The program, accepts qualified applicants from a variety of academic and professional backgrounds especially those who are talented and interested in acquiring alternative and critical perspectives on society and politics.

## Admission

The applicant for this program should be a graduate of high standing from an undergraduate program in the humanities or social sciences (refers to fields in the Faculties of Arts) with an overall grade of gayyid giddan or a grade point average of 3.0 or above. Those who lack this background but who are exceptionally well qualified in other respects may be admitted provisionally. In such cases the department may prescribe a noncredit program of work in theory or method for one or two semesters to correct gaps in course background. The department reserves the right to assess applicants' English proficiency and/or social science abilities in person as a condition of acceptance into the program. Students can be admitted to the program in the fall or spring.

## Language

The candidate for the degree must demonstrate proficiency in a language other than English. The language exam is normally taken in Arabic and, in the case of native speakers, is intended to ensure that the student can work as a professional in that language. In certain cases the student may take the exam in a field and/or scholarly language other than Arabic. Students' language skills will be evaluated upon entry into the program for placement purposes and then re-evaluated for proficiency before completing the program.

## Thesis Track

All students must complete a research thesis in accordance with university regulations. Before commencing work on the thesis, the student must write a thesis proposal following strict departmental guidelines that is approved by three faculty members.

Students should familiarize themselves with procedures and deadlines regarding writing the thesis proposal, committee selection, writing of the thesis and presentation to the supervisor and readers. Complying with the procedural requirements by the appropriate deadlines is the responsibility of the student. After completion of the thesis, it must be defended and approved by the thesis committee.

### Courses:

Eight courses (24 credits) are required. All students must take: SOC/ANTH 5201 , SOC/ANTH 5202 , and SOC/ANTH 5298 , and either SOC/ANTH 5203 or SOC/ANTH 5204 . The remaining four courses should be chosen from the list of electives, each of which is offered in principle at least once in a two-year period.

- SOC/ANTH 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- SOC/ANTH 508/5208 - Special Topics in Migration and Refugee Issues (3 cr.)
- SOC/ANTH 000/5209 - Migration, Integration and Citizenship (3 cr.)
- SOC/ANTH 510/5210 - Problems in Sociology-Anthropology (3 cr.)
- SOC/ANTH 515/5215 - Kin, Friends and Neighbors (3 cr.)
- SOC/ANTH 520/5220 - Gender and Sexuality (3 cr.)
- SOC/ANTH 525/5225 - Religion, Ideology and Society (3 cr.)
- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)
- SOC/ANTH 535/5235 - Maintaining Systems of Global Inequality (3 cr.)
- SOC/ANTH 540/5240 - Revisiting the Rural (3 cr.)
- SOC/ANTH 545/5245 - Cities: Structure and Dynamics (3 cr.)
- SOC/ANTH 550/5250 - Sociology of Knowledge (3 cr.)
- SOC/ANTH 555/5255 - Comparative Health and Healing Systems (3 cr.)
- SOC/ANTH 560/5260 - Population Dynamics (3 cr.)
- SOC/ANTH 565/5265 - Ethnicity, Identity and Nationalism (3 cr.)
- SOC/ANTH 570/5270 - Environment and Society (3 cr.)
- SOC/ANTH 575/5275 - Modern Social Movements (3 cr.)
- SOC/ANTH 580/5280 - History and Memory (3 cr.)
- SOC/ANTH 502/5285 - Social and Cultural Dynamics in Contemporary Egypt (3 cr.)
- SOC/ANTH 503/5290 - Middle Eastern Societies and Cultures (3 cr.)
- SOC/ANTH 591/5297 - Independent Study and Readings (3 cr.)
- SOC-ANTH 000/5295 - Reading Capital (3 cr.)

A maximum of six hours of 400-level courses in sociology and anthropology or of 500-level courses in other disciplines (including SOC/ANTH 5200 and SOC/ANTH 5208 when taught by faculty outside the SOC-ANTH program) may be taken with departmental approval.

Additionally, after completing the required eight courses (24 credits) students must enrol in SOC/ANTH

5299 until the completion of their degree.  
 Final Project  
 MA thesis

## Comprehensive Examinations Track for SOAN MA

This option allows students who do not wish to write a fieldwork based MA thesis to complete, as an alternative, two further courses and take comprehensive exams.

Students not opting to do a thesis will, after the completion of all course requirements, take comprehensive examinations administered by an Examination Committee. An oral examination may be given following the written test.

### Courses:

Ten courses (30 credits) are required. All students must take SOC/ANTH 5201 , SOC/ANTH 5202 and either SOC/ANTH 5203 or SOC/ANTH 5204 . The remaining seven courses should be chosen from the list of electives, each of which is offered in principle at least once in a two year period.

- SOC/ANTH 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- SOC/ANTH 508/5208 - Special Topics in Migration and Refugee Issues (3 cr.)
- SOC/ANTH 000/5209 - Migration, Integration and Citizenship (3 cr.)
- SOC/ANTH 510/5210 - Problems in Sociology-Anthropology (3 cr.)
- SOC/ANTH 515/5215 - Kin, Friends and Neighbors (3 cr.)
- SOC/ANTH 520/5220 - Gender and Sexuality (3 cr.)
- SOC/ANTH 525/5225 - Religion, Ideology and Society (3 cr.)
- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)
- SOC/ANTH 535/5235 - Maintaining Systems of Global Inequality (3 cr.)
- SOC/ANTH 540/5240 - Revisiting the Rural (3 cr.)
- SOC/ANTH 545/5245 - Cities: Structure and Dynamics (3 cr.)
- SOC/ANTH 550/5250 - Sociology of Knowledge (3 cr.)
- SOC/ANTH 555/5255 - Comparative Health and Healing Systems (3 cr.)
- SOC/ANTH 560/5260 - Population Dynamics (3 cr.)
- SOC/ANTH 565/5265 - Ethnicity, Identity and Nationalism (3 cr.)
- SOC/ANTH 570/5270 - Environment and Society (3 cr.)
- SOC/ANTH 575/5275 - Modern Social Movements (3 cr.)
- SOC/ANTH 580/5280 - History and Memory (3 cr.)
- SOC/ANTH 502/5285 - Social and Cultural Dynamics in Contemporary Egypt (3 cr.)
- SOC/ANTH 503/5290 - Middle Eastern Societies and Cultures (3 cr.)
- SOC/ANTH 591/5297 - Independent Study and Readings (3 cr.)
- SOC-ANTH 000/5295 - Reading Capital (3 cr.)

A maximum of nine hours of 4000-level courses in sociology and anthropology or of 5000-level courses in other disciplines (including SOC/ANTH 5200 and SOC/ANTH 5208 when taught by faculty outside the SOC-ANTH program) may be taken with departmental approval.

Additionally, after completing the required ten courses (30 credits) students must enrol in SOC/ANTH 5289 until the completion of their degree.

## Final Project

Written and oral comprehensive exams on three topics (one theoretical, one focused on methodological / practical concerns, one based on the interests of the student).

## **Sociology - Anthropology (Graduate Diploma)**

The program seeks to provide a thorough foundation in the principles of Sociology and Anthropology while also developing critical skills for a wide range of real world professional situations.

### **Requirements**

Students take 6 courses (18 credits) in a single two-semester year. All students must take:

SOC/ANTH 500/5201 - Classical Social Thought (3 cr.)

SOC/ANTH 501/5202 - Contemporary Social Thought

Either SOC/ANTH 505/5203 - Ethnographic Fieldwork (3 cr.) or SOC/ANTH 506/5204 - Survey Research (3 cr.)

The remaining three courses can be chosen from among 5000 level SOC/ANTH courses:

- SOC/ANTH 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- SOC/ANTH 508/5208 - Special Topics in Migration and Refugee Issues (3 cr.)
- SOC/ANTH 000/5209 - Migration, Integration and Citizenship (3 cr.)
- SOC/ANTH 510/5210 - Problems in Sociology-Anthropology (3 cr.)
- SOC/ANTH 515/5215 - Kin, Friends and Neighbors (3 cr.)
- SOC/ANTH 520/5220 - Gender and Sexuality (3 cr.)
- SOC/ANTH 525/5225 - Religion, Ideology and Society (3 cr.)
- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)
- SOC/ANTH 535/5235 - Maintaining Systems of Global Inequality (3 cr.)
- SOC/ANTH 540/5240 - Revisiting the Rural (3 cr.)
- SOC/ANTH 545/5245 - Cities: Structure and Dynamics (3 cr.)
- SOC/ANTH 550/5250 - Sociology of Knowledge (3 cr.)
- SOC/ANTH 555/5255 - Comparative Health and Healing Systems (3 cr.)
- SOC/ANTH 560/5260 - Population Dynamics (3 cr.)
- SOC/ANTH 565/5265 - Ethnicity, Identity and Nationalism (3 cr.)
- SOC/ANTH 570/5270 - Environment and Society (3 cr.)
- SOC/ANTH 575/5275 - Modern Social Movements (3 cr.)
- SOC/ANTH 580/5280 - History and Memory (3 cr.)
- SOC/ANTH 502/5285 - Social and Cultural Dynamics in Contemporary Egypt (3 cr.)
- SOC/ANTH 503/5290 - Middle Eastern Societies and Cultures (3 cr.)
- SOC/ANTH 591/5297 - Independent Study and Readings (3 cr.)
- SOC-ANTH 000/5295 - Reading Capital (3 cr.)

### **Admission Requirements**

Requirements for admission to the Graduate Diploma program are the same as those for admission to the MA Sociology - Anthropology. Graduating diploma students may apply to transfer to MA status; however, transfer to such status is not guaranteed and applications are evaluated according to the standard selection criteria (including academic merit, statement of purpose and recommendation letters).

## **Department of the Arts**



**Department of the Arts**  
**School of Humanities and Social Sciences**

**Film**

Professor: M. Khouri (Director of Film Program)

Assistant Professor: T. Ginsberg

Associate Professor of Practice: T. Kamal-Eldin

**Graphic Design**

Assistant Professor: H. Nawar (Department Chair)

Instructor: G. Elsrakbi (Director of Graphic Design Program)

Professor of Practice: B. Shehab

Associate Professor of Practice: J. Braun, N. Samir, A. Saqfalhait

**Music**

**Music Performance**

Professor: J. Baboukis (Director of Music Program)

Associate Professor: C. Green

**Music Technology**

Associate Professor: W. ElMahallawy

**Theatre**

Professor Emeritus: S. Campbell

Professors: J. Campana (Director of Theater Program), M. Lozy

Associate Professors: J. Arnold, F. Bradley

Associate Professor of Practice: J. Hoey

**Visual Art**

Associate Professor of Practice: D. MacDonald (Director of Visual Arts Program), S. El Noshokaty

Assistant Professor: S. Khatib

## **Film (B.A.)**

**Bachelor of Arts in Film**

Cinema is simply one of the most dynamic and complex cultural, economic and industrial art forms in the world. Uniquely situated in the "film" city of Cairo, the AUC Film Program integrates formal film production training with the study of the historical, aesthetic and theoretical foundations of the medium. In this combined academic and professional context, the B.A. in Film provides a balanced consideration of the international, regional and local elements of cinema.

**The Film curriculum emphasizes the following areas:**

- The development of cinema as an art form
- The impact of cinema on society and culture
- The historical, thematic and aesthetic tendencies within Egyptian and Arab cinema
- A practical background and theoretical appreciation of the art of film making
- Basic formal techniques of film production
- The relationship between cinema and today's media-saturated global public sphere

**Declaration of the Film Major**

Students interested in declaring a major in Film are required to take FILM 2120 (Introduction to Film) and FILM 2121 (Introduction to Film Production). Students with a minimum grade-point average of 'B' in these introductory FILM courses may apply to declare Film as their major. A final recommendation regarding the declaration is made following an interview with the applicant.

**Major Requirements**

A total of 120 credits are required for the bachelor's degree in Film, two courses of which must be FILM courses in the 4000 level.

**Core Curriculum (40 credits)****Concentration Requirements (57 credits)**

- FILM 220/2120 - Introduction to Film Art (3 cr.)
- FILM 000/2121 - Introduction to Film Production (3 cr.)
- FILM 000/2122 - Introduction to Film Criticism (3 cr.)
- FILM 000/2123 - Introduction to Film Production II (3 cr.)

**1. Film Theory & Aesthetics (18 credits)**

- FILM 330/3130 - Film Theory (3 cr.)
- FILM 352/3352 - The Film Industry (3 cr.)
- Choose FOUR from the following:
- FILM 341/3041 - Anthropology and Film (3 cr.)
- FILM 370/3070 - Selected Topics in Film (3 cr.)
- FILM 310/3110 - World Cinema (3 cr.)
- FILM 000/3115 - American Cinema 1895-1945 (3 cr.)
- FILM 000/3117 - American Cinema 1945-present (3 cr.)
- FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)
- FILM 000/3125 - Topics in National Cinemas (3 cr.)
- FILM 340/3140 - Documentary Film (3 cr.)
- FILM 000/3150 - Women and Film (3 cr.)
- FILM 360/3160 - The Filmmaker (3 cr.)
- FILM 390/3190 - Film Genres (3 cr.)

- FILM 354/3354 - Film Audience and Reception (3 cr.)
- FILM 000/4350 - Philosophy and Film (3 cr.)
- FILM 470/5170 - Advanced Seminar in Film Studies and Research (3 cr.)
- FILM 402/4402 - Independent Study (1-3 cr.)

## 2. Film Production (18 credits)

- FILM 353/3253 - Digital Cinematography (3 cr.)
- FILM 344/3254 - Digital Editing (3 cr.)
- Choose FOUR from the following:
- FILM 000/2201 - Acting I (3 cr.)
- FILM 000/2211 - Acting in Arabic I (3 cr.)
- FILM 352/3252 - Screenwriting (3 cr.)
- FILM 336/3306 - Sound for Picture Production (3 cr.)
- FILM 000/3402 - Documentary Production (3 cr.)
- FILM 000/4201 - Film Directing (3 cr.)
- FILM 450/4250 - Senior Film Project (3 cr.)
- FILM 456/4356 - Experiential Learning in Film (3 cr.)
- ARTV 230/2230 - Introduction to Digital Photography (3 cr.)
- DSGN 335/3235 - Animation (3 cr.)
- MUSC 337/3307 - Music for Film (3 cr.)
- THTR 204/2401 - Introduction to Technical Theatre (3 cr.)

## Collateral Requirements (9 credits)

Choose three courses from the following list or from the other remaining FILM courses listed above:

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- ARIC 306/3106 - Arabic Literature and Film (3 cr.)
- ARTV 204/2204 - Introduction to Time-Based Media (3 cr.)
- ECLT 330/3030 - Literature and Cinema (3 cr.)
- ECLT 411/4011 - History of Literary Criticism (3 cr.)
- JRMC 420/4420 - Media Management (3 cr.)
- MUSC 331/2301 - Music Production Using Protocols I (3 cr.)
- MUSC 334/3304 - Music Production for Visual Media (3 cr.)
- PHIL 310/3010 - Philosophy and Art (3 cr.)
- SOC 306/3030 - Sociology of Literature (3 cr.)
- THTR 203/1201 - Theatre in the Making (3 cr.)
- THTR 324/3401 - Design for the Theatre (3 cr.)

## Electives (23 credits)

## Graphic Design (B.A.)

**Bachelor of Arts in Graphic Design**

The Graphic Design major prepares students for a wide range of professional options. Branding, advertising, publication, web, digital and broadcast design, exhibition and type design are all possible career paths. The major offers both theory and studio courses that will enable design students to integrate a good command of visual language with conceptual work, theory, and technology.

Classes are mostly critique based, encouraging debate, discussion, and lateral thinking, utilizing formal and practical knowledge. Most coursework is conducted in studios. Classes are taught by a group of accomplished faculty supported by visiting faculty, guest lecturers, field trips, camps, and workshops. Students create work that is uniquely theirs helping them build a portfolio from which they can build their careers.

### **Declaration of the Graphic Design Major**

To be eligible to declare a Graphic Design major, students must have completed two courses in the program: DSGN 200/2200 - Design Foundations (3 cr.) , DSGN 213/2113 - Introduction to Visual Cultures (3 cr.). After the completion of these two courses, students are requested to sit for a portfolio interview where a committee evaluates their work.

Based on the availability of space, a limited number of students who have successfully completed their courses and who present a promising portfolio as determined by the department will be accepted in the major.

Students who did not pass the interview can sit for another interview after they take DSGN 201/2201 - Design Principles & Practices (3 cr.) and DSGN 215/2115 - History of Graphic Design (3 cr.). The second interview is the final one.

If a student is rejected after the second interview, then they cannot declare graphic design as a major, but they are eligible to register for any of the DSGN minors. Please note that the required GPA for the four DSGN course to declare the major or the minor should be 3.0.

### **Major Requirements**

A total of 120 credits are required for the bachelor's degree in Graphic Design.

## **Core Curriculum (40 credits)**

## **Concentration Requirements (30 Credits)**

- DSGN 200/2200 - Design Foundations (3 cr.)
- DSGN 201/2201 - Design Principles & Practices (3 cr.)
- DSGN 210/2210 - Typography I (3 cr.)
- DSGN 320/3220 - Typography II (3 cr.)
- DSGN 213/2113 - Introduction to Visual Cultures (3 cr.)
- DSGN 215/2115 - History of Graphic Design (3 cr.)
- DSGN 250/2250 - Digital Practice I (3 cr.)
- DSGN 420/4220 - Production for Designers (3 cr.)
- DSGN 469/4269 - Senior Project Thesis (3 cr.)
- DSGN 470/4270 - Senior Project Practice (3 cr.)

## **Additional requirements (30 credits)**

### **1. Professional Practice, Choose five**

- DSGN 202/2202 - Logo and Visual Identity Design (3 cr.)
- DSGN 303/3203 - Publication Design (3 cr.)
- DSGN 304/3204 - Packaging Design (3 cr.)
- DSGN 305/3205 - Retail Design (3 cr.)
- DSGN 313/3213 - Interactive Design (3 cr.)
- DSGN 330/3230 - Type Design (3 cr.)
- DSGN 365/3265 - Advertising and Branding (3 cr.)
- DSGN 000/3270 - Selected Topics in Design (3 cr.)

## 2) Technical Practice, Choose THREE:

- DSGN 240/2240 - Color (3 cr.)
- DSGN 245/2245 - Illustration (3 cr.)
- DSGN 335/3235 - Animation (3 cr.)
- DSGN 350/3250 - Digital Practices II (3 cr.)
- DSGN 360/3260 - Photography for Designers (3 cr.)
- DSGN 400/4200 - Design field practices (3 cr.)
- DSGN 410/4210 - Portfolio (3 cr.)
- ARTV 201/2201 - Introduction to Drawing (3 cr.)
- ARTV 204/2204 - Introduction to Time-Based Media (3 cr.)

## 3. History and Theory, choose TWO:

- DSGN 317/3117 - History of Advertising in the Arab World (3 cr.)
- DSGN 318/3118 - History of Arabic Calligraphy (3 cr.)
- DSGN 315/5115 - History of Graphic Design in the Arab world (3 cr.)
- ARIC 368/3268 - The Art of the Book in the Islamic World (3 cr.)

## Electives (20 credits)

### Music Technology (B.A.)

The mission of the Music Program is to teach the theory, literature, and performance of music, and the theory and practice of music technology, to the highest attainable standard in the context of a liberal arts environment, with an orientation towards performance and study in both Western and Arab music.

The program lays a special emphasis on two aspects of what musicians do which are of particular value to students, whether they aspire to a career in music, or only seek to broaden their understanding of the world by enrolling in one or two courses. First, all students who take private instruction in voice or an instrument will learn to sight-read musical notation fluently, and to comprehend what they hear. Second, in the classroom and studio, lessons, rehearsals, and performances, all students in the program are expected to conform to professional standards: to be punctual and prepared, and to treat their colleagues, and the material to be studied or performed, with the respect that is their due.

Students who major in music may pursue either a Bachelor of Arts degree in music technology, or a Bachelor of Musical Arts (B.M.A) degree in performance. The Bachelor of Arts in music technology is a liberal arts degree which prepares students for a career in sound engineering, ie. Music recording, editing, production, and broadcasting, or for graduate study in the field.

**The Institute for Music Technology** offers a sequence of courses in music recording, editing, and production, music for video and film, and electronic music. Such training is crucial not only for students interested in a career in these professions, but also to performers and teachers who need to create and edit demos and audition tracks, to use music files in web sites and other internet applications, or to prepare and market recordings of their own performances and compositions. The Institute for Music Technology is responsible for the recording studio, which is used both as a teaching space and for professional recording.

**The Cairo Choral Society** is a community chorus dedicated to the study, promotion, and performance of the great choral works in the Western musical tradition. It presents performances with a professional orchestra (the Cairo Festival Orchestra) and soloists at various venues in Cairo. The membership is voluntary, multinational, and cross-generational. The Cairo Choral Society was founded in 1983; in the fall choral ensembles in Egypt, it is both a community-based organization and a for-credit course at AUC. Students may also participate in the chorus on a not-for-credit basis.

## **Bachelor of Arts**

### **Requirements for the Concentration in Music Technology**

In order to complete the Bachelor of Art in music with a concentration in music technology, a student will:

- Learn to read music, and acquire intermediate listening and sight-reading skills.
- Learn fundamental principles of music theory, both Western and Arab.
- Demonstrate the ability to play the piano at an intermediate level or better, and to use the key board as a tool for music data entry; more advanced students may also present part of a solo recital, in piano, some other instrument, or voice, with the permission of their teacher.
- Acquire a basic ability to compose and arrange using MIDI ("musical instrument digital interface," the protocol for the transmission of music data between electronic musical instruments).
- Learn advanced techniques of recording, editing, mixing, and mastering with Protocol and other editing software (Protocols software is the industry standard for recording, composing, arranging, editing, and mixing digital music).
- Acquire an advanced understanding of the use of music events (i.e. MIDI and related technologies) using synthesizers and samplers.

### **Declaration of the Major in Music Technology**

To be eligible to declare a major in Music Technology, students must take three courses:

- MUSC 220/2200 - Introduction to Music (3 cr.)
- MUSC 330/2300 - Introduction to Music Technology (3 cr.)
- MUSC 331/2301 - Music Production Using Protocols I (3 cr.)

Final recommendation is made by the Director of the Institute for Music Technology after an interview with members of the music technology faculty.

A total of 120 credits are required for the bachelor's degree in music with a concentration in music technology.

## **Core Curriculum (40 credits)**

## **Concentration Requirements (56 credits):**

### **Theory, Literature and Performance (26 credits):**

- MUSC 220/2200 - Introduction to Music (3 cr.)
- MUSC 240/2400 - Western Music Theory I (3 cr.)
- MUSC 241/2401 - Sight-Singing and Aural Skills I (1 cr.)
- MUSC 245/2450 - Arab Music Theory I (3 cr.)
- MUSC 246/2451 - Maqam I (Arab Music Sight-Singing and Aural Skills) (1 cr.)
- MUSC 340/3400 - Western Music Theory II (3 cr.)
- MUSC 341/3401 - Sight-Singing and Aural Skills II (1 cr.)
- MUSC 345/3450 - Arab Music Theory II (3 cr.)
- MUSC 346/3451 - Maqam II (Arab Music Sight-Singing and Aural Skills) (1 cr.)
- And MUSC 2850, 2851 Private Instruction for Piano Proficiency (1 cr. each = 2 cr.)

One of the following:

- MUSC 342/3250 - Music in the Arab Tradition (3 cr.)
- MUSC 360/3200 - Music in the Western Tradition (3 cr.)

Two semesters of ensemble, chosen from among the following:

- MUSC 2620/2621 Arab Music Ensemble (1 cr.)
- MUSC 2630/2631 Guitar Ensemble (1 cr.)
- MUSC 2640/2641 Chamber Music Ensembles (1 cr.)
- MUSC 2650/2651 Rehearsal/Performance Practicum (1 cr.)
- MUSC 2660/2661 Chamber Singers (1 cr.)
- MUSC 2670/2671 Cairo Choral Society (1 cr.)

Music Technology (30 credits):

- MUSC 232-332-432/2302-3302-4302 - Digital Audio / MIDI Lab (1 cr. each)
- MUSC 330/2300 - Introduction to Music Technology (3 cr.)
- MUSC 331/2301 - Music Production Using Protocols I (3 cr.)
- MUSC 333/2303 - Microphone Techniques (3 cr.)
- MUSC 334/3304 - Music Production for Visual Media (3 cr.)
- MUSC 336/3306 - Sound for Picture Production (3 cr.)
- MUSC 439/4309 - Digital Mixing Techniques (3 cr.)
- MUSC 490/4900 - Advanced Seminar (3 cr.)

Two additional courses, to be chosen from among the following:

- MUSC 371/3150 - Western and Arab Musical Instruments (3 cr.)
- MUSC 335/3305 - Electronic Music (3 cr.)
- MUSC 337/3307 - Music for Film (3 cr.)
- MUSC 000/3308 - Live Sound Reinforcement (3 cr.)
- MUSC 438/4308 - Music Production Using Protocols II (3 cr.)

Electives (24 credits)

## Theatre (B.A.)

The Department of the Arts offers both a bachelor's degree and a minor in theatre. The curriculum balances solid fundamental study of the literature, history, and theory of theatre with practical theatre experience in performance, directing, design, and technical theatre. The program offers a liberal arts approach to theatre study, an approach that aims at enriching the students' awareness of the role of theatre arts within society.

### Performances

The department produces a season of fully-realized plays, sponsors student-directed plays, and hosts visiting productions in its three theatres, the Malak Gabr Theatre, Gerhart Theatre, and Black Box Theatre. The department offers students the opportunity to interact with international renowned guest artists who are brought to AUC to serve as directors, designers, and performers. Students who participate are eligible to receive course credit depending on the extent of their involvement.

The Theatre Program's productions are an integral component of its curriculum and an essential part of the learning and training process. Auditions are open to all registered AUC students. Casting in a play is dependent upon the ability of the student to comply with the rigorous requirements of a given rehearsal schedule.

### Bachelor of Arts

Theatre majors follow a program of courses in dramatic literature, theory, and history; a program of studio courses (acting, directing, and design), and play and active role in the department's productions. A total of 120 credits is required for the bachelor's degree in theatre.

\*The Theatre program will not authorize substitution in the case of courses the student has failed.

## Core Curriculum (40 credits)

## Concentration Requirements (51 credits)

- THTR 203/1201 - Theatre in the Making (3 cr.)
  - THTR 204/2401 - Introduction to Technical Theatre (3 cr.)
  - THTR 225/2201 - Acting I (3 cr.)
  - THTR 230/2301 - Play Analysis (3 cr.)
  - THTR 324/3401 - Design for the Theatre (3 cr.)
  - THTR 328/3301 - Directing I (3 cr.)
  - THTR 340/3601 - Advanced Theatre Practicum (3 cr.)
  - THTR 461/4103 - Dramatic Theory and Criticism (3 cr.)
  - THTR 490/4703 - Senior Thesis (3 cr.)
- Six credits to be chosen from among the following:
- THTR 000/3103 - Drama in Context I: Greeks to English Renaissance (3 cr.)
  - THTR 000/3104 - Drama in Context II: Italian Renaissance to Modern (3 cr.)
  - THTR 000/3105 - Drama in Context III: Modern and Contemporary (3 cr.)

## Additional Requirements (15 credits)

**Three** credits from the following:



- THTR 240/2601 - Production Practicum (1 cr. per production)
- THTR 242/2603 - Rehearsal and Performance Practicum (1 cr.)

Five courses in the department to be chosen among the following:

- THTR 226/2211 - Acting in Arabic I (3 cr.)
- THTR 000/3103 - Drama in Context I: Greeks to English Renaissance (3 cr.)
- THTR 000/3104 - Drama in Context II: Italian Renaissance to Modern (3 cr.)
- THTR 000/3105 - Drama in Context III: Modern and Contemporary (3 cr.)
- THTR 227/3201 - Acting II (3 cr.)
- THTR 327/3203 - Special Topics in Acting (3 cr.)
- THTR 000/3207 - Movement for the Stage (3 cr.)
- THTR 326/3211 - Acting in Arabic II (3 cr.)
- THTR 000/3403 - Make Up for the Theatre (3 cr.)
- THTR 360/3501 - Playwriting I (3 cr.)
- THTR 361/3503 - Playwriting II (3 cr.)
- THTR 344/3603 - Design Practicum (3 cr.)
- THTR 428/4301 - Directing II (3 cr.)
- THTR 000/4405 - Stage Lighting (3 cr.)
- THTR 000/4406 - Costume Design for Theatre and Film (3 cr.)
- THTR 495/4705 - Senior Honors Project (3 cr.)

## Collateral Requirements (3 credits):

**One** course chosen from the following:

- ARIC 315/3115 - Arabic Drama (3 cr.)
- ECLT 360/3060 - Shakespeare (3 cr.)
- MUSC 252/1011 - Vocal Methods (3 cr.)

## Electives (11 credits):

The program will actively encourage its majors to work towards minors in fields such as anthropology, sociology, literature, music, art, political science, or business administration. Elective credits will be used for the minor.

## Visual Arts (B.A.)

### Bachelor of Arts in Visual Arts

The Visual Arts major provides students with an opportunity to develop their independent vision and creative practice as artists in an educational environment emphasizing conceptual research and expression across media. The curriculum balances studio-based coursework with historical and theoretical. Students intending to major in Visual Arts begin with foundations classes in visual research and analysis and then progress to intermediate studio courses in specific media and techniques (drawing, painting, sculpture and installation, photography, time-based media, alternative and new media practices, experimental animation, and others). All majors also complete a four-semester sequence of studio courses (Art Studio I, II, III, and IV) designed to foster independent work at an advanced level, followed by a year-long Senior project in the final year, which culminates in a public exhibition at the annual degree show in the Sharjah Art Gallery.

### **Declaration of the Visual Arts Major**

To be eligible to declare, students must have completed four courses in the program: ARTV 200/2200 - Analogue and Digital Practices (3 cr.) , ARTV 213/2113 - Introduction to Visual Cultures (3 cr.) , and two more Visual Arts studio courses. Final recommendation is made by the Visual Arts faculty after an interview and portfolio review.

### **Major Requirements**

A total of 120 credits are required for the bachelor's degree in Visual Arts:

#### **Core Curriculum (40 credits)**

#### **Concentration requirements (33 credits)**

- ARTV 200/2200 - Analogue and Digital Practices (3 cr.)
- ARTV 213/2113 - Introduction to Visual Cultures (3 cr.)
- ARTV 000/2214 - History of Art Practices I (3 cr.)
- ARTV 000/3311 - Advanced Painting and Drawing (3 cr.)
- ARTV 000/3312 - Advanced Studio I (3 cr.)
- ARTV 315/3115 - Art Theory (3 cr.)
- ARTV 000/3316 - History of Art Practices II (3 cr.)
- ARTV 000/4311 - Advanced Studio II (3 cr.)
- ARTV 000/4312 - Advanced Studio III (3 cr.)
- ARTV 469/4269 - Senior Project (A) (3 cr.)
- ARTV 470/4270 - Senior Project (B) (3 cr.)
- ARTV 000/2208 - Internship Practice (0 cr.)  
parallel to ARTV 000/4312 - Advanced Studio III (3 cr.)
- ARTV 000/2209 - Studio Professional Practice (0 cr.)  
starts from declaration time to senior project final exhibition.
- ARTV 000/2210 - Experimental Workshop Practices (0 cr.)  
starts from declaration time to senior project final exhibition.

#### **Additional Requirements (21 credits)**

Choose SEVEN:

- ARTV 201/2201 - Introduction to Drawing (3 cr.)
- ARTV 202/2202 - Introduction to Painting (3 cr.)
- ARTV 203/2203 - Introduction to sculpture/Installation (3 cr.)
- ARTV 204/2204 - Introduction to Time-Based Media (3 cr.)
- ARTV 000/2207 - Introduction to Ceramics (3 cr.)
- ARTV 000/2206 - Experimental Animation Art (3 cr.)
- ARTV 000/2211 - Introduction to Experimental Comic Strips (3 cr.)
- ARTV 230/2230 - Introduction to Digital Photography (3 cr.)
- ARTV 370/3270 - Selected Topics in Art (3 cr.)
- ARTV 410/5110 - Contemporary issues in Arab Art (3 cr.)
- DSGN 250/2250 - Digital Practice I (3 cr.)

## Elective (26 credits)

### Performance (B.M.A.)

The mission of the Music Program is to teach the theory, literature, and performance of music, and the theory and practice of music technology, to the highest attainable standard in the context of a liberal arts environment, with an orientation towards performance and study in both Western and Arab music.

The program lays a special emphasis on two aspects of what musicians do which are of particular value to students, whether they aspire to a career in music, or only seek to broaden their understanding of the world by enrolling in one or two courses. First, all students who take private instruction in voice or an instrument will learn to sight-read musical notation fluently, and to comprehend what they hear. Second, in the classroom and studio, lessons, rehearsals, and performances, all students in the program are expected to conform to a professional standard: to be punctual and prepared, and to treat their colleagues, and the material to be studied or performed, with the respect that is their due.

Students who major in music may pursue either a Bachelor of Arts degree in music technology, or a Bachelor of Musical Arts (B.M.A.) degree in Performance. The Bachelor of Musical Arts in Performance is a professional degree built on a liberal arts core which prepares students for a career in teaching or performance in voice or an instrument, or for graduate study in performance.

**The Institute for Music Technology** offers a sequence of courses in music recording, editing, and production, music for video and film, and electronic music. Such training is crucial not only to students interested in a career in these professions, but also to performers and teachers who need to create and edit demos and audition tracks, to use music files in web sites and other internet applications, or to prepare and market recordings of their own performances and compositions. The Institute for Music Technology is responsible for the recording studio, which is used both as a teaching space and for professional recording.

**The Cairo Choral Society** is a community chorus dedicated to the study, promotion, and performance of the great choral works in the Western musical tradition. It presents performances with a professional orchestra (the Cairo Festival Orchestra) and soloists at various venues in Cairo. The membership is voluntary, multinational, and cross-generational. The Cairo Choral Society was founded in 1983; in the fall of 2009 it became an ensemble-in-residence within the Department of the Arts. One of the leading large choral ensembles in Egypt, it is both a community-based organization and a for-credit course at AUC. Students may also participate in the chorus on a not-for-credit basis.

#### Bachelor of Musical Arts (B.M.A.)

##### Requirements for the Concentration in Performance

In order to complete the Bachelor of Musical Arts with a concentration in performance, a student will:

- Learn to read music fluently, and demonstrate advanced listening and sight-reading skills.
- Demonstrate the ability to play the piano at an intermediate level or better.
- Develop a significant understanding of Western and Arab music theory.
- Study representative great works of Western and Arab music literature and the composers who produced them.
- Demonstrate the ability to sing or play an instrument at or near a professional level; as a final project the student would present a solo recital.
- Sing in choir, and/or play in an instrumental ensemble.

Students who enter the concentration in performance must choose a primary instrument or voice, in which they must complete at least five semesters of private applied instruction, plus MUSC 4980, the Capstone Solo Recital. In order to

be accepted into the major, all students will be required to audition before the faculty in their primary instrument or voice, normally by the end of the freshman year.

All students entering the Bachelor of Musical Arts program must either pass the music literacy placement exam or take MUSC 1805, How to Read Music, concurrently with MUSC 1800, the first semester of Private Applied Instruction. Students who choose a primary instrument other than piano will also be required to pass a piano proficiency exam by the end of the sophomore year in order to graduate; those who fail to pass this exam are required to take three semesters of MUSC 2850, Private Applied Instruction for Piano Proficiency.

A total of 120 credits are required for the Bachelor of Musical Arts degree. Students who wish to add a second major in another subject can do so by completing 140-145 credits.

## Core Curriculum (40 credits)

## Concentration Requirements (51 - 63 credits)

### Literature (9 credits)

- MUSC 220/2200 - Introduction to Music (3 cr.)
- MUSC 342/3250 - Music in the Arab Tradition (3 cr.)
- MUSC 360/3200 - Music in the Western Tradition (3 cr.)

### Theory (20 credits)

- MUSC 240/2400 - Western Music Theory I (3 cr.)
- MUSC 241/2401 - Sight-Singing and Aural Skills I (1 cr.)
- MUSC 245/2450 - Arab Music Theory I (3 cr.)
- MUSC 246/2451 - Maqam I (Arab Music Sight-Singing and Aural Skills) (1 cr.)
- MUSC 340/3400 - Western Music Theory II (3 cr.)
- MUSC 341/3401 - Sight-Singing and Aural Skills II (1 cr.)
- MUSC 345/3450 - Arab Music Theory II (3 cr.)
- MUSC 346/3451 - Maqam II (Arab Music Sight-Singing and Aural Skills) (1 cr.)
- MUSC 440/4400 - Western Music Theory III (3 cr.)
- MUSC 441/4401 - Sight-Singing and Aural Skills III (1 cr.)

### Performance (22 - 31 cr.)

- MUSC 280/1800 - Private Lessons in Voice or an Instrument (1 cr.)
- MUSC 480/4800 - Advanced Private Lessons in Voice or an Instrument (3 cr.)
- MUSC 492/4980 - Capstone Final Recital (3 cr.)

Performance majors must complete eight sections of Private Lessons. Double majors, and students in exceptional circumstances, may use as many as two sections of MUSC 1800 in place of MUSC 4800, with the prior permission of the Music Program.

Eight semesters of ensemble, chosen from among the following:

- MUSC 262/2620 - Arab Music Ensemble (1 cr.)
- MUSC 263/2630 - Guitar Ensemble (1 cr.)
- MUSC 264/2640 - Chamber Music Ensembles (1 cr.)
- MUSC 265/2650 - Rehearsal/Performance Practicum (1 cr.)
- MUSC 266/2660 - Chamber Singers (1 cr.)
- MUSC 267/2670 - Cairo Choral Society (1 cr.)

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Students entering the B.M.A. must either pass a music literacy placement exam or achieve a passing grade in the following:

MUSC 180/1805 - How to Read Music (3 cr.)

All students with a primary instrument other than piano must take the piano proficiency exam. Those who do not achieve a passing grade are required to take the following:

MUSC 284/2850 - Private Instruction for Piano Proficiency (1 cr.)

## Specialization Requirements (0 - 3 credits)

Students specialized in Voice will take the following course:

- MUSC 372/3110 - Diction for Singers in the Western Tradition (3 cr.)

Students specialized in Guitar will take the following course:

- MUSC 311/3520 - Guitar Pedagogy (3 cr.)

## Electives (9 - 29 credits)

Students who choose to add a second major will in most cases need to complete an additional fifteen to twenty credits.

Students with interest in opera are encouraged to add a minor in Theater.

## Film Minor

### Minor Requirements:

All Film minor students must complete 18 credit hours of course work as follows:

### Complete TWO Foundational Courses (6 credits)

- FILM 220/2120 - Introduction to Film Art (3 cr.)
- FILM 000/2121 - Introduction to Film Production (3 cr.)

### Complete THREE Intermediate Courses (9 credits)

- FILM 000/2122 - Introduction to Film Criticism (3 cr.)

- FILM 000/2123 - Introduction to Film Production II (3 cr.)
- FILM 310/3110 - World Cinema (3 cr.)
- FILM 000/3115 - American Cinema 1895-1945 (3 cr.)
- FILM 000/3117 - American Cinema 1945-present (3 cr.)
- FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)
- FILM 340/3140 - Documentary Film (3 cr.)
- FILM 000/3150 - Women and Film (3 cr.)
- FILM 360/3160 - The Filmmaker (3 cr.)
- FILM 390/3190 - Film Genres (3 cr.)
- FILM 352/3252 - Screenwriting (3 cr.)
- FILM 353/3253 - Digital Cinematography (3 cr.)

## Complete ONE Advanced Course (3 credits)

- FILM 330/3130 - Film Theory (3 cr.)
- FILM 344/3254 - Digital Editing (3 cr.)

## Interactive Media Design Minor

A minor in Interactive media design will enable students to understand the creative practice in the digital sphere. From interactive design to animation to different technical skills, students will be exposed to thinking and working in the media design world.

Based on the availability of space, a limited number of students will be accepted into the minor. Faculty recommendations are based on the student's performance in the required two courses for the minor declaration, DSGN 2113 and DSGN 2200

## Minor Requirements (15 credits):

Students required to complete the FOUR following courses:

- DSGN 213/2113 - Introduction to Visual Cultures (3 cr.)
  - DSGN 200/2200 - Design Foundations (3 cr.)
  - DSGN 250/2250 - Digital Practice I (3 cr.)
  - DSGN 350/3250 - Digital Practices II (3 cr.)
- and choose ONE additional course from following:
- DSGN 313/3213 - Interactive Design (3 cr.)
  - DSGN 335/3235 - Animation (3 cr.)

## Music Minor

In order to complete the minor in music, a student will:

- Learn to read music, and acquire fundamental listening and sight-reading skills.
- Learn the basic principles of music theory, either Western or Arab.
- Study representative great works of music literature and composers who produced them, either Western or Arab.

- Make substantial progress in learning to sing or play an instrument; more advanced students may also present part of a solo recital, with the permission of their teacher.
- Sing in a choir, and/ or play in an instrumental ensemble.

This will require that the student complete 17 credit hours of instruction, normally including the following:

## Theory and literature (10 cr.)

- MUSC 220/2200 - Introduction to Music (3 cr.)

### EITHER

- MUSC 240/2400 - Western Music Theory I (3 cr.)  
AND
- MUSC 241/2401 - Sight-Singing and Aural Skills I (1 cr.)  
AND
- MUSC 360/3200 - Music in the Western Tradition (3 cr.)

### OR

- MUSC 245/2450 - Arab Music Theory I (3 cr.)  
AND
- MUSC 246/2451 - Maqam I (Arab Music Sight-Singing and Aural Skills) (1 cr.)  
AND
- MUSC 342/3250 - Music in the Arab Tradition (3 cr.)

## Performance (4 cr.)

MUSC 1800 Applied Private Instruction (1 cr. each = 2 cr.)

## Two semesters of ensemble, chosen from among the following:

- MUSC 262/2620 - Arab Music Ensemble (1 cr.)
- MUSC 263/2630 - Guitar Ensemble (1 cr.)
- MUSC 264/2640 - Chamber Music Ensembles (1 cr.)
- MUSC 265/2650 - Rehearsal/Performance Practicum (1 cr.)
- MUSC 266/2660 - Chamber Singers (1 cr.)
- MUSC 267/2670 - Cairo Choral Society (1 cr.)

## Music Technology (3 cr.)

### EITHER

- MUSC 330/2300 - Introduction to Music Technology (3 cr.)  
OR
- MUSC 331/2301 - Music Production Using Protocols I (3 cr.)

## Music Technology Minor

In order to complete a minor in music technology, a student will:

- Learn to read music, and acquire fundamental listening and sight-reading skills.
- Learn the basic principles of music theory (either Western or Arab).
- Acquire some fluency at playing piano, and at using the keyboard as a tool for music data entry; more advanced students may present a part of a solo recital, in piano or another instrument, with permission of their teacher.
- Learn the fundamental techniques of recording, editing, mixing, and mastering.
- Acquire an intermediate knowledge of Protocols and editing software.
- Acquire an intermediate understanding of MIDI.

This will require the student to complete 18 credit hours of instruction, normally including the following:

### Theory and literature (7 cr.)

- MUSC 220/2200 - Introduction to Music (3 cr.)

#### EITHER

- MUSC 240/2400 - Western Music Theory I (3 cr.)  
AND
- MUSC 241/2401 - Sight-Singing and Aural Skills I (1 cr.)

#### OR

- MUSC 245/2450 - Arab Music Theory I (3 cr.)  
AND
- MUSC 246/2451 - Maqam I (Arab Music Sight-Singing and Aural Skills) (1 cr.)

### Performance (2 cr.)

- MUSC 284/2850 - Private Instruction for Piano Proficiency (1 cr.) (Twice, each 1 cr. = 2 cr.)

### Music Technology (9 cr.)

- MUSC 232-332-432/2302-3302-4302 - Digital Audio / MIDI Lab (1 cr. each)
- MUSC 330/2300 - Introduction to Music Technology (3 cr.)
- MUSC 331/2301 - Music Production Using Protocols I (3 cr.)

## Theatre Minor

The minor in theatre provides a general introduction to the art and craft of theatre through the study of dramatic literature and the exploration of performance processes through practical application.



Students are encouraged to declare the minor early in their academic career to accommodate necessary prerequisites and give the student the benefit of practical experience. After declaring, all students must have an advising session with the Director of Theatre to define the selected course of study.

## Requirements:

A minimum of 18 credits in Theatre:

- THTR 203/1201 - Theatre in the Making (3 cr.)
  - THTR 230/2301 - Play Analysis (3 cr.)
  - Three credits total from the following:
    - THTR 204/2401 - Introduction to Technical Theatre (3 cr.)
    - THTR 240/2601 - Production Practicum (1 cr. per production)
    - THTR 242/2603 - Rehearsal and Performance Practicum (1 cr.)
  - One from the following:
    - THTR 225/2201 - Acting I (3 cr.)
    - THTR 226/2211 - Acting in Arabic I (3 cr.)
  - One from the following:
    - THTR 000/3103 - Drama in Context I: Greeks to English Renaissance (3 cr.)
    - THTR 000/3104 - Drama in Context II: Italian Renaissance to Modern (3 cr.)
    - THTR 000/3105 - Drama in Context III: Modern and Contemporary (3 cr.)
    - THTR 461/4103 - Dramatic Theory and Criticism (3 cr.)
- one additional Theater course, must be a 300 level course or higher.

## Type Design Minor

Students will learn about the intricacies of Type in the Type Design Minor. The skill for using and manipulating both Latin and Arabic typography is the highlight of this minor. Special focus is paid to the history and practice of Arabic script and type.

Based on the availability of space, a limited number of students will be accepted into the minor. Faculty recommendations are based on the student's performance in the required courses for the minor declaration, DSGN 2113 and DSGN 2200

## Minor Requirements (15 credits):

Students required to complete the THREE following courses:

- DSGN 213/2113 - Introduction to Visual Cultures (3 cr.)
- DSGN 200/2200 - Design Foundations (3 cr.)
- DSGN 210/2210 - Typography I (3 cr.)
- and choose TWO additional courses from the following:
  - DSGN 318/3118 - History of Arabic Calligraphy (3 cr.)
  - DSGN 320/3220 - Typography II (3 cr.)
  - DSGN 330/3230 - Type Design (3 cr.)

## School of Sciences and Engineering

# Department of Architecture

## Department of Architecture

### School of Sciences and Engineering

Professors: H. Gabr, B. Kamel, A. Sherif (ARCH Chair), N. Sherif  
Associate Professors: S. Abdelmohsen, M. Mostafa  
Assistant Professors: M. ElHusseiny, T. ELKhouly, K. Tarabieh  
Professor of Practice: A. AbdelKawi

The Department of Architecture offers ONE undergraduate degree and TWO minors: The Bachelor of Science in Architectural Engineering, Architectural Design Minor and Design of Interior Spaces Minor  
The department of Architecture offers ONE graduate degree: A Master of Science in Architecture (MSc)

The mission of the Department of Architecture is to provide a high quality architectural education within a liberal arts context to students from Egypt as well as from other countries. The aim is to produce generations of architects who will be leaders in their profession. The pursuit of excellence is central to the department's mission maintaining high standards of academic achievement, professional behavior and ethical conduct.

Students are educated to acquire an appreciation of their responsibilities to society and to prepare themselves for successful careers and leadership. The program provides an environment in which students develop their critical thinking capabilities, problem solving skills, creative potential, communication skills in English and proficiency in the tools of learning.

## Architectural Engineering (B.S.)

### Bachelor of Science in Architectural Engineering

Architecture is at a "cross roads" between human/cultural values and the technical capabilities of construction. Moreover, digital technology is rapidly growing, changing our ways of communication, expression, perception, thought and interaction.

The goal of the Bachelor of Science in Architectural Engineering Program is to graduate architects who can lead the architectural profession in Egypt and the Middle-East into the digital age with an understanding of context as means of respecting local heritage. The program promotes the implementation of the latest advances in Information and Communication Technology (ICT), stresses the rich local and historical context, and incorporates construction engineering and professional contents which respond to the needs of the industry. It also embraces the liberal arts approach to education through its multidisciplinary nature. Thus, the program will contribute positively to the well needed human development efforts in Egypt.

It is the aim to form an architect with a comprehensive vision, capable of integrating all the aspects dealing with the built environment and how it is planned, designed, used, furnished, landscaped, maintained, and appreciated by the society. This is emphasized through a curriculum that maintains a reasonable balance between utilization of the emerging digital design methods and pedagogies, meeting the professional demands, and creating contextual-humanistic and sustainable awareness.

The specific objective of the Architectural Engineering Program is to educate students in the fundamentals of the science and design of architecture with particular emphasis on developing skills of innovation, creativity and critical thinking in the design of the built environment. This is accomplished through research-based studio pedagogy, digital aided design, history, arts and the realization of users requirements within the constraints of the society. In the process, students learn to effectively work independently and collaboratively, develop analytical skills, and consider the impact of architectural solutions on both Egyptian society and the evolving global community.

Graduates of the Architectural Engineering Program will be well equipped to work in the international-level segment of the construction industry. They will become excellent candidates for the local and international architectural design firms. They can effectively work for construction contractors in aspects related to architecture and building integration. Graduates of the program will be qualified for professional licensing in architecture in Egypt and the USA. Furthermore, they will be prepared to pursue graduate studies in architecture and related fields in Egypt and abroad.

The architectural engineering program acquired the UNESCO-UIA Validation from the International Union of Architects (UIA). It is the label of excellence in architectural education of the UIA, which encompasses key professional organizations of architects in countries and territories all over the world. Graduates of UNESCO-UIA validated architectural programs are eligible to register as professional architects in many countries around the world, after passing the required licensure process. The degree of Bachelor of Science in Architectural Engineering at AUC is also acknowledged by the Egyptian Supreme Council of Universities as equivalent to Egyptian Architectural Engineering degrees. Accordingly, graduates of the program are entitled to professional licensure by the Egyptian Syndicate of Engineers, the sole authority for licensing the practice of architecture in Egypt.

Students are admitted to the Architectural Engineering Major either upon admission to AUC (at the gate), or from within AUC through an internal declaration process. All students admitted to the Major must have a mathematics/science background. Students applying at the gate are accepted depending on their High School grades, their performance in an Architecture Aptitude Assessment, and available quota in the Major. Students who get admitted to AUC as undeclared students as well as students transferring from other majors are considered for declaration of the Major upon successful completion of specific criteria courses and achieving minimum grades in these courses. These students are accepted based on a minimum GPA required by the Department, their grades in specific required courses in the Program, number of credit hours earned at AUC, and available quota in their cohort.

Applications submitted by students minoring in Architectural Design will not be considered for declaration of the Major, except if there was an available quota at their entry level cohort.

Students who are admitted to the program have to demonstrate their visualization, graphic communication and creative potential. They must achieve a minimum grade of B in each of the four courses listed below before taking any other courses in the major.

- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ARCH 273/1521 - Digital Representation Tools for Architects (2 cr.)
- ARCH 250/2512 - Foundations of 3-Dimensional Design (3 cr.)
- ARCH 221/1511 - Free-hand Representation for Architects (3 cr.)

Students should consult the course listings and their faculty advisor on a regular basis to ensure that prerequisites for engineering core, concentration and elective courses are met. A model course plan for the major is provided in the office of the Department of Architecture.

A total of 162 credits is required for the bachelor of science degree in Architectural Engineering.

The Bachelor of Science Degree in Architectural Engineering program is structured so that students would concentrate on an area of study in the last two years of their program. After completing design studio 3, students are required to choose one of three streams of courses as their area of study choice. Students must successfully pass an elective course and 3 design studios as well as an architectural theories and dissertation course in their selected stream. These culminate to a senior project in the same stream. Students are not allowed to register for more than 15 credit hours at the semester of their Senior Project.

## Core Curriculum (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 credits) and part of the capstone Senior Project ARCH 491/4981 - Senior Project (5 cr.)

## Engineering Core Requirements (22 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)

## Concentration Requirements (102 credits)

### Visual Communication and Basic Design:

- ARCH 221/1511 - Free-hand Representation for Architects (3 cr.)
- ARCH 273/1521 - Digital Representation Tools for Architects (2 cr.)
- ARCH 250/2512 - Foundations of 3-Dimensional Design (3 cr.)
- ARCH 251/2551 - Introduction to Architectural Design (3 cr.)

### Architecture, Urban Planning and Interior Design:

- ARCH 268/2411 - Surveying for Architects (1 cr.)
- ARCH 351/2552 - Architectural Design Studio I (4 cr.)
- ARCH 352/3553 - Architectural Design Studio II (4 cr.)
- ARCH 368/3531 - Housing Design and Geographic Information Systems (3 cr.)
- ARCH 420/4541 - Design of Interior Spaces I (3 cr.)
- ARCH 453/3554 - Architectural Design Studio III (4 cr.)
- ARCH 000/4561 - Vertical Design Studio A (5 cr.)
- ARCH 000/4562 - Vertical Design Studio B (5 cr.)
- ARCH 000/4570 - Senior Design Studio (5 cr.)
- ARCH 468/4532 - Urban Design and Landscape Architecture (3 cr.)
- ARCH 473/3522 - Digital Design Studio and Workshop (3 cr.)
- ARCH 491/4981 - Senior Project (5 cr.)

### History and Humanities and Allied Design Courses:

- ARCH 234/2221 - Human Aspects in Architectural Design (3 cr.)
- ARIC 205/2205 - The World of Islamic Architecture, from the Beginnings to the Present Day (3 cr.)
- EGPT 203/2030 - Introduction to Egyptian Architecture (3 cr.)
- ARCH 314/2211 - History and Philosophy of Modern and Contemporary Architecture (3 cr.)
- ARCH 326/2231 - Environmental Control Systems and Sustainable Design (3 cr.)
- ARCH 428/3311 - Detail Design and Finishes in Buildings (3 cr.)
- ARCH 429/4312 - Design Development and Construction Documents (3 cr.)
- ARCH 441/4421 - Professional Practice, Design Management and Codes (2 cr.)

## Construction Engineering and Management:

- ARCH 426/3321 - Building Service Systems and Building Systems Integration (3 cr.)
- ARCH 323/3331 - Construction Materials and Quality Control (4 cr.)
- ARCH 496/3950 - Internship in Construction Projects (0 cr.)
- ARCH 497/4951 - Internship in Technical Drawing and Design (1 cr.)
- CENG 302/3112 - Structural Analysis and Design Principles for Architects (3 cr.)
- CENG 305/3151 - Structural Design for Architects I (3 cr.)
- CENG 306/3152 - Structural Design for Architects II (3 cr.)
- CENG 423/4252 - Methods and Equipment for Construction I (3 cr.)
- CENG 441/4410 - Introduction to Construction Management and Cost Estimating (3 cr.)

## Concentration Elective Streams (5 credits)

Students should follow one the following streams of courses according to their selected area of study. In addition, students must carry out their design projects in the Vertical Design Studios (A and B), Senior Design Studio and Senior Project in their selected area of study.

## Building Design: Human and Environmental Studies Stream:

Students should successfully complete the following course:

- ARCH 000/4801 - Human and Environmental Studies Theory and Dissertation (2 cr.)  
In addition, students should successfully complete one of the following courses:
- ARCH 000/4936 - Design of Interior spaces II 3 credits (1 hr lecture and 3 hours studio)
- ARCH 000/4932 - Sustainable Landscape architecture in Hot an Arid Environments (3 cr.)
- ARCH 000/4971 - Selected Topics in Human and Environmental Studies of Architectural Engineering (3 cr.)
- CENG 442/4420 - Construction Project Specifications, Bids, and Contracts (3 cr.)
- CENG 446/4440 - Techniques of Planning, Scheduling and Control (3 cr.)

## Tectonics and Computational Design Stream:

Students should successfully complete the following course:

- ARCH 000/4802 - Tectonics and Computational Design Theory and Dissertation (2 cr.)  
In addition, students should successfully complete one of the following courses:
- ARCH 000/4937 - Seminar on Contemporary Architecture Discourse (3 cr.)
- ARCH 000/4939 - Advanced Architectural Computing (3 cr.)
- ARCH 000/4972 - Selected Topics in Tectonics and Computational Design of Architectural Engineering (3 cr.)
- CENG 428/4157 - Tall Buildings and Large Span Structures (3 cr.)
- CENG 452/4158 - Structural Systems and Advanced Design (3 cr.)
- PHIL 310/3010 - Philosophy and Art (3 cr.)

## Architecture and Urban Heritage Design Stream:

Students should successfully complete the following course:

- ARCH 000/4803 - Architecture and Urban Heritage Theory and Dissertation (2 cr.)  
In addition, students should successfully complete one of the following courses:
- ARCH 000/4931 - Introduction to Urban and Architecture Conservation (3 cr.)
- ARCH 000/4933 - Vernacular Architecture (3 cr.)
- ARCH 000/4934 - Cairo in the Curriculum, The Urban Laboratory: Mapping Cairo's Complexities (3 cr.)
- ARCH 000/4935 - Coptic Art and Architecture (3 cr.)
- ARCH 000/4938 - Urban Dialogues on Heritage and Space (3 cr.)
- ARCH 000/4973 - Selected Topics in Architecture and Urban Heritage Design (3 cr.)
- ARIC 371-372/3271-3272 - Islamic Architecture in Egypt and Syria (3 cr. per semester)
- ARIC 467/5124 - Islamic Architecture in Spain and North Africa (3 cr.)
- EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)

## General Electives (0-6 credits):

Students may take elective courses of their selection to satisfy total program requirement of 162 credit hours.

## Architectural Design Minor

The minor in Architectural Design provides students with an understanding of the underlying principles of architectural design. It serves students in all majors. It is especially useful for students interested in pursuing careers in the development, finance, construction and/or promotion of building related activities. It is also important for other students with social, cultural, and art backgrounds, who are interested in the respective aspects of the built environment. Construction engineering students will also benefit from the minor by becoming better qualified in the challenging activities of the construction industry.

Students from any discipline may apply for the Minor. A limited number will be accepted every semester. Students are accepted based on their GPA and on available quota in the department. The following requirements must be satisfied for joining and continuing in the minor:

- Students with a minimum GPA of 3.0 are accepted based on available quota in the department.
- A minimum grade of "B" in the basic architectural design courses (ENGR 1005, ARCH 1521 and ARCH 2512 ) to continue in the minor.

The Minor requires completion of 16 credit hours. These are:

### Basic Architectural Design Requirement (7 cr. hours):

All of the following courses:

- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ARCH 273/1521 - Digital Representation Tools for Architects (2 cr.)
- ARCH 250/2512 - Foundations of 3-Dimensional Design (3 cr.)

## Background Humanities and Fine Arts Elective Requirement (3 cr. hours):

One of the following courses:

- ARCH 221/1511 - Free-hand Representation for Architects (3 cr.)
- ARCH 314/2211 - History and Philosophy of Modern and Contemporary Architecture (3 cr.)
- ARIC 205/2205 - The World of Islamic Architecture, from the Beginnings to the Present Day (3 cr.)
- EGPT 203/2030 - Introduction to Egyptian Architecture (3 cr.)

## Main Architectural Design Requirement (6 cr. hours)

The following courses:

- ARCH 251/2551 - Introduction to Architectural Design (3 cr.)
- ARCH 420/4541 - Design of Interior Spaces I (3 cr.)

## Notes:

Construction Engineering students may not count the main architectural design courses (ARCH 4541 ) for both the Construction Engineering Major and the Architectural Design Minor.

## Design of Interior Spaces Minor

The Department of Architecture in collaboration with the department of Arts offers a Minor in the Design of Interior Spaces. The Minor builds on two strong and successful programs available at AUC namely the Architectural Engineering and the Graphic Design programs. It serves students in all majors at AUC.

The minor provides students with the essential notions of the design of interior spaces which will enable them to deal with the basic tools for spatial interior design. It is especially useful for students interested in pursuing careers related to the different aspects of interior design and/or to pursue further studies in the area, or to continue graduate studies in the domain of interior design if they wish.

### Admission

Students from any discipline may apply for the Minor. A limited number will be accepted every semester. Students are accepted based on their GPA and on available quota in the department. The following requirements must be satisfied for joining and continuing in the Minor:

- Students with a minimum GPA of 3 are accepted based on available quota in the department.
- A minimum grade of "B" in each of the basic design courses to be able to continue in the minor.
- Architecture and Arts major students can double count only 7 credit hours from the minor towards their respective majors.

The Minor requires completion of 19 credit hours. These are:

## Basic Design Requirements (10 cr. hours)

Students should successfully complete the following courses:

- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ARCH 273/1521 - Digital Representation Tools for Architects (2 cr.)
- DSGN 200/2200 - Design Foundations (3 cr.)

- DSGN 201/2201 - Design Principles & Practices (3 cr.)

## Main Interior Design Requirements (9 cr. hours)

Students should successfully complete the following courses

- ARCH 420/4541 - Design of Interior Spaces I (3 cr.)
- ARCH 000/4936 - Design of Interior spaces II 3 credits (1 hr lecture and 3 hours studio)
- DSGN 305/3205 - Retail Design (3 cr.)

## Architecture (M.Sc.)

The Department of Architecture offers a Master of Science in Architecture (M Sc) degree. The program intends to provide opportunities for Egyptian and international students to pursue graduate studies at AUC.

The program focuses on finding and building connections between Architecture and other relevant disciplines at AUC. Exploring these connections is inherent in the essence of architecture as a multidisciplinary domain, always seeking new questions and finding alternate paths by bridging with other domains. The new program also capitalizes on the rich cultural and heritage background in Egypt. These can form strong basis for unique architectural investigations that are rooted in Egypt and the Middle-East, and are of interest to many international scholars.

Graduates of the program will become excellent candidates for the local and international graduate architectural studies and architectural design firms. They will be well equipped to pursue their PhD studies and conduct scientific research upon completion of the MSc. Degree.

**The program of study for each student is planned with the faculty advisor and should focus on one (or more) of five areas of study:**

1. Urban Regeneration and Heritage (bridge with Human and Social Sciences, Global and Public Policy, Egyptology, Islamic art and History)
2. Sustainability in Architecture (bridge with Engineering, GREN and GAPP)
3. Architectural Computing (bridge with Sciences and Engineering)
4. Architectural Studies (bridge with Human and Social Sciences, Business, Special Needs, and the Arts)
5. Real Estate Development (bridge with Business, Economics, and Entrepreneurship)

**The objectives of the Master of Science in Architecture are to:**

1. Enable students to learn how to bridge between architecture and other disciplines in order to develop a responsive built environment.
2. Enable students to explore the nature and substance of other field(s) to identify overlaps and value to address architectural issues.
3. Develop an understanding of the interplay of economic, social, psychological and tectonic aspects in shaping the built environment.
4. Develop an understanding of the past, present and future paradigms of Architecture.
5. Reflect on "What's Next", pose relevant questions, explore different directions, paths, or modes of thinking and frames of mind derived from a clear contextual understanding.
6. Develop competence in the formulation of, conduct and pursue of comprehensive research questions integrating other related disciplines.

**Learning Outcomes of the Master of Science in Architecture:**

Graduates of the Master of Science in Architecture will be able to:

1. Demonstrate sufficient academic and applied skills in architecture for employment within the architectural international and local firms and/or pursue a PhD degree in Architecture.
2. Demonstrate critical thinking towards architectural current paradigms towards making an impact in the future of the architectural domain.
3. Demonstrate awareness of the issues inherent in the multidisciplinary nature of the built environment and address



them in a comprehensive and inclusive way.

4. Demonstrate awareness of the issues inherent in the rich culture and heritage of Egypt and the Middle East with a critical eye to relevant contexts

5. Work individually or within multidisciplinary teams and provide leadership to integrate different specialized groups.

### **Admission**

A candidate for the Masters of Science program in Architecture must have a B.Sc. degree in Architecture or allied disciplines. Admission is also subject to the general university requirements for the graduate program including English language proficiency. A research proposal assessed by the graduate faculty committee is required for admission to ensure a acceptable level of research capabilities. Students who have some deficiency in their undergraduate training but are well-qualified in other aspects may be admitted provisionally. The Department of Architecture may prescribe a program of noncredit work to make up for the deficiency.

## **Courses (24 credit hours)**

A minimum of eight courses (24 credit hours) is required. Courses are to be selected from the following categories

### **I. Architectural Core Courses (9 credit hours)**

- ARCH 000/5201 - Philosophy & Theory of Architecture (3 cr.)
- ARCH 000/5202 - Critical Thinking in Architectural Design (3 cr.)
- ENGR 000/5101 - Cross Talk: Implementation Science and Engineering (3 cr.)

### **II. Research Methods Courses (6 credit hours)**

- ARCH 000/5221 - Research Methods in Architecture (3 cr.)
- Research Methods course in another discipline - students select one of the existing courses in another discipline at AUC according to research area of study.

### **III. Elective Courses (9 credit hours)**

Based on the specific 'bridge' and according to the focus of the research, students are directed to take at least 3 non - architecture 4000-/5000-level courses (with a maximum of two 4000-level courses) from other disciplines at AUC that are selected for their relevance and contribution to the research subject. The selected courses could be from Engineering, Physical Sciences, Social Sciences, Political Sciences, Humanities, Management and other related graduate (or 4000-level courses subject to advisor and chair's approval). Any of those courses should not be from the student's undergraduate major (unless recommended by the advisor and approved by the graduate committee).

## **Thesis (9 credit hours)**

Graduate thesis work is a required part of the Master of Science in Architecture degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 590/5940 - Graduate Thesis Seminar (3 cr.) . Students must complete ENGR 590/5940 - Graduate Thesis Seminar (3 cr.) before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for ARCH 000/5290 - Research Guidance Thesis (3 cr.) , by the completion of 18 credit hours. Students must register in ARCH 000/5290 - Research Guidance Thesis (3 cr.) for at least two semesters. The first two registrations in ARCH 000/5290 - Research Guidance Thesis (3 cr.) must be for three credit hours, after that ARCH 000/5290 - Research Guidance Thesis (3 cr.) is taken for one credit hour each semester until completion of the program requirements.

# Department of Biology

## Department of Biology School of Sciences and Engineering

Professors: H. El Dorry, R. Siam, S. Zada

Associate Professor: A. Amleh, A. Bos (Chair), A. Moustafa

Assistant Professors: A. Abdellatif, W. Fouad, A. Kakaroukas

Professor Emeritus: A. Main

Biology is the science that deals with the origin, history, characteristics, and habits of life. The approach in biology education is dynamic in an attempt to keep the basic programs current with the advances being made in the field. At AUC, as at many colleges and universities, there is a growing tendency to merge what had diverged into widely segregated fields: botany and zoology, classical and modern molecular approach, field and laboratory studies. Today, with recent advances in the fields of biomedicine, molecular biology, and genetics and the growing political interests in the environment and biodiversity, the discipline is growing with increasing opportunities in the job market (and for research grants) for well-trained biologists.

## Biology (B.Sc.) with concentrations in Marine Biology or Molecular and Cell Biology

### Bachelor of Science in Biology

The undergraduate program at AUC offers interested students a liberal education in biological sciences, leading to a Bachelor of Science degree. The program provides graduates the broad background necessary in today's job market and prepares them for graduate and professional schools.

Students with a B.Sc. degree in biology are securing positions in the growing fields in industry and in academia. The recent advances in biology have created important new industries in genetic engineering, biomedicine, biotechnology, and pharmacology. Students with ambitions beyond the bachelor level are entering graduate schools and professional schools (medicine, dentistry, veterinary medicine).

Students wishing to receive a Bachelor of Science degree in biology will be required to take a total of 132 credits. Out of the 132 credits 33 credits are allocated for 'Core Curriculum', 46 credits for 'Concentration Requirements', 16 credits for 'Biology Electives', 28 credits for 'Collateral Requirements', and 9 credits for 'General Electives'. Students can be granted a Concentration in Molecular and Cell Biology or Marine Biology concentration after completion of 16 credits from the required respective courses.

The undergraduate biology program is accredited by the Applied and Natural Science Accreditation Commission of ABET

### Core Curriculum (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 cr.) and the capstone projects BIOL 495/4980 - Senior Research Thesis (1 cr.) and BIOL 496/4981 - Seminar in Biology (2 cr.)

## Biology Requirements (62 credits)

### a. Concentration Requirements (46 credits)

- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)
- BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab)
- BIOL 211/2230 - Molecular and Cell Biology (3 cr. + 1 cr. lab)
- BIOL 214/2340 - General Botany (3 cr. + 1 cr. lab)
- BIOL 221/2150 - Genetics (3 cr. + 1 cr. lab)
- BIOL 241/2090 - Quantitative Biology (3 cr. + 1 cr. lab)
- BIOL 307/3310 - Microbiology (3 cr. + 1 cr. lab)
- BIOL 310/3130 - Molecular Evolution and Population Genetics (3 cr. + 1 cr. lab)
- BIOL 312/3326 - Vertebrate Anatomy and Physiology (3 cr. + 1 cr. lab)
- BIOL 315/3280 - Biochemistry (3 cr.)
- BIOL 341/3510 - Ecology (3 cr. + 1 cr. lab)
- BIOL 495/4980 - Senior Research Thesis (1 cr.)
- BIOL 496/4981 - Seminar in Biology (2 cr.)

### b. Biology Electives (16 credits)

Sixteen additional credits from 3000- and 4000- level from the courses listed below:

- BIOL 302/3040 - Environmental Biology for Engineers (2 cr. + 1 cr. lab)
- BIOL 313/3340 - Invertebrate Zoology (3 cr. + 1 cr. lab)
- BIOL 320/3341 - Animal Behavior (3 cr. + 1 cr. lab)
- BIOL 301/3360 - Animal Physiology (3 cr. + 1 cr. lab)
- BIOL 303/3370 - Developmental Biology (3 cr. + 1 cr. lab)
- BIOL 305/3540 - Environmental Biology (3 cr. + 1 cr. lab)
- BIOL 306/3541 - Environmental Biology of the Red Sea (3 cr. + 1 cr. lab)
- BIOL 345/3542 - GIS For Biologists (4 cr.)
- BIOL 360/3600 - Introduction to Bioinformatics (3 cr.)
- BIOL 399/3910 - Guided Studies in Environmental Sciences (3 cr.)
- BIOL 411/4150 - Molecular Biology of the Gene (3 cr. + 1 cr. lab)
- BIOL 415/4230 - Immunology (3 cr. + 1 cr. lab)
- BIOL 430/4330 - Tumor Biology (3 cr. + 1 cr. lab)
- BIOL 440/4540 - Marine Ecology (3 cr. + 1 cr. lab)
- BIOL 445/4541 - Desert Ecology (3 cr. + 1 cr. lab)
- BIOL 408/4930 - Selected Topics in Biology (1-4 cr.)

## Collateral Requirements (28 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)
- CHEM 203/2003 - Organic Chemistry I (3 cr.)

- CHEM 306/3006 - Organic Chemistry II (3 cr.)
- CHEM 310L/3010 - Organic Chemistry I Laboratory (1 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- MACT 112/1221 - Statistical Reasoning (3 cr.)
- MACT 131/1121 - Calculus I (3cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)

## General electives (9 credits)

## Concentration in Marine Biology

The Department of Biology offers a concentration in Marine Biology to provide students the opportunity to thoroughly study the marine resources and habitats of our planet, in particular those of Egypt (Red Sea and Mediterranean).

The Concentration in Marine Biology requires that students complete 16 credits from the following list of courses, as outline below.

### Four credits required:

- BIOL 411/4150 - Molecular Biology of the Gene (3 cr. + 1 cr. lab)

### Eight credits to be selected from:

- BIOL 306/3541 - Environmental Biology of the Red Sea (3 cr. + 1 cr. lab)
- BIOL 399/3910 - Guided Studies in Environmental Sciences (3 cr.) <sup>1</sup>
- BIOL 440/4540 - Marine Ecology (3 cr. + 1 cr. lab)
- BIOL 408/4930 - Selected Topics in Biology (1-4 cr.) <sup>1</sup>

<sup>1</sup> Only marine biology selected topics and guided studies courses will be counted towards the concentration. Requires advisor and chairs' approvals.

### Four credits to be selected from:

- BIOL 313/3340 - Invertebrate Zoology (3 cr. + 1 cr. lab)
- BIOL 320/3341 - Animal Behavior (3 cr. + 1 cr. lab)
- BIOL 345/3542 - GIS For Biologists (4 cr.)

## Concentration in Molecular and Cell Biology

The Concentration in Molecular and Cell Biology require that students complete 16 credits from the following list of courses below. Students can only chose one 500 level course.

BIOL 303/3370 - Developmental Biology (3 cr. + 1 cr. lab)  
 BIOL 411/4150 - Molecular Biology of the Gene (3 cr. + 1 cr. lab)  
 BIOL 415/4230 - Immunology (3 cr. + 1 cr. lab)  
 BIOL 430/4330 - Tumor Biology (3 cr. + 1 cr. lab)  
 BIOL 408/4930 - Selected Topics in Biology (1-4 cr.) <sup>1</sup>

BIOL 410/4910 - Guided Studies in Biology (1-4 cr.) \*

BIOT 502/5202 - Cell and Molecular Biology (3 cr.)

BIOT 504/5204 - Experimental Biotechnology (3 cr.)

*<sup>1</sup>Only Molecular and Cell Biology selected topics and guided studies courses will be counted towards the concentration and requires advisor and chairs approval.*

Students completing the requirements of Molecular and Cell Biology or Marine Biology Concentration will receive an official certificate endorsing successful completion of the B.Sc. in Biology- Molecular and Cell Biology or Marine Biology Concentration.

## Bioinformatics Minor

The program offers a minor in Bioinformatics for students interested in an academic or industrial career in computational biology for analysis of molecular data in health, diseases, environment and/or food research and industry.

### Course Structure

To be awarded a minor in Bioinformatics, a student must successfully complete the following 18 credits depending on the students' major.

### Molecular Biology (3 credits)

- BIOL 221/2150 - Genetics (3 cr. + 1 cr. lab)
- BIOL 211/2230 - Molecular and Cell Biology (3 cr. + 1 cr. lab)
- CHEM 315/3015 - Biochemistry (3 cr.)

### Introductory Computing (3 credits)

- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)

### Bioinformatics Specialization (9 credits)

- BIOL 360/3600 - Introduction to Bioinformatics (3 cr.)
- BIOL 361/3601 - Bioinformatics Tools and Techniques (3 cr.)
- BIOL 460/4690 - Bioinformatics Capstone Seminar I (1 cr.)
- BIOL 461/4691 - Bioinformatics Capstone Seminar II (2 cr.)

### Elective (3 credits)

- BIOL 310/3130 - Molecular Evolution and Population Genetics (3 cr. + 1 cr. lab)
- BIOL 307/3310 - Microbiology (3 cr. + 1 cr. lab)
- BIOL 341/3510 - Ecology (3 cr. + 1 cr lab)
- BIOL 411/4150 - Molecular Biology of the Gene (3 cr. + 1 cr. lab)
- BIOL 408/4930 - Selected Topics in Biology (1-4 cr.)

- CSCE 321/2202 - Analysis and Design of Algorithms (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)
- CSCE 465/3601 - Artificial Intelligence (3 cr.)
- CSCE 427/4602 - Introduction to Artificial Neural Networks (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.) 1

## Notes

<sup>1</sup>Only bioinformatics and computational biology selected topics and guided studies courses will be counted towards the concentration. Requires advisor and chairs approval.

If a course from the list of possible electives for the minor is in the student's major requirement, it does not fulfill the minor elective requirement.

Students are reminded to work out a feasible study plan for the required courses in this minor. In particular, they need to ensure that they have sufficient number of semesters left in the candidature to complete the courses and to note that BIOL 360/3600 and BIOL 361/3601 are only offered once a year.

## Biology Minor

The program also offers a minor in Biology to supplement the education of students in related disciplines including but not limited to biometry, bioinformatics, biochemistry, biophysics, psychology, and anthropology.

Twenty credits are required for a minor in Biology as following:

- Eight credit from two 100 level courses:

BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab) or BIOL 103/1010 - Introduction to Life Sciences (3 cr. + 1 cr. lab) and

BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab)

- Twelve credit from 200, 300, or 400 level BIOL courses.

## Biomedical Sciences Minor

The minor in Biomedical Sciences provides students with a useful complement to majors in sciences, engineering, business and humanities at AUC. The program offers directed study in human and animal systems to broaden the background of students wishing to pursue professional careers in biomedical industry, biotechnology, bioinformatics, medicine, and other related areas.

This program fulfills the sciences requirements for the Medical College Admission Test (MCAT®), and the Dental College Admission test (DAT®). Students who wish to apply for medical, dental or other related biomedical graduate programs must complete all other course requirements for admission, as well as other application requirements and extracurricular activities.

## Program of Study

The program requires completion of a minimum of 15 credits in biomedical sciences courses. Biology majors are not eligible for this minor.

## Admission requirements

- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)
- CHEM 106/1006 - General Chemistry II (3 cr.) + CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.) + PHYS 124L/1022 - General Physics Laboratory II (1 cr.)

## Required courses

- BIOL 211/2230 - Molecular and Cell Biology (3 cr. + 1 cr. lab)
- BIOL 315/3280 - Biochemistry (3 cr.)

## Elective Courses

A minimum of TWO courses from the following:

- BIOL 307/3310 - Microbiology (3 cr. + 1 cr. lab)
- BIOL 312/3326 - Vertebrate Anatomy and Physiology (3 cr. + 1 cr. lab)
- BIOL 301/3360 - Animal Physiology (3 cr. + 1 cr. lab)
- BIOL 303/3370 - Developmental Biology (3 cr. + 1 cr. lab)
- BIOL 411/4150 - Molecular Biology of the Gene (3 cr. + 1 cr. lab)
- BIOL 415/4230 - Immunology (3 cr. + 1 cr. lab)
- BIOL 430/4330 - Tumor Biology (3 cr. + 1 cr. lab)
- BIOL 360/3600 - Introduction to Bioinformatics (3 cr.)
- BIOL 408/4930 - Selected Topics in Biology (1-4 cr.)
- BIOL 410/4910 - Guided Studies in Biology (1-4 cr.)

## Environmental Science Minor

Coordinated by: A. Bos (Biology), A. Ramadan (Chemistry)

The minor in Environmental Science is an interdisciplinary program coordinated by the departments of Biology and Chemistry. The curriculum is flexible to allow students of all majors to enroll in the minor. The elective courses are designed to satisfy an individual's field of interest. In the course of their studies, students will be subjected to significant environmental issues and challenges at the national, regional and international levels. The minor will enhance the students' career marketability. Students are required to choose an advisor for their minor from either the Department of Biology or the Department of Chemistry.

## Requirements (21-23 credits):

### Concentration Requirements (9-10 credits)

- BIOL 399/3910 - Guided Studies in Environmental Sciences (3 cr.)

### One of the following Biology courses:

- BIOL 102/1040 - Essentials of Environmental Biology (3 cr.)
- BIOL 302/3040 - Environmental Biology for Engineers (2 cr. + 1 cr. lab)
- BIOL 305/3540 - Environmental Biology (3 cr. + 1 cr. lab)

### One of the following Chemistry courses:

- CHEM 104/1004 - Man and the Environment (3 cr.)
- CHEM 205/2005 - Environmental Analytical Chemistry (3 cr.)
- CHEM 311/3011 - Analytical Chemistry II (3 cr.)

### Electives (9-10 credits)

- ANTH 370/3085 - Environmental Issues in Egypt (3 cr.)
- BIOL 306/3541 - Environmental Biology of the Red Sea (3 cr. + 1 cr. lab)
- CENG 471/4551 - Environmental and Sanitary Engineering (3 cr.)
- POLS 442/4542 - Environmental Politics (3 cr.)
- SCI 260/2006 - Environmental Geology (3 cr.)
- SCI 302/3002 - Science, Technology and the Environment (3 cr.)
- HIST 430/4107 - The Environment in World History (3 cr.)

### Additional Requirements (3 credits)

Choose one of the following:

- MACT 112/1221 - Statistical Reasoning (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)
- MACT 317/3224 - Probability and Statistics (3 cr.)

### Notes:

Students must finish their concentration requirements in biology and chemistry before taking BIOL 3910 /CHEM 3910.

## Premedical Track

*Coordinator:* A. Abdellatif (Biology)

The Biology department is coordinating the premedical track. The Biology degree incorporates all premedical courses while leading to a Bachelor of Science in Biology.

The Premedical track is open to all AUC undergraduate students. The track provides basic biological and physical science courses that prepare students for admission into medical schools abroad. Most US and Canadian medical schools require completion of a Bachelor degree that includes the required courses for admission. The liberal art education at AUC provides the well-rounded education required by medical schools.

Premedical students will have to fulfill all requirements for a degree in their major and those of the premedical track. Premedical students are assigned an advisor from the Department of Biology to guide with course requirements for



medical school admissions, Medical College Admission Test (MCAT), medical school applications and extracurricular activities.

## Biology

- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)
- BIOL 211/2230 - Molecular and Cell Biology (3 cr. + 1 cr. lab)
- BIOL 315/3280 - Biochemistry (3 cr.)

## General/Inorganic Chemistry

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)

## Organic Chemistry

- CHEM 203/2003 - Organic Chemistry I (3 cr.)
- CHEM 306/3006 - Organic Chemistry II (3 cr.)
- CHEM 310L/3010 - Organic Chemistry I Laboratory (1 cr.)
- CHEM 316L/3016 - Organic Chemistry II Laboratory (1 cr.)

## Mathematics

- MACT 131/1121 - Calculus I (3cr.)
- MACT 132/1122 - Calculus II (3 cr.)

## Physics

- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)

## English

Any two Rhetoric and Composition core curriculum requirement may be used to satisfy the English requirement.

## Social Sciences

- PSYC 201/1000 - Introduction to Psychology (3 cr.)
  - SOC 240/2201 - Introduction to Community Development (3 cr.)
- One of these courses can be counted as a "Humanities and Social Sciences" core requirement.

## Notes:

Students applying for admission into certain medical schools may be required to take additional courses.

## Department of Chemistry

### Department of Chemistry School of Sciences and Engineering

Professor Emeritus: F. Hassan, J. Ragai

Professors: P. Askalani, H. Azzazy (Chair), M. Farag (Director of Master of Science in Chemistry), T. Madkour, A. Ramadan (Dean of Graduate Studies), T. Shoeib

Associate Professor: T. El-Idreesy, M. El Sayed, W. Mamdouh, S. Zulfiqar

Assistant Professor: A. Abdel Naser, E. El Sawy, E. Mohamed, H. Tallima

## Chemistry, with specializations in Petrochemical Industry, Clinical Chemistry, and Food Chemistry (B.S.)

The chemistry program covers the five main branches of chemistry, namely organic, biochemistry, inorganic, physical and analytical. In addition students may specialize in clinical analysis, industrial chemistry, or food chemistry. In all cases theoretical and applied knowledge are both reinforced and supplemented by a diverse selection of experimental work, a necessary facet of chemistry.

### Bachelor of Science

The objective of the Bachelor of Science in chemistry is to train students in both theory and practice of the major branches of chemistry. It prepares students for careers in diverse fields such as industries (chemical, food and beverages, pharmaceuticals, metal and metal finishing, cement, petrochemicals, textiles, paints); environmental monitoring and protection; quality control and quality assurance; clinical analysis; diagnostics; marketing and sales for chemicals and specialty chemicals; education; academic and industrial research. The Bachelor of Science in chemistry also prepares students for medical school.

A student who intends to major in chemistry must complete CHEM 1005 and CHEM 1015 with a minimum of a B average, or if declaring the major before the completion of these two courses, should have obtained a minimum of 80% in Thanawia Amma science or equivalent in other certificates.

The Bachelor of Science in Chemistry degree is accredited by both the Canadian Society for Chemistry (CSC) and the Supreme Council of Egyptian Universities.

A total of 131 credits is required for the bachelor's degree in chemistry:

### Core Curriculum (33 credits)

The remaining 7 credit hours required to satisfy the Core are fulfilled by the concentration Science/lab (4 crs) and the capstone project courses CHEM 4980 and CHEM 4981 (total 3 crs).

## Concentration Requirements (60 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)
- CHEM 203/2003 - Organic Chemistry I (3 cr.)
- CHEM 206/2006 - Analytical Chemistry I (2 cr.)
- CHEM 216L/2016 - Volumetric and Gravimetric Analysis (2 cr)
- CHEM 301/3940 - Seminar in Science and Technology (1 cr.)
- CHEM 303/3003 - Thermodynamics (3 cr.)
- CHEM 304/3004 - Physical Chemistry I (3 cr.)
- CHEM 000/3005 - Principles of Chemical Modeling (3 cr.)
- CHEM 306/3006 - Organic Chemistry II (3 cr.)
- CHEM 309/3009 - Inorganic Chemistry I (3 cr.)
- CHEM 310L/3010 - Organic Chemistry I Laboratory (1 cr.)
- CHEM 311/3011 - Analytical Chemistry II (3 cr.)
- CHEM 313L/3013 - Thermodynamics Laboratory (1 cr.)
- CHEM 314L/3014 - Physical Chemistry I Laboratory (1 cr.)
- CHEM 315/3015 - Biochemistry (3 cr.)
- CHEM 316L/3016 - Organic Chemistry II Laboratory (1 cr.)
- CHEM 318L/3018 - Inorganic Chemistry Laboratory (1 cr.)
- CHEM 402/4003 - Physical Chemistry II (3 cr.)
- CHEM 403/4004 - Physical Chemistry III (3 cr.)
- CHEM 406/4006 - Organic Chemistry III (3 cr.)
- CHEM 408/4008 - Inorganic Chemistry II (3 cr.)
- CHEM 412L/4013 - Physical Chemistry II Laboratory (1 cr.)
- CHEM 416L/4016 - Organic Syntheses (2 cr.)
- CHEM 495/4980 - Senior Thesis I (1 cr.)
- CHEM 496/4981 - Senior Thesis II (2 cr.)

## Specialization in Petrochemical Industry (12 credits)

- CHEM 307/3522 - Production Basics for Chemical Industries (3 cr.)
- CHEM 000/3523 - Chemistry of Petrochemical Processes
- CHEM 000/4524 - Polymer Chemistry and Technology (3 cr.)
- PENG 422/4525 - Petrochemical Technology (3 cr.)
- CHEM 000/4900 - Industrial Internship (0 credits)

## Specialization in Clinical Chemistry (9 credits)

- CHEM 325/3025 - Clinical Chemistry I (3 cr.)
- CHEM 414/4930 - Selected Topics in Chemistry (1-3 cr.)
- CHEM 425/4025 - Clinical Chemistry II (3 cr.)

## Specialization in Food Chemistry (9 credits)

- CHEM 220/2020 - Introduction to Food Science and Technology (3 cr.)
- CHEM 320/3020 - Food Chemistry (3 cr.)
- CHEM 407/4007 - Food Processing and Preservation (3 cr.)

## Collateral Requirements (26 credits)

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- MACT 131/1121 - Calculus I (3cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- PHYS 214/2221 - Waves and Optics (3 cr.)

## Electives (12 credits)

## Archaeological Chemistry Minor

This minor in archaeological chemistry provides students with the necessary knowledge for the elucidation of some archaeological problems. The minor is of particular value to Arts or Egyptology students.

## Requirements

Total credits: 17.

*All of the following courses (14 cr.):*

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)
- CHEM 312/3002 - Archaeological Chemistry I (3 cr.)

**And one of the following courses (3 cr.):**

- CHEM 103/1003 - Chemistry and Society (3 cr.)
- SCI 240/2004 - Chemistry, Art and Archaeology (3 cr.)

## Chemistry Minor

The minor in chemistry provides students with a workable knowledge of the basic principles of chemistry and some of their applications. Students may choose to concentrate on one of the main areas in Chemistry.

The minor in chemistry is comprised of (16-18 credits).

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)

## Additional Requirements

- 8-10 credits of higher level courses in chemistry to be chosen in consultation with a faculty advisor.

## Chemistry, with concentration in Food Chemistry and Nutrition (M.Sc.)

### Master of Science in Chemistry

The department of chemistry offers two programs of study leading to either a science degree in chemistry or with concentration in food chemistry and nutrition (M.Sc.). The M.Sc. in chemistry prepares students for a career in chemistry or related fields through the development of a firm foundation in the fundamental science and applications of chemistry. The specialization degree program is designed to provide students with a broad background in nutrition, food service management, development of necessary analytical skills; and exposure to current nutrition, food service and hospitality management research.

The Master of Science program in Chemistry provides postgraduate education to prepare students for a career in Chemistry or related fields through the development of a firm foundation in the fundamental science and applications of chemistry.

A total of 33 credit hours is required for the Master of Science degree. This consists of 24 credits hours of courses and 9 credit hours of thesis work.

### Admission

A Bachelor's degree in Chemistry or a related discipline with a minimum GPA of 3.0 out of 4.0, is required for admission into the Chemistry master of science program. Admission is also subject to the general university requirements for the graduate program. For those students whose grade records indicate promising ability, but who otherwise did not have an adequate preparation in chemistry, admission may be granted under the requirement that remedial courses will be taken.

### Courses (24 credits)

The program of study is planned with the faculty advisor, and should include 9 credit hours of core courses, 12 credit hours chosen from the specialization courses, and 3 credit hours of electives.

Students not opting for the Food Chemistry & Nutrition Concentration can fulfill the 12 credits of the concentration requirements with any chemistry 5000 or 6000 level courses. With the consent of the program director, one 5000 or 6000 level course in another science or engineering discipline can be taken and counted towards the concentration requirements.

## Core Chemistry Courses (9 credit hours)

To be chosen from the following courses:

- CHEM 000/5200 - Environmental Physical Chemistry (3 cr.)
- CHEM 501/5201 - Biochemistry (3 cr.)
- CHEM 502/5202 - Organometallics (3 cr.)
- CHEM 503/5203 - Advanced Organic Chemistry (3 cr.)
- CHEM 504/5204 - Methods of Structure Determination (3 cr.)
- CHEM 000/5206 - Advanced Food Chemistry (3 cr.)
- CHEM 519/5219 - Food Analysis (3 cr.)

## Chemistry Specialization Courses (12 credit hours)

To be chosen from the following courses:

- CHEM 505/5205 - Nanochemistry (3 cr.)
- CHEM 511/5211 - Applied Food Microbiology (3 cr.)
- CHEM 512/5212 - Food Safety Assurance (3 cr.)
- CHEM 513/5213 - Food Packaging (3 cr.)
- CHEM 514/5214 - Nutritional Evaluation of Food during Processing (3 cr.)
- CHEM 515/5215 - Food Additives, Contaminants and Legislation (3 cr.)
- CHEM 516/5216 - Food Fermentation (3 cr.)
- CHEM 517/5217 - Sensory Evaluation of Food Products (3 cr.)
- CHEM 518/5218 - Functional Foods and Nutraceuticals (3 cr.)
- CHEM 519/5219 - Food Analysis (3 cr.)
- CHEM 541/5241 - The Chemistry of Nanostructures (3 cr.)
- CHEM 542/5242 - Nanoelectrochemistry (3 cr.)
- CHEM 603/6103 - Bioseparation Processes for Food and Pharmaceutical Industries (3 cr.)
- CHEM 615/6105 - Principles and Applications of Mass Spectrometry (3 cr.)
- CHEM 000/6107 - Chemistry of Natural and Synthetic Polymers (3 cr.)
- CHEM 640/6240 - Nanoporous Materials (3 cr.)

With the consent of the program director, one 5000 or 6000 level course in another science or engineering discipline can be taken and counted towards the specialization requirements. Students opting for the Food Chemistry Specialization need to fulfill the 12 credits of the specialization requirements from the following Food Chemistry Specialization courses:

## Food Chemistry and Nutrition Specialization Courses (12 credit hours)

To be chosen from the following courses:

- CHEM 511/5211 - Applied Food Microbiology (3 cr.)
- CHEM 512/5212 - Food Safety Assurance (3 cr.)
- CHEM 513/5213 - Food Packaging (3 cr.)
- CHEM 514/5214 - Nutritional Evaluation of Food during Processing (3 cr.)
- CHEM 515/5215 - Food Additives, Contaminants and Legislation (3 cr.)

- CHEM 516/5216 - Food Fermentation (3 cr.)
- CHEM 517/5217 - Sensory Evaluation of Food Products (3 cr.)
- CHEM 518/5218 - Functional Foods and Nutraceuticals (3 cr.)
- CHEM 000/5220 - Life Cycle Nutrition (3 cr.)
- CHEM 000/5221 - Nutrition & Diseases (3 cr.)
- CHEM 000/5222 - Clinical Nutrition (3 cr.)

With the consent of the program director, one 5000 or 6000 level course in another science or engineering discipline can be taken and counted towards the specialization requirements.

## Chemistry Graduate Electives (3 credit hours)

A minimum of one course is selected as elective. No more than one 400-level or higher in sciences or engineering, or other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor's approval. Students may also select from the following list of courses:

- CHEM 551/5930 - Selected Topics in Chemistry (3 cr.)
- CHEM 552/5910 - Independent Study in Chemistry (3 cr.)

## Thesis (9 credit hours)

Each student must submit a thesis topic that has been approved by a faculty supervisor normally after acquiring 12 credit hours of course work. Various research topics are discussed in SCI 5940 , graduate thesis seminar. Students must complete SCI 5940 before registering for thesis credits. To ensure adequate faculty consultation, two semesters of the graduate thesis course (CHEM 5980) are required. After that, the course may be taken for one credit hour each semester until completion of the program requirements.

- CHEM 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)

## Food Chemistry and Nutrition (Graduate Diploma)

The department of chemistry offers a Graduate Diploma in Food Chemistry and Nutrition upon the successful completion of 6 courses (18 credit hours). To receive the Graduate Diploma in Food Chemistry, students should complete 6 credit hours of core chemistry courses and 12 credit hours from the food chemistry & nutrition specialization courses.

### Admission

A bachelor's degree in chemistry or a related discipline with a minimum GPA 3.0 out of 4.0, is required for admission into the program. Admission is also subject to the general university requirements for the graduate program. For those students whose grade records indicate promising ability, but who otherwise did not have an adequate preparation in chemistry, admission may be granted under the requirement that remedial courses will be taken.

## Department of Computer Science and Engineering

Department of Computer Science and Engineering  
School of Sciences and Engineering

Professor of Practice: K. El-Ayat

Professors: S. Aly (chair), A. El-Kadi, S. El-Kassas, A. Goneid, A. Khalil, M. N. Mikhail, A. Rafea

Associate Professors: T. ElBatt, M. Moustafa, M. Shalan (Associate Chair)

Assistant Professors: Y. Alkabani

The Department of Computer Science and Engineering offers two undergraduate degrees: The Bachelor of Science in Computer Science and the Bachelor of Science in Computer Engineering.

### **Vision**

The Department of Computer Science and Engineering of The American University in Cairo aspires to be an internationally recognized source of knowledge that produces outstanding graduates in computer science and computer engineering.

### **Mission**

The mission of the Department of Computer Science and Engineering of the American University in Cairo is to:

- Motivate and inspire students by providing high-caliber, fully integrated computing programs
- Provide leadership and innovation in a rapidly evolving global information society
- Advance the state of knowledge in computing
- Pursue scholarly research for publication and dissemination, through a comprehensive learning environment.

## **Computer Engineering (B.S)**

### **Bachelor of Science in Computer Engineering**

Computer engineering is defined as the discipline that embodies the science and technology of design, construction, implementation, and maintenance of software and hardware components of modern computing systems and computer-controlled equipment. It is solidly grounded in the theories and principles of computing, mathematics, science, and engineering and it applies these theories and principles to solve technical problems through the design of computing hardware, software, networks, and processes. Computer engineers are involved in the design of computer-based systems which includes (in addition to systems for portable, desktop and client/server environments and communications devices) distributed computing environments and embedded systems just to name a few. The convergence of several established technologies (such as television, telecommunications and networking infrastructures) resulted in the creation of massive challenges and opportunities for computer engineers.

The undergraduate program in computer engineering is to produce graduates with a broad perspective in both software and hardware topics relevant to computer systems engineering. It provides the foundation and areas of specialization necessary to analyze, design and evaluate systems software, middleware and software/hardware architectures and interfaces. The specific objectives of the program are to: educate students with breadth of knowledge in computer engineering that would allow them to contribute to computing projects individually or as members of multidisciplinary teams with emphasis on the creative applications of scientific knowledge in the analysis, design, and implementation of economical computer software and hardware systems; introduce students to a broad spectrum of computer engineering topics, with concentration in one or more computing areas of their choice; prepare students to cope with, and improve on, the ever-evolving discipline of computer engineering and state-of-the-art technologies in the industry of software and hardware systems. This is achieved through enabling students to integrate various analysis and design methodologies, models, techniques, and tools to develop software/hardware systems and their interfaces at the edge of technology; train students to communicate effectively, think critically, and recognize and consider the impact of computing solutions in a global and societal context with ability to understand and be sensitive to other cultures;



motivate students to engage in life-long learning, develop their ability to pursue graduate studies in computer science, computer engineering, or other related areas, and develop students who are creative, possess qualities of leadership, and committed to professional and ethical conduct.

The undergraduate program in computer engineering is accredited by the Engineering Accreditation Commission of ABET

### **Program Objectives**

The computer engineering program at AUC graduates a computer engineer who, within few years of graduation, fulfills societal needs, with consideration to ethical and environmental issues, in one or more of the following roles:

- 1- A professional team member in a multidisciplinary environment, local or global.
- 2- A distinguished member of computer engineering field through promotion, or professional development.
- 3- A successful member of an advanced academic or research organization.
- 4- A successful entrepreneur.

### **Program Learning Outcomes**

The program enables students to achieve the following outcomes, by the time of graduation:

- (a) An ability to apply knowledge of mathematics, science, and engineering
- (b) An ability to design and conduct experiments, as well as to analyze and interpret data.
- (c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) An ability to function on multidisciplinary teams
- (e) An ability to identify, formulate, and solve engineering problems
- (f) An understanding of professional and ethical responsibility
- (g) An ability to communicate effectively
- (h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) A recognition of the need for, and an ability to engage in life-long learning
- (j) A knowledge of contemporary issues
- (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

A total of 162 credits is required for the bachelor of science degree in computer engineering:

## **Core Curriculum Requirements (33 credits)**

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 crs) and the capstone projects CSCE 4980 CSCE 4981 (3 crs).

## **Engineering Core Requirements (52 credits)**

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)

- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 214/2104 - Engineering Mechanics II (Dynamics) (3 cr.)
- ENGR 313/3202 - Engineering Analysis and Computation I (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- ENGR 364/3322 - Fundamentals of Thermofluids (3 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 200/2131 - Discrete Mathematics (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- MACT 317/3224 - Probability and Statistics (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- PHYS 215/2211 - Introduction to Electronics (3 cr.)
- PHYS 222L/2213 - Electronics lab for Computer Scientists & Computer Engineers (1 cr.)

## Concentration Requirements (59 credits)

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- CSCE 321/2202 - Analysis and Design of Algorithms (3 cr.)
- CSCE 000/2203 - Analysis and Design of Algorithms Lab (1 cr.)
- CSCE 230/2301 - Digital Design I (3 cr.)
- CSCE 231/2303 - Computer Organization and Assembly Language Programming (3 cr.)
- CSCE 239L/2302 - Digital Design I Lab (1 cr.)
- CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
- CSCE 330/3301 - Computer Architecture (3 cr.)
- CSCE 332/3303 - Fundamental Microelectronics (3 cr.)
- CSCE 337/3304 - Digital Design II (3 cr.)
- CSCE 339L/3302 - Computer Architecture Lab (1 cr.)
- CSCE 341/3701 - Software Engineering (3 cr.)
- CSCE 345/3401 - Operating Systems (3 cr.)
- CSCE 000/3402 - Operating Systems Lab (1 cr.)
- CSCE 363/3611 - Digital Signal Processing (3 cr.)
- CSCE 432/4301 - Embedded Systems (3 cr.)
- CSCE 435/3312 - Computer Networks (3 cr.)
- CSCE 438L/4302 - Embedded Systems Lab (1 cr.)
- CSCE 439L/3313 - Computer Networks Lab (1 cr.)
- CSCE 445/4411 - Fundamentals of Distributed Systems (3 cr.)
- CSCE 490/4950 - Industrial Training (1 cr.)
- CSCE 491/4980 - Senior Project I (1 cr.)
- CSCE 492/4981 - Senior Project II (2 cr.)
- MGMT 307/3201 - Management Fundamentals (3 cr.)

## Concentration Electives (15 credits)

- CSCE 315/3101 - Programming Language (1-3 cr.)
- CSCE 316/3102 - Programming in Java (3 cr.)
- CSCE 317/3103 - Object Oriented Programming (3 cr.)
- CSCE 325/3104 - Concepts of Programming Languages (3 cr.)
- CSCE 333/3311 - Data and Computer Communications (3 cr.)
- CSCE 422/4201 - Theory of Computing (3 cr.)
- CSCE 427/4602 - Introduction to Artificial Neural Networks (3 cr.)
- CSCE 436L/4314 - Local Area Networks Lab (1 cr.)
- CSCE 437/4313 - Local and Metropolitan Area Networks (3 cr.)
- CSCE 441/4701 - Object-Oriented Analysis and Design (3 cr.)
- CSCE 446/4421 - Computer Security (3 cr.)
- CSCE 447/4101 - Compiler Design (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)
- CSCE 455/4621 - Computer Graphics (3 cr.)
- CSCE 456/4502 - Design of Web-based Systems (3 cr.)
- CSCE 000/4603 - Fundamentals of Computer Vision (3 cr.)
- CSCE 465/3601 - Artificial Intelligence (3 cr.)
- CSCE 448/4702 - Secure Systems Engineering (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)
- CSCE 495/4910 - Guided Studies in Computer Science and Engineering (1-3 cr.)
- ECNG 413/4103 - Testing of Digital Circuits (3 cr.)
- ECNG 494/4930 - Selected Topics in Electronics and Communications Engineering (3 cr.)
- MACT 304/3143 - Numerical Methods (3 cr.)
- MACT 310/3145 - Operations Research (3 cr.)
- MACT 362/3133 - Formal and Mathematical Logic (3 cr.)
- MACT 403/4134 - Modern Algebra (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 440/4135 - Graph Theory (3 cr.)

## General Electives (3 credits)

## Computer Science (B.S)

### Bachelor of Science in Computer Science

The undergraduate computer science program is accredited by the Computing Accreditation Commission of ABET

### Program Objectives

The computer science program at AUC graduates a computer scientist who, within few years of graduation, fulfills societal needs, with consideration to ethical and environmental issues, in one or more of the following roles:

- 1- A professional team member in a multidisciplinary environment, local or global.
- 2- A distinguished member of computing field through promotion, or professional development.
- 3- A successful member of an advanced academic or research organization.

4- A successful entrepreneur.

### **Program Learning Outcomes**

The program enables students to achieve the following outcomes, by the time of graduation:

- (a) An ability to apply knowledge of computing and mathematics appropriate to the discipline;
- (b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;
- (c) An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;
- (d) An ability to function effectively on teams to accomplish a common goal;
- (e) An understanding of professional, ethical, legal, security, and social issues and responsibilities;
- (f) An ability to communicate effectively with a range of audiences;
- (g) An ability to analyze the local and global impact of computing on individuals, organizations, and society;
- (h) Recognition of the need for, and an ability to engage in continuing professional development;
- (i) An ability to use current techniques, skills, and tools necessary for computing practices;
- (j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;
- (k) An ability to apply design and development principles in the construction of software systems of varying complexity.

The course of study offers a broad-based intellectual engagement with computing both in theory and practice as well as logic and capabilities. The theoretical ground, abstraction, design as well as the professional practice levels (technical competence, team work, problem solving and communication skills), social and ethical contexts of the discipline of computing are well integrated into the curriculum that the department offers.

The study program is designed to prepare students for a wide variety of careers. The most profound positions that our graduates are well prepared to occupy (or have already been engaged in) may be classified into the following professional disciplines: Software Engineering, Systems Design and Programming, Applications design and programming and Information-Systems design and analysis. The program also prepares students for further studies and research in the computing field.

A total of 132 credits is required for a bachelor's degree in computer science:

## **Core Curriculum (33 credits)**

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 crs) and the capstone projects CSCE 4980 CSCE 4981 (3 crs).

## **Computer Science Requirements (60 credits):**

### **a.) Concentration Requirements (42 credits)**

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- CSCE 321/2202 - Analysis and Design of Algorithms (3 cr.)

- CSCE 000/2203 - Analysis and Design of Algorithms Lab (1 cr.)
- CSCE 230/2301 - Digital Design I (3 cr.)
- CSCE 231/2303 - Computer Organization and Assembly Language Programming (3 cr.)
- CSCE 239L/2302 - Digital Design I Lab (1 cr.)
- CSCE 325/3104 - Concepts of Programming Languages (3 cr.)
- CSCE 330/3301 - Computer Architecture (3 cr.)
- CSCE 339L/3302 - Computer Architecture Lab (1 cr.)
- CSCE 341/3701 - Software Engineering (3 cr.)
- CSCE 345/3401 - Operating Systems (3 cr.)
- CSCE 000/3402 - Operating Systems Lab (1 cr.)
- CSCE 422/4201 - Theory of Computing (3 cr.)
- CSCE 447/4101 - Compiler Design (3 cr.)
- CSCE 490/4950 - Industrial Training (1 cr.)
- CSCE 491/4980 - Senior Project I (1 cr.)
- CSCE 492/4981 - Senior Project II (2 cr.)

## b.) Computer Science electives (18 credits)

*To be chosen in consultation with the student's advisor from the following (no more than 9 credits can be chosen among the MACT courses):*

- CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
- CSCE 315/3101 - Programming Language (1-3 cr.)
- CSCE 316/3102 - Programming in Java (3 cr.)
- CSCE 317/3103 - Object Oriented Programming (3 cr.)
- CSCE 333/3311 - Data and Computer Communications (3 cr.)
- CSCE 427/4602 - Introduction to Artificial Neural Networks (3 cr.)
- CSCE 432/4301 - Embedded Systems (3 cr.)
- CSCE 332/3303 - Fundamental Microelectronics (3 cr.)
- CSCE 337/3304 - Digital Design II (3 cr.)
- CSCE 435/3312 - Computer Networks (3 cr.)
- CSCE 363/3611 - Digital Signal Processing (3 cr.)
- CSCE 436L/4314 - Local Area Networks Lab (1 cr.)
- CSCE 437/4313 - Local and Metropolitan Area Networks (3 cr.)
- CSCE 438L/4302 - Embedded Systems Lab (1 cr.)
- CSCE 439L/3313 - Computer Networks Lab (1 cr.)
- CSCE 441/4701 - Object-Oriented Analysis and Design (3 cr.)
- CSCE 445/4411 - Fundamentals of Distributed Systems (3 cr.)
- CSCE 446/4421 - Computer Security (3 cr.)
- CSCE 448/4702 - Secure Systems Engineering (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)
- CSCE 455/4621 - Computer Graphics (3 cr.)
- CSCE 456/4502 - Design of Web-based Systems (3 cr.)
- CSCE 465/3601 - Artificial Intelligence (3 cr.)
- CSCE 000/4603 - Fundamentals of Computer Vision (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)
- CSCE 495/4910 - Guided Studies in Computer Science and Engineering (1-3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)

- MACT 304/3143 - Numerical Methods (3 cr.)
- MACT 310/3145 - Operations Research (3 cr.)
- MACT 362/3133 - Formal and Mathematical Logic (3 cr.)
- MACT 403/4134 - Modern Algebra (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 440/4135 - Graph Theory (3 cr.)
- CSCE 000/4604 - Practical Machine Deep Learning (3 cr.)

## Collateral Requirements (30 credits)

- MACT 132/1122 - Calculus II (3 cr.)
- MACT 200/2131 - Discrete Mathematics (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- MACT 306/3211 - Applied Probability (3 cr.)
- MACT 307/3223 - Statistical Inference (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- PHYS 215/2211 - Introduction to Electronics (3 cr.)
- PHYS 222L/2213 - Electronics lab for Computer Scientists & Computer Engineers (1 cr.)

## General Electives (9 credits)

## Computer Science Minor

A minor in Computer Science provides students from other disciplines with basic knowledge and practice in computing that would enable them to develop simple or advanced applications in their field of study.

A minor in Computer Science is comprised of at least 15 credits. Students must follow the study plan of one of the listed options, according to their majors. Students are required to plan their courses such that not more than six Computer Science credits are taken in one semester.

## Options for Minor

### Theoretical Aspects in Computer Science:

#### **Recommended for Math major students:**

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- CSCE 321/2202 - Analysis and Design of Algorithms (3 cr.)

- CSCE 000/2203 - Analysis and Design of Algorithms Lab (1 cr.)
- CSCE 422/4201 - Theory of Computing (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)

## Data Base Systems:

### **Recommended for Business, Economics & Engineering majors students:**

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)

## Computer Systems:

### **Recommended for Physics, Mechanical & Construction majors students but not permitted for Electronics Engineering major:**

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- CSCE 230/2301 - Digital Design I (3 cr.)
- CSCE 231/2303 - Computer Organization and Assembly Language Programming (3 cr.)
- CSCE 239L/2302 - Digital Design I Lab (1 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)

## Embedded Systems:

### **Recommended for Electronics Engineering major students only:**

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- CSCE 345/3401 - Operating Systems (3 cr.)
- CSCE 432/4301 - Embedded Systems (3 cr.)
- CSCE 438L/4302 - Embedded Systems Lab (1 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)

## Computing (M. Comp.)

### **Master in Computing (Non Thesis Option)**

The Master in computing (M.Comp.) at AUC prepares students for higher level professional practice in local and international markets. The objectives of the program are to provide graduates with:

- A broad knowledge of advanced Computer Science topics
- Creative applications of scientific knowledge in the analysis, design, and implementation of computer systems
- Detailed knowledge of modern computational and experimental methods
- Extensive knowledge in an area of student interest from one of the offered fields of research
- Awareness of the local and global context in which Computer Science is practiced, including industrial and business practices, social needs, and considerations of cultures and ethics
- An ability to solve computational problems, think critically, function well in a team, and communicate effectively
- A high standard of written and oral communication on technical matters

### **Admission**

Admission requirements are the same as those for the thesis-option M.S.

## **Courses (33 credit hours)**

Eleven courses (33 credit hours) are required: Two core courses (6 credit hours), and Nine electives (27 credit hours).

## **Core Courses (6 credit hours)**

All candidates must take Two core courses to be chosen from the following four courses:

- CSCE 525/5221 - Algorithms and Complexity Theory (3 cr.)
- CSCE 530/5231 - Advanced Processor Architecture (3 cr.)
- CSCE 545/5241 - Distributed Systems (3 cr.)
- CSCE 565/5261 - Advanced Artificial Intelligence (3 cr.)

## **Elective Courses (27 credits)**

Nine courses to be chosen from the following courses, two additional courses not taken from the above list could be considered.

- CSCE 529/5222 - Design and Analysis of Parallel Algorithms (3 cr.)
- CSCE 535/5232 - High Speed Networks (3 cr.)
- CSCE 532/5242 - Parallel Computer Architecture (3 cr.)
- CSCE 000/5245 - Embedded Real-Time Systems (3 cr.)
- CSCE 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 561/5263 - Knowledge Engineering (3 cr.)
- CSCE 569/5264 - Natural Language Processing and Machine Translation (3 cr.)
- CSCE 564/5265 - Web Mining (3 cr.)
- CSCE 567/5266 - Computer Vision (3 cr.)
- CSCE 563/5267 - Digital Image Processing (3 cr.)
- CSCE 555/5268 - Computer Graphics and Animation (3 cr.)
- CSCE 000/5269 - Pattern Analysis (3 cr.)
- CSCE 541/5271 - Advanced Software Engineering (3 cr.)
- CSCE 543/5272 - Advanced Software Quality (3 cr.)



- CSCE 000/5910 - Independent Studies in Computer Science and Engineering (1-3 cr.)
- CSCE 585/5930 - Selected Topics in Computer Science and Engineering (3 cr.)
- CSCE 591/5980 - Capstone Project in Computing (3 cr.)
- CSCE 642/6231 - Mobile and Pervasive Computing (3 cr.)
- CSCE 664/6261 - Advanced Data Mining (3 cr.)
- CSCE 692/6930 - Advanced Selected Topics in Computer Science (3 cr.)

## Computer Science (M.Sc.)

### Master of Science

The master of science program in computer science offers students the opportunity to engage in course work, research projects, and other activities designed to develop theoretical background and up-to-date practical skills in the rapidly changing area of Computer Science. The program provides a broad spectrum of study in preparation for careers in advanced computer research areas. The program allows students flexibility in planning their program of study after the initial course requirements are met.

### Admission

The program is open to Computer Science graduates and also to selected students whose preparation is outside Computer Science. However, students entering graduate study from outside the computer science area may be required to go through additional preparation before beginning their graduate program. Those students who have some deficiency in their undergraduate training but are well qualified in other aspects may be admitted provisionally. The department may prescribe a number of prerequisite courses to make up for the deficiency.

## Courses (24 credit hours)

A minimum of eight courses (24 credit hours) is required: three core courses (9 credit hours), and five electives (15 credit hours).

## Core Courses (9 credit hours)

All candidates must take the following three core courses:

- CSCE 525/5221 - Algorithms and Complexity Theory (3 cr.)
- CSCE 545/5241 - Distributed Systems (3 cr.)
- CSCE 565/5261 - Advanced Artificial Intelligence (3 cr.)

## Elective Courses (15 Credit hours)

- CSCE 529/5222 - Design and Analysis of Parallel Algorithms (3 cr.)
- CSCE 530/5231 - Advanced Processor Architecture (3 cr.)
- CSCE 535/5232 - High Speed Networks (3 cr.)
- CSCE 532/5242 - Parallel Computer Architecture (3 cr.)
- CSCE 000/5243 - Information and System Security (3 cr.)
- CSCE 000/5245 - Embedded Real-Time Systems (3 cr.)
- CSCE 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 561/5263 - Knowledge Engineering (3 cr.)

- CSCE 569/5264 - Natural Language Processing and Machine Translation (3 cr.)
- CSCE 564/5265 - Web Mining (3 cr.)
- CSCE 567/5266 - Computer Vision (3 cr.)
- CSCE 563/5267 - Digital Image Processing (3 cr.)
- CSCE 555/5268 - Computer Graphics and Animation (3 cr.)
- CSCE 000/5269 - Pattern Analysis (3 cr.)
- CSCE 541/5271 - Advanced Software Engineering (3 cr.)
- CSCE 543/5272 - Advanced Software Quality (3 cr.)
- CSCE 000/5910 - Independent Studies in Computer Science and Engineering (1-3 cr.)
- CSCE 585/5930 - Selected Topics in Computer Science and Engineering (3 cr.)
- CSCE 642/6231 - Mobile and Pervasive Computing (3 cr.)
- CSCE 664/6261 - Advanced Data Mining (3 cr.)
- CSCE 692/6930 - Advanced Selected Topics in Computer Science (3 cr.)

## Thesis (8 Credit hours)

The graduate thesis work is an important and required part of the master's degree program. Each student must submit a thesis topic that has been approved by a faculty supervisor, normally after 12 credit hours. Various research topics are discussed in the seminar courses. The student must register in the first seminar course before submitting a thesis topic and once during the execution of the thesis research. To ensure adequate faculty consultation on the thesis, the student must register for the graduate thesis for at least two semesters.

The Computer Science seminar is a two-semester course (1 credit hour per semester) designed to prepare students for research in Computer Science. The seminar must be taken by all students. The first seminar will help the student select a topic for his/her thesis and must be taken before submitting a thesis topic. In the second seminar, the student will present a report on his/her thesis progress.

*Example of a Program Completion Plan:*

Semester 1: 3 graduate courses

Semester 2: 3 graduate courses + seminar P1

Semester 3: 2 graduate courses + Thesis

Semester 4: Thesis + seminar P2

## Computer Science (Graduate Diploma)

### Admission

Admission requirements are the same as those for the M.Sc.

## Courses (18 credit hours)

Course work for the diploma in Computer Science is directed at providing the student with background in subjects relevant to the designated Computer Science discipline.

## Total Requirements

A total of six 500-level CSCE courses (18 credit hours) is required for the diploma.

## Notes:

The courses which have been successfully completed in the diploma program can be considered as part of the master's degree requirements for students who are admitted to the master's degree studies. The diploma may be completed in one academic year; no thesis is required.

# Department of Construction Engineering

## Department of Construction Engineering School of Sciences and Engineering

*Professors:* A. S. Ezeldin (Chair), M. Abou-Zeid, E. Sayed-Ahmed (Construction Graduate Director), E. Fahmy, A. Hassanein, O. Hosny, E. Imam, S. Khedr

*Associate Professors:* A. El-Gendy (Director of the Environmental Eng. Program), K. Nassar (Associate Chair)

*Assistant Professors:* S. El Baradei, W. Hassan, A. Waly

The Department of Construction Engineering offers one undergraduate degree: The Bachelor of Science in Construction Engineering and two graduate degrees Master of Science and Master of Engineering in Construction Engineering.

## Mission

To provide high quality engineering education within a liberal arts context to students from Egypt and other countries. The aim is to prepare generations of engineers to excel as leaders in their professions. The pursuit of excellence is central to the Department's mission, maintaining the highest standards of academic achievement, professional behavior and ethical conduct.

# Construction Engineering, with concentrations in Construction Materials and Structures, Construction Management and Technology, and Infrastructure (B.S.)

## Bachelor of Science in Construction Engineering

The construction industry is the largest industry in Egypt and much of the world. Construction engineering is a relatively new field that is designed to foster technological advances in the industry, to utilize modern design techniques, and to develop means to improve production, products, components and subsystems, and distribution and utilization of equipment. Construction engineering covers the basic civil engineering components such as structures, geotechnical, water resources, transportation, and environmental engineering. In addition, it covers, in detail, methods for the modeling of construction projects, numerical simulations, the evaluation of various construction strategies, and construction quality control. It deals with organizational planning, financial and human resources management, productivity measurement, accounting, information systems, strategy and policy formation, contracting, and construction law.

The specific objectives of the Construction Engineering Program are to: educate students in fundamentals of science and engineering with emphasis on construction engineering applications; introduce students to a broad spectrum of construction engineering topics, with concentration in an area of their choice, to plan for construction operations and to fit in construction organizations; prepare students to cope with and improve on the ever evolving technologies in

production, products, and components of the construction industry; train students to communicate effectively, work independently and in teams, and fit in a multi-discipline environment; inspire students to recognize and consider the impact of engineering solutions in a global and societal context with the ability to understand and be sensitive to other cultures; motivate students to engage in life-long learning and develop their ability to pursue graduate studies; develop students who are creative, possess qualities of leadership, and are committed to professional and ethical conduct.

Students have the choice of one of three concentration areas within construction engineering. These are: 1) Construction Materials and Structures; 2) Construction Management and Technology; and 3) Infrastructure. The Construction Materials and Structures concentration provides students with the ability to integrate advances in construction materials with advanced knowledge in structural design and mechanics. The Construction Management and Technology concentration provides students with the tools that would enable them to become effective construction managers, through gaining a deeper appreciation of the technology and management aspects involved, and a greater exposure to the various facets of the industry. The Infrastructure concentration better equips students for involvement in civil infrastructure projects, and enables them to contribute to consulting practice in highway engineering, environmental and water resources engineering. The concentration shall be indicated in the students' Diploma.

The undergraduate program in construction engineering is accredited by the Engineering Accreditation Commission of ABET

The program is also accredited by the Supreme Council of Egyptian Universities.

Students are admitted to the Construction Engineering Program either upon admission to AUC or after successful completion of criteria courses. High school students with mathematics/science background are accepted depending on their High School grades and the available quota in the Construction Engineering Program. Undeclared and transfer students are admitted to the program upon completing criteria courses in sciences. Students are accepted based on their GPA and on available quota in the department.

Students should consult the course listings and their faculty advisor on a regular basis to ensure that prerequisites for engineering core, concentration and elective courses are met. A model course plan for the major is provided in the office of the Department of Construction Engineering.

A total of 162 credits is required for the Bachelor of Science Degree in Construction Engineering:

## Core Curriculum (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 credits), and the capstone Senior Projects I and II (CENG 4980 and CENG 4981) (3 credits).

## Engineering Core Requirements (49 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 214/2104 - Engineering Mechanics II (Dynamics) (3 cr.)
- ENGR 229/2112 - Strength and Testing of Materials (4 cr.)
- ENGR 261/2122 - Fundamentals of Fluid Mechanics (3 cr.)
- ENGR 313/3202 - Engineering Analysis and Computation I (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)

- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 317/3224 - Probability and Statistics (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)

## Concentration Requirements (65 credits)

- ARCH 321/3562 - Introduction to Architectural Engineering (3 cr.)
- CENG 215/2251 - Drawing for Construction Engineering and Architecture (1 cr.)
- CENG 280/2311 - Construction Surveying (3 cr.)
- CENG 301/3111 - Structural Analysis (4 cr.)
- CENG 307/3153 - Structural Design (4 cr.)
- CENG 311/3511 - Fundamentals of Hydraulic Engineering (3 cr.)
- CENG 323/3211 - Construction Materials and Quality Control I (4 cr.)
- CENG 331/3312 - Geology for Engineers (2 cr.)
- CENG 000/3011 - Electrical and Mechanical Systems for Construction Engineering (4 cr.)
- CENG 411/4313 - Soil Mechanics (4 cr.)
- CENG 423/4252 - Methods and Equipment for Construction I (3 cr.)
- CENG 424/4253 - Methods and Equipment for Construction II (2 cr.)
- CENG 431/4351 - Transportation Engineering (3 cr.)
- CENG 441/4410 - Introduction to Construction Management and Cost Estimating (3 cr.)
- CENG 442/4420 - Construction Project Specifications, Bids, and Contracts (3 cr.)
- CENG 446/4440 - Techniques of Planning, Scheduling and Control (3 cr.)
- CENG 448/4460 - Financial Management and Accounting for Construction (3 cr.)
- CENG 452/4158 - Structural Systems and Advanced Design (3 cr.)
- CENG 461/4314 - Design and Construction of Foundations and Retaining Structures (3 cr.)
- CENG 471/4551 - Environmental and Sanitary Engineering (3 cr.)
- CENG 490/4980 - Senior Project I (1 cr.)
- CENG 491/4981 - Senior Project II (2 cr.)
- CENG 497/4951 - Practical Training (1 cr.)

## Concentration Electives (12 credits):

To complete the requirements of any of the three concentrations, students must complete a set of four courses as indicated in each concentration.

Student should also carry out the Senior Graduation Project in their selected concentration subfield.

### Construction Materials and Structures

In this concentration, student have to complete 4 courses (12 credit hours) as follow:

1. Two courses (6 credit hours) of Group A,
2. One course (3 credit hours) from Group B, and
3. One course (3 credit hours) from any other concentration, including Group B courses.

## Construction Materials and Structures

### Group A:

CENG 453/4212 - Construction Materials and Quality Control II (3 cr.)

CENG 454/4113 - Structural Mechanics (3 cr.)

### Group B:

CENG 000/4154 - Advanced Design of Reinforced and Prestressed Concrete Structures (3 cr.)

CENG 426/4155 - Steel and Concrete Bridges (3 cr.)

CENG 428/4157 - Tall Buildings and Large Span Structures (3 cr.)

CENG 462/4315 - Applications in Geotechnical Engineering (3 cr.)

CENG 494/4911 - Selected Topics in Construction Engineering (3 cr.)

## Construction Management and Technology

In this concentration, Students have to complete the following two courses

- CENG 444/4430 - Risk Management and Bidding Strategies (3 cr.)
- CENG 447/4450 - Design, Modeling and Simulation of Construction Systems (3 cr.)

In addition to any two courses from the Infrastructure or the Construction Materials and Structures Concentrations

## Infrastructure

In this concentration, student have to complete 4 courses (12 credit hours) as follows:

1. Two courses (6 credit hours) from Group A courses.
2. One course (3 credit hours) from Group B courses.
3. One course (3 credit hours) from any concentration including Group B courses of the "Infrastructure" concentration

### Group A:

CENG 481/4352 - Highway Facilities (3 cr.)

CENG 000/4556 - Design of water and wastewater treatment plants (3 cr.)

### Group B:

CENG 472/4552 - Design of Water Resources Systems (3 cr.)

CENG 473/4553 - Unit Operations in Environmental Engineering (3 cr.)

CENG 474/4554 - Computer-aided design and construction of environmental and sanitary systems (3 cr.)

CENG 475/4555 - Solid and Hazardous Wastes Engineering (3 cr.)

CENG 000/4557 - Functional design and construction of tunnels and bridges (3 cr.)

CENG 462/4315 - Applications in Geotechnical Engineering (3 cr.)

CENG 494/4911 - Selected Topics in Construction Engineering (3 cr.)

## Science Elective (3 credits)

Students should take a science elective course of total 3 credits selected from a set of courses accepted by the department

## General Electives (0-6 credits):

Students may take courses of their selection to satisfy program requirement of 162 credit hours.

## Dual Degree Option BSc/CENG-MPA

Students enrolled in the School of Science and Engineering may apply to complete the MPA on an accelerated basis in conjunction with completion of the BSc. in Construction Engineering. At present, this option is open only to students completing the BSc. in Construction Engineering. Students interested in this option should consult with their advisors during the Fall of their fourth year for potential admission to the program in their fifth year. The program is jointly administered by the Department of Public Policy and Administration in the School of Public Affairs and the School of Sciences and Engineering. Admission is based on the recommendation of the student's SSE advisor and review by the PPAD department. Students who wish to be admitted to this dual degree should have a minimum GPA of 3.2. The program prepares students for careers in public service with the highest ethical standards, strong competencies in environmental analysis and management as well as public governance, excellent leadership and communication skills, a sound understanding of the use of evidence and analysis in public service settings, and a commitment to building a better future for the people of Egypt and the region. Students pursue careers in government, nonprofit organizations, international development agencies, academia, and the private sector.

Students electing the dual degree option begin taking graduate courses in their ninth semester and receive both the BSc. and the MPA upon the completion of their coursework and master's thesis, normally at the end of their 6th year. The following course sequence has been developed for this option, but students should consult their advisor in CENG to ensure that all SSE requirements are met:

Students who seek to register in this dual degree should complete four 400-level courses that are related to business or public administration, public policy, economics, political science or global affairs. Courses will need to be approved by the department prior to registration

Additionally, students must take the seven PPAD graduate courses listed below and two thesis registration.

### **SEMESTER X**

PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)

PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)

PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.)

### **SEMESTER XI**

PPAD 501/5221 - Strategic Management for Government and Nonprofit Organizations (3 cr.)

PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)

PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)

PPAD 000/5174 - Internship in Public and Non-Profit Organizations (3 cr.)

### **SEMESTER XII**

- PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.) (MPA Credit)
- PPAD 516/5132 - Social and Environmental Policy (3 cr.) (MPA Credit)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.) (MPA Credit)
- PPAD 599/5299 - Research Guidance (0 cr.) (MPA Credit)

## **Thesis**

Students are required to write a thesis on some aspect of public administration relevant to their area of study. The preparation of the thesis and the thesis itself must comply with Departmental and AUC guidelines with regard to content, format, dates, and the review and supervision process. Students are responsible for familiarizing themselves with these guidelines and meeting formal deadlines. Students preparing the thesis normally develop a preliminary thesis proposal during PPAD 5201, a required core course, but may prepare an alternative thesis proposal if desired. Once the proposal is approved, students should enroll in PPAD 5298, the thesis research seminar, in the first semester in which they are working on the research component and write-up of their thesis. Thereafter, if additional work is required to complete the thesis, students can enroll each semester in PPAD 5299. Students must pay 3 credits of tuition for the first enrollment in PPAD 5298 and PPAD 5299 and thereafter pay 1 credit of tuition each semester, until the thesis is successfully defended and approved by the Dean.

## **Construction Engineering (M.Eng.)**

The Master of Engineering Degree in Construction Engineering prepares graduate students for higher-level professional practice in local and international markets, whether in consulting practice, industry, or government. It is intended for construction engineers who wish to master the practice in their field of specialty

### **Program Objectives**

- Detailed knowledge in management, systems, design and materials in construction engineering.
- Extensive knowledge in an area of student interest from one of the fields involved in construction engineering.
- Awareness of the local and global context in which construction engineering is practiced, including economic and business practices, societal needs, and considerations of public health, safety, environment, culture and ethics.
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- A high standard of written and oral communication on technical matters.

### **Admission**

Admission requirements are the same as those for the Master of Science Program.

## **Courses (33 credit hours)**

Course work for the Master of Engineering degree requires the completion of a minimum of 33 credit hours as follows:

### **I- Construction Engineering Core (21 credit hours)**

Students must complete 21 credits in graduate construction engineering courses.

### **II- Elective Courses (12 credit hours)**



Students may elect to take four courses (12 credits). A minimum of two courses must be taken from offerings in engineering disciplines (including ENGR). No more than one 400-level course, not in the student's undergraduate major may be taken for graduate credit, subject to approval of the advisor.

## Construction Engineering (M.Sc.)

The Master of Science program in Construction Engineering is administered by the Construction and Architectural Engineering Department. The Program offers high quality education that prepares students for advanced academic, research and professional careers in construction management & systems and structural engineering & construction materials.

### Program Objectives

The objectives of the Master of Science in Construction Engineering are to provide the graduates of the program with:

- A broad knowledge of modern computational and experimental methods in engineering.
- Extensive knowledge in construction management & systems and in structural engineering & construction materials
- In-depth understanding of the research techniques and data analysis in construction engineering
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively
- A high standard of written and oral communication on technical matters

### Admission

A candidate for the master's program in Construction Engineering must have a B.Sc. degree in civil, construction or architectural engineering. Students who have some deficiency in their undergraduate training but are well-qualified in other respects may be admitted provisionally. The Department of Construction and Architectural Engineering may prescribe a program of noncredit work to make up for the deficiency.

## Courses (24 credit hours)

A minimum of eight courses (24 credit hours) is required. The courses are selected from the following categories:

### I- Core Courses (6 credit hours)

All students select two out of the following four **ENGR core** courses:

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### II- Concentration Courses (12 credit hours)

Students should select a minimum of four courses from any of the courses of the following subfields in Construction Engineering:

### Construction Management and Systems

- CENG 570/5244 - Advanced Construction Management (3 cr.)
- CENG 571/5225 - Advanced Systems Analysis for Construction Engineering (3 cr.)
- CENG 572/5245 - Claims and Disputes in the Construction Industry (3 cr.)
- CENG 574/5226 - Methods and Equipment for Construction (3 cr.)
- CENG 575/5246 - Techniques of Planning, Scheduling and Control (3 cr.)
- CENG 576/5227 - Advanced Systems for Construction (3 cr.)
- CENG 578/5247 - Resource Management for Construction Projects (3 cr.)
- CENG 565/5241 - Infrastructure Asset Management (3 cr.)
- CENG 566/5242 - Simulation Applications in Construction (3 cr.)

### Structural Engineering and Construction Materials

- CENG 000/5151 - Advanced Design of Steel and Composite Structures (3 cr.)
- CENG 000/5152 - Advanced Composite Materials in Infrastructure Applications (3 cr.)
- CENG 573/5220 - Advanced Construction and Building Materials (3 cr.)
- CENG 577/5210 - The Finite Element Method in Structural Engineering (3 cr.)
- CENG 579/5121 - Assessment, Protection and Repair of Structures (3 cr.)

### III- Elective Courses (6 credit hours)

A minimum of two courses are selected as electives. The courses are selected from a set of graduate courses in engineering, physical sciences, social sciences, management and other related graduate level courses subject to advisor and chair's approval. No more than one 400-level course in engineering, computer science and other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor and chair's approval.

### A minimum of one course must be selected from the concentration courses in Construction Engineering

- CENG 592/5292 - Advanced Topics in Construction Engineering (3 cr.)

### May include:

- Geotechnical Engineering
- Construction Technology Analysis and Development
- Advanced Structural Design and Construction

### Thesis

Graduate thesis work is an important and required part of the Construction Engineering Master of Science degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 5940 , Graduate Thesis Seminar. Students must complete ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for CENG 5290, Graduate Thesis, by the completion of 18 credit hours. Students must register in CENG 5290 for at least two semesters. The first two registrations in CENG 5290 must be for three credit hours, after that CENG 5290 is taken for one credit hour each semester until completion of the program requirements.

## Department of Electronics and Communications Engineering

The name of the Electronics Engineering department has been changed to be the Electronics and Communications Engineering department. This change is effective starting Spring 2014. All degrees offered by the department will reflect the new name starting Spring 2014, and all transcripts issued for students graduating Spring 2014 onwards will bear the new name.

*Professors:* H. Amer, Y. Ismail

*Associate Professors:* S. Abdel Azeem, A. Abou-Auf, M. Anis, A. Darwish, A. Elezabi, Y. Gadallah (Chair)

*Assistant Professor:* K. Seddik

Since the discovery of the electron in 1897, and the invention of the transistor in 1947, Electronics and Communications Engineering has continued to experience tremendous growth that has greatly impacted our lives. The present "information age," which features electronic data storage, retrieval, manipulation, and high-speed computing and communications, is based on high-density microelectronic (and soon nanoelectronic) solid-state integrated circuits. Revolution in wireless and optical communications technologies also necessitates fundamental understanding of the generation, propagation, and detection of the electromagnetic waves.

### Mission

The goal of the Electronics and Communications Engineering program at AUC is to provide students with the highest quality education. The Electronics and Communications Engineering curriculum is designed to strike a balance between theoretical and laboratory experience and to impart fundamental and practical understanding of the principles required for a successful career in electronics and communications engineering. ECNG graduates will be prepared for a career in Egypt or abroad.

## Electronics and Communications Engineering (B.S)

### Bachelor of Science

To achieve the mission of Electronics and Communications Engineering requires a solid core of foundation courses in physics, mathematics, computer science and general engineering, which is also essential for life-long learning. Concentration courses in Electronics and Communications Engineering (that integrate theory and laboratory wherever possible) cover electromagnetics, circuits, electronics, digital design and communications. Courses in electric machinery, classical control, computer systems, the capstone senior thesis and industrial internship are also required. State-of-the-art electronics engineering elective courses provide seniors and advanced undergraduates the opportunity to develop a thrust in advanced electronics, communication systems and computers.

Electronics and Communications Engineering accepts high school students with science/mathematics background. Undeclared students may also be accepted to the program when they finish criteria courses set by the department.

Admission to the program is supervised by the department and depends on available places and student's performance record.

The undergraduate program in electronics engineering is accredited by the Engineering Accreditation Commission of ABET

A total of 162 credits are required for the bachelor's degree in Electronics and Communications Engineering:

## Core Curriculum Requirements (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 crs) and the capstone projects ECNG 4980 and ECNG 4981 (3 crs)

## Engineering Core Requirements (57 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 214/2104 - Engineering Mechanics II (Dynamics) (3 cr.)
- ENGR 313/3202 - Engineering Analysis and Computation I (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- ENGR 364/3322 - Fundamentals of Thermofluids (3 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 232/2124 - Calculus IV (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 317/3224 - Probability and Statistics (3 cr.)
- MGMT 307/3201 - Management Fundamentals (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- PHYS 214/2221 - Waves and Optics (3 cr.)

## Concentration Requirements (54 credits)

(ECNG 4980 and ECNG 4981 are counted within the university core)

- ECNG 210/2101 - Digital Logic Design (3 cr.)
- ECNG 215/2105 - Circuit Analysis I (3 cr.)
- ECNG 216/2106 - Circuit Analysis II (3 cr.)
- ECNG 218L/2108L - Digital Logic Design Lab (1 cr.)
- ECNG 219L/2109L - Circuit Analysis Lab (1 cr.)
- ECNG 315/3105 - Electronics I: Basic Electronic Devices & Circuits (3 cr.)

- ECNG 316/3106 - Electronics II: Analog Circuits (3 cr.)
- ECNG 318/3108 - VLSI Design (3 cr.)
- ECNG 319L/3109L - Electronics Lab (1 cr.)
- ECNG 320/3201 - Signals and Systems (3 cr.)
- ECNG 321/3202 - Automatic Control Systems (3 cr.)
- ECNG 341/3401 - Electromagnetic Theory (3 cr.)
- ECNG 352/3502 - Computer Organization and Assembly Language Programming (3 cr.)
- ECNG 360/3601 - Power and Machines (3 cr.)
- ECNG 420/4301 - Fundamentals of Communications I (3 cr.)
- ECNG 421/4302 - Fundamentals of Communications II (3 cr.)
- ECNG 432/4306 - Computer Communication Networks (3 cr.)
- ECNG 439L/4314L - Communications Lab (1 cr.)
- ECNG 442/4402 - Electromagnetic Waves (3 cr.)
- ECNG 453/4503 - Microcontroller system design (3 cr.)
- ECNG 459L/4509L - Microcontroller system design lab (1 cr.)
- ECNG 490/4980 - Senior Project I (1 cr.)
- ECNG 491/4981 - Senior Project II (2 cr.)

The credit hours in ECNG 490/491 are not counted among the concentration credit hour requirements as they are counted in the core curriculum credit hour requirements

- ECNG 497/4950 - Industrial Internship (1 cr.)

## Concentration Electives (12 credits)

- ECNG 404L/4304L - Photonics and Optical Communication Laboratory (1 cr.)
- ECNG 410/4101 - Solid-State Devices (3 cr.)
- ECNG 413/4103 - Testing of Digital Circuits (3 cr.)
- ECNG 414/4104 - High Level Digital ASIC Design Using CAD (3 cr.)
- ECNG 415/4105 - Integrated Circuit Fabrication: Materials and Processes (3 cr.)
- ECNG 433/4308 - Telecommunications Systems (3 cr.)
- ECNG 434/4310 - Optical Communication Systems (3 cr.)
- ECNG 436/4312 - Mobile Communication Systems (3 cr.)
- ECNG 447/4407 - Microwave Systems (3 cr.)
- ECNG 455/4505 - Computer Architecture (3 cr.)
- ECNG 456/4506 - Industrial control systems (3 cr.)
- ECNG 458L/4508L - Computer Architecture Lab (1 cr.)
- ECNG 480/4920 - Special Problems in Electronics and Communications Engineering (1-3 cr.)
- ECNG 494/4930 - Selected Topics in Electronics and Communications Engineering (3 cr.)

## General Electives (0-9 credits)

## Electronics Minor

*The Electronics Minor is coordinated by the Electronics and Communications Engineering department (ECNG).*

The aim of the minor in electronics is to provide students typically majoring in physics, chemistry, computer science, mathematics, and engineering with a working knowledge of electronics. The hands-on laboratory instruction

emphasized in the minor enables scientists and engineers to optimize their use of electronic equipment. The Electronics Minor cannot be taken by students majoring in ECNG.

## Requirements 17 credit hours of electronics minor should cover:

- PHYS 215/2211 - Introduction to Electronics (3 cr.)
- PHYS 221L/2212 - Electronics Laboratory (2 cr.)
- ECNG 218L/2108L - Digital Logic Design Lab (1 cr.)
- ECNG 210/2101 - Digital Logic Design (3 cr.)

## A minimum of 8 credits selected from the following:

- CSCE 330/3301 - Computer Architecture (3 cr.)
- CSCE 339L/3302 - Computer Architecture Lab (1 cr.)
- ECNG 413/4103 - Testing of Digital Circuits (3 cr.)
- PHYS 323L/4234 - Solar Energy Lab (1 cr.)
- PHYS 404L/4225 - Photonics and Optical Communication Laboratory (1 cr.)
- PHYS 414/4224 - Photonics (3 cr.)

## Electronics and Communications Engineering (M. Eng.)

The name of the Electronics Engineering department has been changed to be the Electronics and Communications Engineering department. This change is effective starting Spring 2014. All degrees offered by the department will reflect the new name starting Spring 2014, and all transcripts issued for students graduating Spring 2014 onwards will bear the new name.

The Master of Engineering Degree in Electronics and Communications Engineering prepares students for higher level professional practice in local and international markets, whether in private consulting practice, industry, or government activities. It is intended for electronics engineers who wish to master the practice in their field of specialty.

### 1. Program Objectives

The objectives of the Master of Engineering Degree in Electronics and Communications Engineering are to provide the graduates of the program with:

- Detailed knowledge in product, systems, design and materials in electronics engineering.
- Extensive knowledge in an area of student interest from one of the fields involved in electronics engineering.
- Awareness of the local and global context in which electronics engineering is practiced, including economic and business practices, societal needs, and considerations of public health, safety, environment, culture and ethics.
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- A high standard of written and oral communication on technical matters.

### 2. Admission

Admission requirements are the same as those for the Master of Science Program.

### 3. Courses (33 Credit hours)

A minimum of 11 courses is required. The courses are selected from the following categories.

#### Core Courses (3 credit hours)

All students select one out of the following four ENGR core courses:

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

#### Concentration Courses\*\* (30 credit hours)

Candidates must select at least eight courses out of the following ECNG course list:

- ECNG 510/5210 - Advanced Solid-State Devices (3 cr.)
- ECNG 000/5214 - Advanced ASIC Design (3 cr.)
- ECNG 516/5216 - Analog Integrated Circuit Design (3 cr.)
- ECNG 517/5217 - Digital Integrated Circuit Design (3 cr.)
- ECNG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
- ECNG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
- ECNG 520/5231 - Advanced Digital Communications (3 cr.)
- ECNG 521/5233 - Wireless Communication Systems (3 cr.)
- ECNG 522/5230 - Probability and Stochastic Processes with Applications (3 cr.)
- ECNG 524/5234 - Enabling Technologies for High Data Rate Communications (3 cr.)
- ECNG 525/5225 - Digital Signal Processing (3 cr.)
- ECNG 526/5236 - Information Theory and Coding (3 cr.)
- ECNG 530/5238 - Advanced Computer Networks (3 cr.)
- ECNG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)
- ECNG 547/5247 - RF and Microwave Systems (3 cr.)
- ECNG 548/5248 - RF Integrated Circuit Design (3 cr.)
- ECNG 549/5249 - Antennas Design and Applications (3 cr.)
- ECNG 553/5223 - Fault-Tolerant Computing and Reliability Modeling (3 cr.)
- ECNG 556/5226 - Networked Control Systems Design & Applications (3 cr.)
- ECNG 594/5930 - Advanced Topics in Electronics and Communications Engineering (3 cr.)

#### **\*\*Note:**

- Up to two PHD ECNG courses (600-level) to be taken for credit towards the above MS/ME degree are allowed

- Subject to the approval of the advisor and the graduate director the candidate is permitted to take six credit hours from the following two options

one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering;

Graduate Independent Study course (ECNG 5910) (1 to 3 credit hours).

However, the student may take a maximum of 3 hours of independent study, and a maximum of one course (3 credit hours) from outside the ECNG department.

## **Electronics and Communications Engineering with Concentration in Management of Technology (M. Eng.)**

The name of the Electronics Engineering department has been changed to be the Electronics and Communications Engineering department. This change is effective starting Spring 2014. All degrees offered by the department will reflect the new name starting Spring 2014, and all transcripts issued for students graduating Spring 2014 onwards will bear the new name.

The Master of Engineering Degree in Electronics and Communications Engineering with Concentration in Management of Technology prepares students for higher level professional practice in local and international markets. It is intended for electronics engineers who wish to master the practice in their field of specialty, as well as understanding the notion of technology and innovation as key to wealth creation, competitiveness and sustainable economic and social development. Potential students can come from academia, multinational corporations, government sectors, and owners, managers and employees of private/public sector companies.

### **1. Program Objectives**

**The objectives of the program are:**

- To provide students with solid knowledge in product and systems design in electronics engineering.
- To train students to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- To educate students on high standard of written and oral communication on technical matters.
- To enable students to manage and guide technology-based organization in a changing environment
- To expose students to methods of integrating technology and business strategies
- To educate student on methods to develop an organizational structure and necessary functions that permit sustainable success.

### **2. Admission**

Admission requirements are the same as those for the Master of Science in Electronics and Communications Engineering program.

## **3. Courses (33 credit hours)**

A minimum of eleven courses (33 credit hours) are required.

The ECNG courses are selected from the following categories:

### **Concentration Courses\* (24 credit hours)**

Candidates must select at least 7 courses out of the following list of 15 courses:

- ECNG 510/5210 - Advanced Solid-State Devices (3 cr.)



- ECNG 000/5214 - Advanced ASIC Design (3 cr.)
- ECNG 516/5216 - Analog Integrated Circuit Design (3 cr.)
- ECNG 517/5217 - Digital Integrated Circuit Design (3 cr.)
- ECNG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
- ECNG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
- ECNG 520/5231 - Advanced Digital Communications (3 cr.)
- ECNG 521/5233 - Wireless Communication Systems (3 cr.)
- ECNG 522/5230 - Probability and Stochastic Processes with Applications (3 cr.)
- ECNG 524/5234 - Enabling Technologies for High Data Rate Communications (3 cr.)
- ECNG 525/5225 - Digital Signal Processing (3 cr.)
- ECNG 526/5236 - Information Theory and Coding (3 cr.)
- ECNG 530/5238 - Advanced Computer Networks (3 cr.)
- ECNG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)
- ECNG 547/5247 - RF and Microwave Systems (3 cr.)
- ECNG 548/5248 - RF Integrated Circuit Design (3 cr.)
- ECNG 549/5249 - Antennas Design and Applications (3 cr.)
- ECNG 553/5223 - Fault-Tolerant Computing and Reliability Modeling (3 cr.)
- ECNG 556/5226 - Networked Control Systems Design & Applications (3 cr.)
- ECNG 594/5930 - Advanced Topics in Electronics and Communications Engineering (3 cr.)

**\*Note:**

Subject to the approval of the advisor and graduate director the candidate is permitted to take three credit hours from one of the following two options:

one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering:

Graduate Independent Study (ECNG 5910) course (1 to 3 credit hours).

## MoT Courses (9 credit hours)

Candidates must select 3 courses out of the following list:

- MOIS 508/5201 - Information and Communication Technology in Business (3 cr.)
- BADM 000/5310 - Strategic Management (3 cr.)
- ECNG 570/5271 - New Product Design and Development (3 cr.)
- ECNG 571/5272 - Technology and Innovation Management (3 cr.)
- ECNG 572/5273 - Strategic Management of Innovation (3 cr.)
- ECNG 573/5274 - Entrepreneurship and Innovation (3 cr.)

## Electronics and Communications Engineering (M. Sc.)

The name of the Electronics Engineering department has been changed to be the Electronics and Communications Engineering department. This change is effective starting Spring 2014. All degrees offered by the department will reflect the new name starting Spring 2014, and all transcripts issued for students graduating Spring 2014 onwards will bear the new name.

A candidate for the master's program in Electronics and Communications Engineering must have a degree in electrical or computer engineering or related discipline. Students who have some deficiency in their undergraduate training but are well-qualified in other respects may be admitted provisionally. The Electronics and Communications Engineering Department may prescribe a program of noncredit work to make up for the deficiency.

### 1. Program Objectives

The objectives of the Master of Science Degree in Electronics and Communications Engineering are to provide the graduates of the program with:

- A broad knowledge of modern computational and experimental methods in engineering.
- Extensive knowledge in one of the following specializations: VLSI and nanosystems, communication systems, microwave and RF systems, digital and network systems.
- Deep understanding of the research techniques and data analysis in the area of specialization.
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- A high standard of written and oral communication on technical matters.

### 2. Admission

A candidate for the master's program in Electronics and Communications Engineering must have a degree in engineering. Students who have some deficiency in their undergraduate training but are well-qualified in other respects may be admitted provisionally. The Electronics and Communications Engineering Department may prescribe a program of noncredit work to make up for the deficiency.

## 3. Courses (24 Credit hours)

A minimum of eight courses (24 credit hours) is required.

The courses are selected from the following categories:

### Core Courses (3 credit hours)

All students select one out of the following four ENGR core courses:

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### Concentration Courses\*\* (21 credit hours)

Candidates must select at least five courses out of the following ECNG course list:

- ECNG 510/5210 - Advanced Solid-State Devices (3 cr.)

- ECNG 000/5214 - Advanced ASIC Design (3 cr.)
- ECNG 516/5216 - Analog Integrated Circuit Design (3 cr.)
- ECNG 517/5217 - Digital Integrated Circuit Design (3 cr.)
- ECNG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
- ECNG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
- ECNG 520/5231 - Advanced Digital Communications (3 cr.)
- ECNG 521/5233 - Wireless Communication Systems (3 cr.)
- ECNG 522/5230 - Probability and Stochastic Processes with Applications (3 cr.)
- ECNG 524/5234 - Enabling Technologies for High Data Rate Communications (3 cr.)
- ECNG 525/5225 - Digital Signal Processing (3 cr.)
- ECNG 526/5236 - Information Theory and Coding (3 cr.)
- ECNG 530/5238 - Advanced Computer Networks (3 cr.)
- ECNG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)
- ECNG 547/5247 - RF and Microwave Systems (3 cr.)
- ECNG 548/5248 - RF Integrated Circuit Design (3 cr.)
- ECNG 549/5249 - Antennas Design and Applications (3 cr.)
- ECNG 553/5223 - Fault-Tolerant Computing and Reliability Modeling (3 cr.)
- ECNG 556/5226 - Networked Control Systems Design & Applications (3 cr.)
- ECNG 594/5930 - Advanced Topics in Electronics and Communications Engineering (3 cr.)

**\*\*Note:**

- Up to two PHD ECNG courses (600-level) to be taken for credit towards the above MS/ME degree are allowed

- Subject to the approval of the advisor and the graduate director the candidate is permitted to take six credit hours from the following two options

one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering;

Graduate Independent Study course (ECNG 5910) (1 to 3 credit hours).

However, the student may take a maximum of 3 hours of Graduate Independent Study, and a maximum of one course (3 credit hours) from outside the ECNG department.

## 4. Thesis (9 credit hours)

Graduate thesis work is an important and required part of the Electronics Engineering Master of Science degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 5940 , Graduate Thesis Seminar. Students must complete in ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for ECNG 5980 , Graduate Thesis, by the completion of 18 credit hours. Students must register in ECNG 5980 for at least two semesters. The first two registrations in ECNG 5980 must be for three credit hours, after that ECNG 5980 is taken for one credit hour each semester until completion of the program requirements.

## Department of Mathematics and Actuarial Science

**Department of Mathematics and Actuarial Science**  
**School of Sciences and Engineering**

*Distinguished University Professor:* A. Hadi (Chair)

*Professors:* M. Hebert (Emeritus), W. Lotfallah, Z. Amin (Associate Provost for Assessment and Accreditation)

*Associate Professor:* G. DeYoung

*Assistant Professors:* D. Siniora, K. Moutanabbir, N. Youssef

Mathematics is the study of relationships among quantities, magnitudes and properties. It uses logical operations to find order within the appearance of chaos and to identify intrinsic relations and patterns among seemingly disparate questions and problems. The techniques of mathematics may be applied to a wide array of problems, such as the design and analysis of experiments, statistics and data analysis, mathematical modeling and operations research. As the "language" of science, it constitutes the theoretical background for computer science, engineering, and the natural sciences. The Department of Mathematics and Actuarial Science, recognizing the central position of mathematics in traditional liberal studies, provides a rigorous foundation in pure as well as applied mathematics, equipping students for further study and preparing them to use their mathematical skills in many different employment arenas.

The Actuarial Science program is designed to produce graduates who have analytic, statistical, and computational skills, which allow them to solve industrial problems, predict the financial effects of uncertain future events, and carry out decision-making analyses. This program is appropriate for students who have a strong mathematical ability with an interest in applying their mathematical knowledge to insurance, finance, risk management, investment, and other areas of business.

**The Department of Mathematics and Actuarial Science offers:**

1. A Bachelor of Science degree in Actuarial Science
2. A Bachelor of Science degree in Data Science
3. A Bachelor of Science degree in Mathematics
4. A Minor in Applied Probability and Statistics
5. A Minor in Financial Mathematics
6. A Minor in Mathematics
7. A Statistics and Data Analysis Option

## **Actuarial Science (B.S.)**

### **Bachelor of Science in Actuarial Science**

The life of nearly every one is impacted by the work of actuarial experts. Actuarial experts apply mathematical models to improve financial decision-making by evaluating the financial implications of uncertain future events. See the Actuarial Science's web

site: <http://www.aucegypt.edu/sse/math/majmin/Pages/BachelorofScienceinActuarialScience.aspx> for a more detailed description of the work of actuarial experts. The number of certified actuarial experts in Egypt is notoriously low, whereas the demand for actuarial experts is very high. One objective of the program leading to the Bachelor of Science degree is to reduce the huge gap between supply and demand for actuarial experts in Egypt.

To be able to solve the problems of evaluating and measuring risk, an actuarial expert has to be trained in the disciplines of mathematics, probability, statistics, economics, finance, business law, accounting, and marketing. Consequently, the Actuarial Science Program cuts across the School of Science and Engineering and the School of Business.

*What a major in Actuarial Science offers:*

To summarize, there are many reasons why a student might choose to pursue the B.Sc. program in Actuarial Science. The program prepares students for:

- many positions within Egypt, where the demand for actuarial experts in insurance companies, actuarial consulting firms, banks and other financial institutions, as well as government agencies like the Egyptian Financial Supervisory Authority (EFSA), greatly exceed their supply.
- a wide variety of jobs in Egypt, in multi-national companies, and international institutions abroad, where training in mathematics, probability, statistics, economics, finance, business law, accounting, and marketing are essential.
- completing the first five certification examinations jointly offered by the Society of Actuaries and Casualty Actuarial Society, an important step toward actuarial certification and toward obtaining the actuarial license from the Egyptian Financial Supervisory Authority (EFSA).

A total of 130 credits is required for the bachelor's degree in actuarial science. Students may be exempted from the MACT 131/1121 - Calculus I (3cr.) requirement based on high school certificate and score in mathematics or by passing a placement examination. See the Actuarial Science's website <http://www.aucegypt.edu/sse/math/majmin/Pages/BachelorofScienceinActuarialScience.aspx> for a sample schedule for completing the requirements for the B.Sc. degree in Actuarial Science.

The undergraduate actuarial science program is accredited by the Applied and Natural Science Accreditation Commission of ABET

## Core Curriculum (34 credits)

The remaining 6 credit hours required to satisfy the core are fulfilled by the concentration Science (3 crs) and the MACT 495/4980 - Senior Thesis (3 cr.) or MACT 497/4950 - Practical Internship (3 cr.)

Actuarial Science students must take 1 credit hour of Natural Science lab.

## Concentration Requirements (60 credits)

- MACT 131/1121 - Calculus I (3cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- MACT 306/3211 - Applied Probability (3 cr.)
- MACT 307/3223 - Statistical Inference (3 cr.)
- MACT 321/3311 - Introduction to Financial Mathematics (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 407/4331 - Short Term Actuarial Mathematics I (3cr.)
- MACT 408/4332 - Short Term Actuarial Mathematics II (3 cr.)
- MACT 421/4312 - Mathematics of Derivatives Pricing I (3 cr.)
- MACT 422/4313 - Mathematics of Derivatives Pricing II (3 cr.)
- MACT 000/4314 - Financial Modeling (3 cr.)
- MACT 423/4321 - Long-Term Actuarial Mathematics I (3 cr.)
- MACT 424/4322 - Long-Term Actuarial Mathematics II (3 cr.)
- MACT 427/4231 - Applied Regression Methods (3 cr.)
- MACT 428/4232 - Analysis of Time Series Data (3 cr.)

- MACT 429/4233 - Applied Multivariate Analysis (3 cr.)

## Collateral Requirements (24 credits)

- ACCT 201/2001 - Financial Accounting (3 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)
- ECON 301/3021 - Intermediate Macroeconomic Theory (3 cr.)
- ECON 302/3011 - Intermediate Microeconomic Theory (3 cr.)
- FINC 303/2101 - Business Finance I (3 cr.)
- FINC 404/3201 - Investment Analysis (3 cr.)

## Culminating Project/Experience (3 cr.)

MACT 497/4950 - Practical Internship (3 cr.)

or

MACT 495/4980 - Senior Thesis (3 cr.)

## Actuarial Science Electives (9 credits)

Students choose courses from the following list in consultation with their adviser:

- ACCT 202/2002 - Managerial Accounting (3 cr.)
- BADM 203/2001 - Introduction to Business (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)
- ECON 303/3041 - Monetary Economics (3 cr.)
- ECON 318/3081 - Introduction to Econometrics (3 cr.)
- ECON 403/4031 - International Trade (3 cr.)
- FINC 405/3401 - Applied Banking (3 cr.) \*
- FINC 408/3501 - International Finance (3 cr.)
- FINC 414/4301 - Corporate Finance (3 cr.) \*
- FINC 415/4204 - Portfolio Theory and its Applications (3 cr.)
- MACT 304/3143 - Numerical Methods (3 cr.)
- MACT 410/4910 - Guided Studies in Mathematics (1-3 cr.)
- MACT 409/4930 - Selected Topics in Mathematics (3 cr.)
- MACT 411/4931 - Selected Topics in Actuarial Science (3 cr.)
- MACT 497/4950 - Practical Internship (3 cr.)
- MACT 495/4980 - Senior Thesis (3 cr.)
- MACT 000/4990 - Enterprise Risk Management (3 cr.)
- MGMT 307/3201 - Management Fundamentals (3 cr.)
- MGMT 404/4202 - Managing the Human Capital (3 cr.)
- MKTG 302/2101 - Principles of Marketing (3 cr.)

- MKTG 405/3201 - Marketing Research (3 cr.)
  - MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)
  - MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)
  - MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)
- \* Courses highly recommended as electives for students who wish to pursue a career in banking (commercial or investment)

## Data Science (B.Sc.)

The advances in communication and information technologies have given rise to the availability of huge datasets (Big Data). The datasets contain a wealth of knowledge. Data Science is the study of generalizable extraction of knowledge from data. Being a data scientist requires an integrated skill set spanning mathematics, statistics, machine learning, databases and programming languages as well as a good understanding of real-world problem formulation and effective solutions.

Data Science is a new interdisciplinary/multidisciplinary field. It is experiencing very rapid growth due to the availability of huge and complex real-world data. The demand for data science education has been increasing at very large rates. Accordingly, we need to move away from the traditional way of teaching statistics to meet the needs of the modern world for data scientist who can use modern analytic techniques and tools for analyzing data, especially big data.

Data scientists need to be able to deal with the problems associated with the current and future types and amounts of data and to solve the kind of problems associated with them Data scientists need to know how to use modern computer languages and/or packages such as R and Python.

The Data Science Program introduces students to this rapidly growing field and equip them with its basic principles and tools with the main objective of solving real-world problems. Students will learn concepts, techniques and tools they need to deal with various facets of data science practice, including data collection and integration, data editing, exploratory data analysis, predictive modeling, descriptive modeling, data product creation, evaluation, and effective communication. Working with data requires the mastery of a variety of skills and concepts, including many traditionally associated with the fields of probability, statistics, mathematics, and computational science.

The Data Science Program prepares students for positions within Egypt, where the demand for Data Scientists (for example, in banks, other financial institutions, and communication companies) greatly exceed their supply. Also there is a wide variety of jobs in Egypt, in multi-national companies, and international institutions abroad, where training in Data Science (mathematics, probability, statistics, computing science) is essential.

A total of 130 credits is required for the bachelor's degree in Data Science. Students may be exempted from the MACT 131/1121 - Calculus I (3cr.) requirement based on high school certificate and score in mathematics or by passing a placement examination.

## Core Curriculum Requirements (34 credits)

The remaining 6 credit hours required to satisfy the core are fulfilled by the concentration Science (3 crs) and the DSCI 000/4416 - Capstone I (Data Science Senior Project I) (1 cr.) and DSCI 000/4417 - Capstone I (Data Science Project II) (2 cr.). Data Science students must take 1 credit hour of Natural Science lab.

## Concentration Requirements (33 cr.)

- DSCI 000/1411 - Fundamentals of Data Science I (3 cr.)

- DSCI 000/1412 - Fundamentals of Data Science II (3 cr.)
- DSCI 000/3411 - Monte Carlo Simulation (3 cr.)
- DSCI 000/3412 - Machine Learning (3 cr.)
- DSCI 000/3413 - Biostatistics (3 cr.)
- DSCI 000/4411 - Fundamentals of Data Mining (3 cr.)
- DSCI 000/4412 - Introduction to Big Data Technologies (3 cr.)
- DSCI 000/4413 - Analysis of Categorical Data (3 cr.)
- DSCI 000/4414 - Data Visualization (3 cr.)
- DSCI 000/4415 - Machine Deep Learning (3 cr.)
- DSCI 000/4416 - Capstone I (Data Science Senior Project I) (1 cr.)
- DSCI 000/4417 - Capstone I (Data Science Project II) (2 cr.)

## Collateral Requirements (42 credits)

- MACT 131/1121 - Calculus I (3cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 200/2131 - Discrete Mathematics (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 306/3211 - Applied Probability (3 cr.)
- MACT 307/3223 - Statistical Inference (3 cr.)
- MACT 440/4135 - Graph Theory (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 427/4231 - Applied Regression Methods (3 cr.)
- MACT 428/4232 - Analysis of Time Series Data (3 cr.)
- MACT 429/4233 - Applied Multivariate Analysis (3 cr.)
- MACT 497/4950 - Practical Internship (3 cr.)

## Data Science Electives (21 credits)

The 21 elective credits are courses chosen from the following list or by the permission of the Department Chair or the Director of the Data Science Program:

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
- CSCE 321/2202 - Analysis and Design of Algorithms (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)
- CSCE 465/3601 - Artificial Intelligence (3 cr.)
- CSCE 000/4603 - Fundamentals of Computer Vision (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)
- MACT 304/3143 - Numerical Methods (3 cr.)
- MACT 412/4213 - Mathematical Modeling with Applications (3 cr.)
- MACT 495/4980 - Senior Thesis (3 cr.)
- MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)
- MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)



- MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)
  - Applications in different domains or taking courses from other disciplines such as business, computer science, mathematics, sciences (biology, physics, chemistry) and engineering.

## Mathematics, with an option in Statistics & Data Analysis (B.S.)

### Bachelor of Science in Mathematics

The Bachelor of Science degree in Mathematics develops a level of skill that will enable the student to apply his/her knowledge in industry or teaching and prepares the student for advanced study of mathematics and other fields.

More information on Mathematics as a professional activity and on career opportunities is available on the department webpage:

<http://www.aucegypt.edu/sse/math/alumni/Pages/default.aspx>

A total of 130 credits is required for the bachelor's degree in mathematics. Students may be exempted from the MACT 1121 requirement based on high school certificate and score in mathematics or by passing a placement examination.

Appropriate substitutions allow students from most other majors in the School of Science and Engineering to complete the Mathematics major requirements with 15 to 25 additional credits. See the page [http://www.aucegypt.edu/sse/math/Pages/Double\\_Major.aspx](http://www.aucegypt.edu/sse/math/Pages/Double_Major.aspx) for more details.

### Core Curriculum (36 credits)

The science requirements of the core curriculum electives are satisfied by the collateral requirements of the major.

### Concentration Requirements (42 credits)

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- MACT 131/1121 - Calculus I (3cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 232/2124 - Calculus IV (3 cr.)
- MACT 200/2131 - Discrete Mathematics (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 304/3143 - Numerical Methods (3 cr.)
- MACT 306/3211 - Applied Probability (3 cr.)
- MACT 307/3223 - Statistical Inference (3 cr.)
- MACT 401/4125 - Complex-Function Theory (3 cr.)
- MACT 431/4126 - Real Analysis I (3 cr.)
- MACT 403/4134 - Modern Algebra (3 cr.)

### Concentration Electives (21 credits)

To be chosen from the upper level MACT courses in consultation with the advisor. Students majoring in another Science or Engineering program may transfer up to 12 approved credits from their program toward the completion of these 21 credits if double majoring in Mathematics. For more details, see the department's page at: [www.aucegypt.edu/sse/math/Pages/Double\\_Major.aspx](http://www.aucegypt.edu/sse/math/Pages/Double_Major.aspx)

## Collateral Requirements (14 to 16 Credits)

To be chosen among the following:

- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)
- BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab)
- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)

## Electives (15-17 credits)

Courses to be chosen in consultation with the adviser, excluding MACT 1111, MACT 1112 .

## Statistics and Data Analysis Option

Within the bachelor degree in Mathematics, students may choose the Statistics and Data Analysis Option by taking the following courses:

The 21 credits of concentration electives must include:

- MACT 427/4231 - Applied Regression Methods (3 cr.)
- MACT 429/4233 - Applied Multivariate Analysis (3 cr.)

**and a minimum of 9 credits selected from the following:**

- MACT 308/3144 - Linear Programming (3 cr.)
- MACT 310/3145 - Operations Research (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 409/4930 - Selected Topics in Mathematics (3 cr.)
- MACT 410/4910 - Guided Studies in Mathematics (1-3 cr.)
- MACT 412/4213 - Mathematical Modeling with Applications (3 cr.)

## Applied Probability and Statistics Minor

Applied Probability and Statistics are essential tools for analyzing data in various fields. A minor in Applied Probability and Statistics will prepare students and enhance their abilities to understand and solve problems in their own major fields. The minor in Applied Probability and Statistics is also designed to meet a demand by industry and governmental agencies for personnel who are able to utilize appropriate statistical and other quantitative methods to solve problems as diverse as quality control and population dynamics and to facilitate wise decision making in the face of uncertainty.

## Requirements (15 credits):

- MACT 112/1221 - Statistical Reasoning (3 cr.)  
Or MACT 210/2222 - Statistics for Business (3 cr.)
- MACT 427/4231 - Applied Regression Methods (3 cr.)

and either

- MACT 306/3211 - Applied Probability (3 cr.)  
and
- MACT 307/3223 - Statistical Inference (3 cr.)

or

- MACT 317/3224 - Probability and Statistics (3 cr.)

In addition to 3-6 credits from:

- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 429/4233 - Applied Multivariate Analysis (3 cr.)

## Financial Mathematics Minor

This interdisciplinary Minor in Financial Mathematics program allows non-mathematics majors to obtain a basic understanding of how modern mathematics is being applied across a wide spectrum of the financial service industry - investment banks, hedge funds, consulting firms, investment firms, insurance companies, commercial banks, brokerage houses and other corporations.

## Course Structure

To be awarded a minor in Financial Mathematics, a student must successfully complete the following 15 credits:

1. MACT 132/1122 - Calculus II (3 cr.) (*Students may be exempted from the MACT 131 requirement based on high school certificate and score in mathematics or by passing a placement examination.*)
2. MACT 231/2123 - Calculus III (3 cr.)
3. MACT 321/3311 - Introduction to Financial Mathematics (3 cr.)
4. MACT 421/4312 - Mathematics of Derivatives Pricing I (3 cr.)
5. MACT 422/4313 - Mathematics of Derivatives Pricing II (3 cr.)

Students are reminded to work out a feasible study plan for the 5 courses in this minor requirement. In particular, they need to ensure that they have sufficient number of semesters left in the candidature to complete the courses and to note that MACT3311, MACT4312 and MACT4313 are only offered once a year.

**This minor is not awarded with the majors in Mathematics or Actuarial Science.**

## Mathematics Minor

The minor in Mathematics will acquaint non-mathematics majors with the diversity of the field and enhance the student's ability to formulate and solve problems in other disciplines.

### Requirements (15 credits):

For students majoring in the Science & Engineering School:

- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)  
and 3 courses among:
- MACT 232/2124 - Calculus IV (3 cr.)  
and the 300-level and 400-level MACT courses

For students majoring in Economics:

- MACT 112/1221 - Statistical Reasoning (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- ECON 316/3061 - Mathematics for Economists II (3 cr.)
- Two courses from: 300-400 level MACT courses and ECON 416/4061 - Mathematical Economics (3 cr.)

For all the other students:

- MACT 112/1221 - Statistical Reasoning (3 cr.)  
Or MACT 210/2222 - Statistics for Business (3 cr.)
- MACT 131/1121 - Calculus I (3cr.)  
and any 3 MACT courses (excluding MACT 1111 , MACT 1112 and MACT 1930 )

## Department of Mechanical Engineering

### Department of Mechanical Engineering School of Sciences and Engineering

*Professors:* H. Elayat, S. El-Haggar, A. Elimam, A. Esawi, M. Fouad, M. Farag (Director of Engineering Services), L. Gaafar, M. Habib, A. Nassef, H. Salem, A. Serag-Eldin, M. Younan

*Associate Professor:* M. Arafa (chair)

*Assistant Professors:* L. El-Gabry, M. El-Morsi, M. Fawzy, M. Kamel

Mechanical Engineering involves the application of scientific knowledge for the design and manufacturing of devices and mechanical systems that use or transfer mechanical and thermal energies. The mechanical engineer should strive

both to serve the needs of the society without unduly damaging the environment, and to produce devices and systems that use energy and material resources efficiently.

For additional information, go to: [www.aucegypt.edu/sse/meng/Pages/default.aspx](http://www.aucegypt.edu/sse/meng/Pages/default.aspx)

## **Mechanical Engineering, with concentrations in Design, Industrial, Materials and Manufacturing, Mechatronics, and Power (B.S.)**

### **Bachelor of Science**

The educational objectives of the mechanical engineering program are to graduate mechanical engineers who can: practice professionally as team members or leaders in both local and global, multidisciplinary environments; advance their careers in mechanical engineering or other fields through promotions, positions of increasing responsibilities or professional certification; contribute to the welfare of the society, and respond to its needs with consideration of ethical and environmental issues; engage in advanced academic and research careers; and pursue entrepreneurial endeavors.

Students are offered mechanical engineering electives concentrated in five areas: The Design concentration integrates elements of the mechanical engineering program and utilizes modern computer methods to enable the engineer to model, analyze and design mechanical components and systems. The power concentration provides the engineering background for optimum use of energy resources; calculation of energy loads; design, selection and integration of conventional and non-conventional energy systems and components. The Industrial concentration enables the engineer to analyze, design, integrate, automate and manage industrial systems. The Materials and Manufacturing concentration focuses on ways of controlling material composition, treatment, and manufacturing in order to meet design requirements, and achieve desired levels of performance. The Mechatronics concentration focuses on computer programming, automatic control, sensor technology and microprocessor as well as manufacturing techniques.

The undergraduate program in mechanical engineering is accredited by the Engineering Accreditation Commission of ABET

The program is also accredited by the Supreme Council of Egyptian Universities.

Students should consult the course listings and their faculty advisor on a regular basis to ensure that prerequisites for engineering core, concentration and elective courses are met. A model course plan for the Major is provided by the Department.

A student who intends to major in Mechanical Engineering must submit a Major declaration form upon completion of 45 credit hours. A student should declare his/her concentration (s) after completing 80 credit hours and before completing 120 credit hours.

A total of 162 credits is required for the bachelor's degree in mechanical engineering:

### **Core Curriculum (33 credits)**

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 cr.) and the capstone projects MENG 4980 and MENG 4981 (3 cr.)

### **Engineering Core Requirements (52 credits)**

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 214/2104 - Engineering Mechanics II (Dynamics) (3 cr.)
- ENGR 229/2112 - Strength and Testing of Materials (4 cr.)
- ENGR 261/2122 - Fundamentals of Fluid Mechanics (3 cr.)
- ENGR 313/3202 - Engineering Analysis and Computation I (3 cr.)
- ENGR 318/3212 - General Electrical Engineering (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 317/3224 - Probability and Statistics (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)

## Concentration Requirements (53 credits)

- MENG 215/2505 - Mechanical Engineering Drawing (1 cr.)
- MENG 327/3207 - Engineering Materials (3 cr.)
- MENG 339/3209 - Fundamentals of Manufacturing Processes (3 cr.)
- MENG 342/3402 - Quality and Process Control (3 cr.)
- MENG 346/3446 - Engineering and Project Management (3 cr.)
- MENG 355/3505 - Mechanics of Materials (3 cr.)
- MENG 356/3506 - Mechanical Design I (3 cr.)
- MENG 361/3601 - Fundamentals of Thermodynamics (3 cr.)
- MENG 362/3602 - Applied Fluid Mechanics (3 cr.)
- MENG 365/3605 - Applied Thermodynamics (3 cr.)
- MENG 372/3502 - Mechanical Systems (3 cr.)
- MENG 375/3705 - System Dynamics (3 cr.)
- MENG 428/4208 - Selection of Materials and Processes for Design (3 cr.)
- MENG 457/4507 - Mechanical Design II (3 cr.)
- MENG 466/4606 - Heat Transfer (4 cr.)
- MENG 490/4980 - Senior Project I (1 cr.)
- MENG 491/4981 - Senior Project II (2 cr.)
- MENG 497/4950 - Industrial Training (1 cr.)
- PHYS 215/2211 - Introduction to Electronics (3 cr.)
- PHYS 221L/2212 - Electronics Laboratory (2 cr.)

## Concentration Electives (21 credit hours)

Courses must be selected from at least two of the five available concentrations of courses. A minimum of twelve credits must be taken from one concentration as follows:

## Design Concentration:

A minimum of nine credits from courses in group A of the Design concentration and the remaining three credits from courses in either group of the concentration.

### Group A:

- MENG 451/4551 - Computer-Aided Design and Prototyping (3 cr.)
- MENG 453/4553 - Finite Element Method and Applications in Design (3 cr.)
- MENG 455/4565 - Design of Engineering Systems (3 cr.)
- MENG 475/4555 - Applied Vibration Measurements, Analysis and Control (3 cr.)
- MENG 476/4756 - Automatic Control Systems (3 cr.)

### Group B:

- MENG 413/4663 - Design of Renewable Energy Systems (3 cr.)
- MENG 427/4227 - Failure of Mechanical Components (3 cr.)
- MENG 477/4757 - Robotics: Design, Analysis and Control (3 cr.)
- MENG 458/4558 - Integrated Design (3 cr.)
- MENG 439/4239 - Advanced Manufacturing Processes (3 cr.)
- MENG 494/4931 - Selected Topics in Design (3 cr.)

## Industrial Concentration:

Students are required to complete the six credits from group A courses of the Industrial concentration and six credits from its group B courses.

### Group A:

- MENG 341/4440 - Engineering Operations Research (3 cr.)
- MENG 445/4445 - Production and Inventory Control (3 cr.)

### Group B:

- MENG 344/4444 - Work Analysis and Design (3 cr.)
- MENG 441/4441 - Decision Support in Engineering Systems (3 cr.)
- MENG 442/4442 - Reliability Engineering and Risk Analysis (3 cr.)
- MENG 443/4443 - Systems Simulation (3 cr.)
- MENG 447/4477 - Manufacturing System Automation (3 cr.)
- MENG 448/4448 - Facilities Planning (3 cr.)
- MENG 449/4449 - Maintenance Management Systems (3 cr.)

## Materials and Manufacturing Concentration:

A minimum of six credits from group A courses of the Material and Manufacturing concentration and six from its group B courses.

### Group A:

- MENG 421/4221 - Ceramics and Composites (3 cr.)
- MENG 425/4225 - Polymers and Composites (3 cr.)
- MENG 426/4226 - Metals, Alloys and Composites (3 cr.)
- MENG 429/4229 - Nanostructured Materials (3 cr.)

### Group B:

- MENG 427/4227 - Failure of Mechanical Components (3 cr.)
- MENG 432/4232 - Materials, Processing, and Design (3 cr.)
- MENG 436/4932 - Selected Topics in Materials and Manufacturing (3 cr.)
- MENG 439/4239 - Advanced Manufacturing Processes (3 cr.)

## Mechatronics Concentration:

Students are required to complete the nine credits from the courses in group A of the Mechatronics concentration and the remaining three credits from courses in group B.

### Group A:

- MENG 476/4756 - Automatic Control Systems (3 cr.)
- MENG 478/4778 - Microcontrollers and Mechatronics systems (3 cr.)
- MENG 479/4779 - Integrated Design of Electromechanical Systems (3 cr.)

### Group B:

- MENG 439/4239 - Advanced Manufacturing Processes (3 cr.)
- MENG 447/4477 - Manufacturing System Automation (3 cr.)
- MENG 477/4757 - Robotics: Design, Analysis and Control (3 cr.)
- MENG 000/4937 - Selected Topics in Mechatronics (3 cr.)

## Power Concentration

Students are required to complete the six credits from the courses in group A of the Power concentration and the remaining six credits from courses in group B.

### Group A:

- MENG 412/4662 - Power Plant Technology (3 cr.)
- MENG 413/4663 - Design of Renewable Energy Systems (3 cr.)

### Group B:

- MENG 411/4661 - Turbo-Machinery (3 cr.)
- MENG 415/4665 - Internal Combustion Engines (3 cr.)



- MENG 416/4666 - Design of Heating, Ventilation, and Air Conditioning Systems (3 cr.)
- MENG 417/4667 - Refrigeration and Air-conditioning (3 cr.)
- MENG 000/4936 - Selected Topics in Power Engineering (3 cr.)

## Notes:

In addition, a minimum of six credits must be taken from another area of concentration.

Pending approval of department and relevance of topic, only one of the concentration electives may be substituted for by a MENG 4930 course.

Students opting for more than one concentration will take a minimum of twenty four credits, such that the minimum requirements of each area of concentration are satisfied. Common courses may be double-counted.

## General Electives (3 credits)

## Mechatronics

*Coordinator and Minor Advisor:* M. Habib

The minor in Mechatronics provides students with broad understanding of the latest developments of synergized interdisciplinary knowledge, design principles, technologies, and practical skills within the growing field of Mechatronics. It serves students in all majors. The Minor in Mechatronics as a unifying interdisciplinary field enables students with such knowledge and practical experience to develop new and innovative solutions across disciplines for highly emerging technical challenges. It is envisaged that the Minor would attract students to be part of the new era of industrialization, widen their views and understanding, develop creative thinking, and to enable students to look forward to a high quality job satisfaction with enhanced career prospects.

The minor in Mechatronics requires to complete (15) credit-hour courses. Students can select their (15) credit-hour from two pools of courses as follow:

### I. The first pool of courses is under MENG courses.

It is required to select a minimum of (9) credit-hour from the following list:

### Minor core: students must complete the following two courses

- MENG 477/4757 - Robotics: Design, Analysis and Control (3 cr.)
- MENG 479/4779 - Integrated Design of Electromechanical Systems (3 cr.)

### Minor electives: a minimum of 3 credit-hour must be selected from the minor electives

- MENG 375/3705 - System Dynamics (3 cr.)
- MENG 476/4756 - Automatic Control Systems (3 cr.)
- MENG 478/4778 - Microcontrollers and Mechatronics systems (3 cr.)
- MENG 000/4937 - Selected Topics in Mechatronics (3 cr.)

## II. The second pool of courses is under other SSE departments.

A maximum of (6) credit-hour to be selected from the following list:

### For students from ECNG

- ECNG 321/3202 - Automatic Control Systems (3 cr.)
- ECNG 453/4503 - Microcontroller system design (3 cr.)

### For Students from CSCE

- CSCE 427/4602 - Introduction to Artificial Neural Networks (3 cr.)

### For students from PHYS

- PHYS 421/4042 - Quantum Mechanics I (3 cr.)

### For students from PENG

- PENG 471/4223 - Reservoir Simulation and Modeling (2 cr. + 1 cr.)

## Mechanical Engineering (M.Eng.)

The Master of Engineering in Mechanical Engineering at AUC prepares students for higher level professional practice in local and international markets.

### Program Objectives

The objectives of the Master of Engineering Degree are to provide the graduates of the program with:

- A broad knowledge of modern computational and experimental methods in engineering.
- Detailed knowledge in engineering design, materials and manufacturing, industrial engineering, power and mechatronics.
- Awareness of the local and global context in which mechanical engineering is practiced, locally and globally, including economic and business practices, societal needs, and considerations of public health, safety, environment, culture and ethics.
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- A high standard of written and oral communication on technical matters.

### Admission

Admission requirements are the same as those for the Master of Science Program.

## Courses (33 credit hours)

Course work for the Master of Engineering degree requires the completion of a minimum of 33 credit hours as follows:

## I- Engineering and Mechanical Engineering core (21 credits)

Students must complete 21 credits in graduate engineering and mechanical engineering courses. Up to nine ENGR credits from the Engineering Core courses listed under the Master of Science program in Mechanical Engineering may count toward the fulfillment of this core requirement.

## II- Elective Courses (9 credit hours)

Students may elect to take three courses (9 credits). A minimum of two courses must be taken from offerings in mechanical engineering/ engineering disciplines (including ENGR). No more than one 400- level course, not in the student's undergraduate major may be taken for graduate credit, subject to approval of the advisor and department chair.

## III- Capstone project (3 credits)

Students are required to undertake an engineering project approved by the chair of the supervisory committee, which consists of the student advisor and two additional faculty members. A final report that has been reviewed for its technical writing quality is submitted and orally defended in the presence of the supervisory committee.

# Mechanical Engineering (M.Sc.)

The Master of Science program in Mechanical Engineering is administered by the Mechanical Engineering Department. The program offers high quality education that prepares students for advanced academic, research and professional careers in one of the following specializations: Design, Industrial Engineering, Materials and Manufacturing Engineering, Mechatronics and Power.

### Program Objectives

The objectives of the Master of Science Degree in Mechanical Engineering are to provide the graduates of the program with:

- A broad knowledge of modern computational and experimental methods in engineering.
- Extensive knowledge in one of the following specializations: design, industrial engineering, materials and manufacturing or power and mechatronics.
- Deep understanding of the research techniques and data analysis in the area of specialization.
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- A high standard of written and oral communication on technical matters.

### Admission

A candidate for the master's program in Mechanical Engineering must have a degree in engineering. Students who have some deficiency in their undergraduate training but are well-qualified in other respects may be admitted provisionally. The Mechanical Engineering Department may prescribe a program of noncredit work to make up for the deficiency.

## Courses (24 credit hours)

A minimum of eight courses (24 credit hours) is required. The courses are selected with the help of the advisor and approval of the chair from the following categories:

## I- Engineering Core Courses (Minimum 3 credit hours)

All students select at least one out of the following four ENGR core courses:

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

## II- Mechanical Engineering Core Courses (Minimum 6 credit hours)

Students should select a minimum of two courses from one of the following mechanical engineering courses:

- MENG 517/5251 - Engineering Systems Analysis and Design (3 cr.)
- MENG 522/5222 - Materials in Design and Manufacturing (3 cr.)
- MENG 529/5229 - Failure Analysis and Prevention (3 cr.)
- MENG 542/5242 - Total Quality Management (3 cr.)
- MENG 560/5270 - Applied Control, Vibration and Instrumentations (3 cr.)
- MENG 660/6261 - Sustainability of Thermal Systems (3 cr.)

## III- Technical Elective Core Courses (Minimum 9 credit hours in a given area)

Students should select a minimum of three courses from the following elective courses:

- MENG 521/5221 - Advanced Topics in Mechanical Behavior of Engineering Materials (3 cr.)
- MENG 523/5223 - Physical Metallurgy (3 cr.)
- MENG 524/5224 - Electronic Phenomena in Solids (3 cr.)
- MENG 525/5225 - Deformation and Fracture of Materials (3 cr.)
- MENG 526/5226 - Computer Methods in Materials Engineering (3 cr.)
- MENG 527/5227 - Composite Materials: Mechanics, Manufacturing, and Design (3 cr.)
- MENG 528/5228 - Advanced Testing and Characterization Techniques (3 cr.)
- MENG 530/5230 - Nanostructured Materials (3 cr.)
- MENG 531/5231 - Fabrication of Nanomaterials For Films And Devices (3 cr.)
- MENG 532/5232 - Simulation and Modeling for Nanoscale Materials and Systems (3 cr.)
- MENG 534/5234 - Materials for Energy Conversion and Storage (3 cr.)
- MENG 535/5235 - Biomaterials (3 cr.)
- MENG 541/5241 - Integrated Manufacturing Systems (3 cr.)
- MENG 543/5243 - Systems Modeling and Optimization (3 cr.)
- MENG 545/5245 - Production Systems Design (3 cr.)
- MENG 548/5248 - Facilities Planning and Design (3 cr.)
- MENG 553/5253 - Advanced Computer Aided Design (3 cr.)
- MENG 554/5254 - Advanced Stress Analysis in Design and Manufacturing (3 cr.)
- MENG 555/5255 - Analysis and Design of Dynamic Systems (3 cr.)
- MENG 557/5257 - Engineering Design Methodologies (3 cr.)
- MENG 558/5258 - Applied Finite Element Analysis for Engineers (3 cr.)
- MENG 561/5271 - Robotics: Kinematics, Dynamics and Control (3 cr.)

- MENG 562/5272 - Embedded Real Time Systems (3 cr.)
- MENG 563/5273 - Modern Control Design (3 cr.)
- MENG 564/5274 - Autonomous Robotics: Modeling, Navigation and Control (3 cr.)
- MENG 000/5168 - Nuclear Power Plant Engineering (3 cr.)
- MENG 573/5263 - Cogeneration and Energy Storage (3 cr.)
- MENG 575/5265 - CFD and Turbulence Modeling (3 cr.)
- MENG 000/5266 - Solar Radiation and Energy Conversion (3 cr.)

## IV- General Elective Courses (Maximum 6 credit hours)

The courses are selected from a set of graduate courses in all engineering disciplines, physical sciences, social sciences, management and other related graduate or 400-level courses subject to advisor and chair's approval.

## Thesis

Graduate thesis work is an important and required part of the Mechanical Engineering Master of Science degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 5940 , Graduate Thesis Seminar. Students must complete ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for MENG 5981, Graduate Thesis, by the completion of 18 credit hours. Students must register in MENG 5981 continuously and for at least two semesters. The first two registrations in MENG 5981 must be for three credit hours, after that MENG 5981 is taken for one credit hour each semester until completion of the program requirements.

# Department of Petroleum and Energy Engineering

**Department of Petroleum & Energy Engineering**  
**School of Sciences and Engineering**

Professor: A. El Banbi (Chair), M. Enamul Hossain

Professor of Practice: A. Adris ( Associate Provost for Research, Innovation & Creativity), M. Oraby  
 Associate Professor of Practice: M. El Ahmady

Assistant Professors: A. Dahroug, G. Hegazy

Petroleum and Energy Engineering department offers a B.Sc. in Petroleum Engineering. The Department provides an extremely challenging and exciting career involving the discovery and exploration of the earth's energy resources through knowledge of basic sciences, geosciences and petro-sciences. The discovery and production of the primary energy resources, namely fossil fuel and natural gas, will be the focus of this program; related topics include recent advances in exploration, drilling, production, reservoir development, and management. Although the main focus is Petroleum Engineering and Gas Technology, alternative energy resources such as solar, wind, fuel cell, and nuclear technologies will be adequately covered. Knowledge of related environmental issues and resource management along with excellent communication, language and IT skills will give graduates a competitive edge in this fast growing profession. Our primary goal is to produce highly qualified Engineers with the best possible preparation to compete in local, regional, and global energy related job markets, or to continue their education towards higher degrees.

The curriculum has been approved by the Ministry of Higher Education, it is designed to meet the accreditation requirements for both the Supreme Council of Egyptian Universities, and the US Accreditation Board for Engineering and Technology (ABET).

## Petroleum Engineering (B.S.)

### Bachelor of Science

The petroleum engineer is concerned mainly with the exploration, drilling, reservoir and production operations. Economic and environmentally safe petroleum production and processing require the application of engineering principles in addition to a wide spectrum of knowledge including chemistry, geology, physics, and mathematics.

The petroleum engineering program at AUC graduates a petroleum engineer who, within a few years of graduation, meets societal needs in one or more of the following roles:

1. A professional team member to meet local and global petroleum industry demands.
2. A successful member in an academic or research organization or as an entrepreneur.
3. A distinguished member in the petroleum community through promotion or professional development with awareness of ethics and environmental issues.

To provide more depth above that provided by the fundamental petroleum engineering core courses, students are required to select 9 credit hours from among a list of more specialized elective courses.

Students will be admitted to the program either through the AUC admissions office (gate admissions), after satisfying the general admission requirements and grade requirements in mathematics and sciences as declared by the department, or as undeclared and transfer students based on their performance record after successful completion of the criteria courses. Students are advised to consult with the department to ensure that admission criteria have been successfully met.

A total of 162 credits must be successfully completed to be awarded a Bachelor of Science in Petroleum Engineering.

### Core curriculum requirements (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 crs) and the capstone projects

PENG 4980 and PENG 4981

### Engineering and Science core requirements (52 credits)

- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CHEM 105/1005 - General Chemistry I (3 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 214/2104 - Engineering Mechanics II (Dynamics) (3 cr.)
- ENGR 229/2112 - Strength and Testing of Materials (4 cr.)
- ENGR 261/2122 - Fundamentals of Fluid Mechanics (3 cr.)

- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- ENGR 313/3202 - Engineering Analysis and Computation I (3 cr.)
- ENGR 318/3212 - General Electrical Engineering (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- MACT 317/3224 - Probability and Statistics (3 cr.)

## Petroleum core requirements (65 credits)

- SCI 250/2005 - Introduction to Geology (3 cr.)
- PENG 000/2013 - Petroleum Industry Overview (1 cr.)
- PENG 301/3011 - Petroleum Geology and Exploration (3cr.)
- PENG 302/3021 - Reservoir Rock Properties (3 cr.)
- PENG 303/3022 - Petrophysics and Fluids Lab (1 cr.)
- PENG 311/3111 - Drilling Engineering I (3 cr.)
- PENG 313/3112 - Drilling Engineering I Lab (1 cr.)
- PENG 305/3211 - Reservoir Fluids (3 cr.)
- PENG 331/3215 - Reservoir Engineering Fundamentals (3 cr.)
- PENG 333/4224 - Well Testing (2+1 cr.)
- PENG 351/3225 - Natural Gas Engineering (3 cr.)
- PENG 320/3227 - Formation Evaluation (3cr. + 1cr.)
- PENG 321/3310 - Well Completion and Workover (3 cr.)
- PENG 322/3311 - Production Engineering Fundamentals (2 + 1 Lab)
- PENG 323/3321 - Surface Facilities (3 cr.)
- PENG 361/3411 - Thermodynamics (3cr.)
- PENG 411/4121 - Drilling Engineering II (3 cr.)
- PENG 471/4223 - Reservoir Simulation and Modeling (2 cr. + 1 cr.)
- PENG 412/4225 - Secondary and Tertiary Recovery (3 cr.)
- PENG 461/4226 - Petroleum Economics (3 cr.)
- PENG 000/4227 - Reservoir Description and Characterization (3 cr.)
- PENG 000/4320 - Artificial Lift Methods (3 cr.)
- PENG 497/4950 - Industrial Training (1cr.)
- PENG 490/4980 - Senior Project I (1cr.)
- PENG 491/4981 - Senior Project II (2cr.)

## Electives (12 credits)

Students must select four courses (12 credits) out of the following electives.

- PENG 000/4015 - Exploration Methods (3 cr.)
- PENG 000/4125 - Advanced Well Construction (3 cr.)
- PENG 000/4229 - Unconventional Reservoirs (3 cr.)
- PENG 451/4313 - Oil and Gas Transmission and Storage (3 cr.)
- PENG 000/4325 - Well Stimulation (3 cr.)
- PENG 494/4930 - Selected Topics in Petroleum and Energy Engineering (3cr.)

## Petroleum Engineering Minor

Fifteen to Sixteen credit hours are required to earn the minor. Students must take all of the seven credit hours of group A courses, in addition to eight to nine credit hours from group B courses. Students should seek guidance from the Minor Advisor before selecting electives from group B. The advisor is named by the Department of Petroleum and Energy Engineering (PENG).

### Group A: The following courses are required for the Petroleum Engineering minor (7 credits):

- SCI 250/2005 - Introduction to Geology (3 cr.)
- PENG 000/2013 - Petroleum Industry Overview (1 cr.)
- PENG 305/3211 - Reservoir Fluids (3 cr.)

### Group B: 8-9 credits selected from the following:

#### 1- Drilling Engineering Focus (8 credits)

- PENG 302/3021 - Reservoir Rock Properties (3 cr.)
- PENG 303/3022 - Petrophysics and Fluids Lab (1 cr.)
- PENG 311/3111 - Drilling Engineering I (3 cr.)
- PENG 313/3112 - Drilling Engineering I Lab (1 cr.)

#### 2- Production Engineering Focus (9 credits)

- PENG 322/3311 - Production Engineering Fundamentals (2 + 1 Lab)
- PENG 323/3321 - Surface Facilities (3 cr.)
- PENG 461/4226 - Petroleum Economics (3 cr.)

## Petroleum Engineering (M.Eng.)

The Master Degree in Petroleum Engineering prepares graduate students to provide the industry with a workforce equipped with technical skills and research capabilities with the understanding of business, management practices, safety and environment and ethical work habits.

### Program Objectives

The Petroleum Engineering Program Educational Objectives for the Master Programs are:

- Perform an independent petroleum engineering research work that meets the current industry standards and needs
- Provide the students with the optimum design experiences required for graduates to join the industry of petroleum engineering and continue life-long professional development.
- Apply and abide with highest standards of ethics, environmental, and societal requirements in petroleum industry

### Admission Requirements

Full admission may be granted to entering students who have met the minimum criteria for the AUC graduate admission in addition to the following requirements:



- A BSc degree in petroleum engineering or closely related field with an overall grade point average (GPA) of at least 2.75 or its equivalent, and 3.0 or its equivalent in the major.
- The department may prescribe a number of prerequisite courses to make up for any deficiency. The prerequisite will depend on the student background, petroleum industry experience and the formal training obtained in the industry.

## Core courses

### Petroleum Engineering Courses (Minimum 21 credit hours)

**Students select a minimum of seven courses from the Petroleum Courses:**

- PENG 000/5211 - Advanced Drilling (3 cr.)
- PENG 000/5112 - Well Control (3 cr.)
- PENG 000/5221 - Advanced Production Engineering (3 cr.)
- PENG 000/5222 - Petroleum Assets Evaluation (3 cr.)
- PENG 000/5131 - Applied PVT and EOS Modelling (3 cr.)
- PENG 000/5232 - Advanced Well Testing (3 cr.)
- PENG 000/5233 - Enhanced Oil Recovery (3 cr.)
- PENG 000/5134 - Reservoir Management (3 cr.)
- PENG 000/5235 - Compositional Simulation (3 cr.)
- PENG 000/5136 - Advanced Reservoir Simulation (3 cr.)
- PENG 000/5141 - Advanced formation evaluation (3 cr.)
- PENG 000/5142 - Cased-hole logging (3 cr.)
- PENG 000/5243 - Applied Techniques in Unconventional Reservoirs (3 cr.)
- PENG 000/5144 - Geostatistics (3 cr.)
- PENG 000/5251 - Selected Topics in Fundamentals of Petroleum Engineering (3 cr.)
- PENG 000/5252 - Selected Advanced Topics in Petroleum Engineering (3 cr.)
- PENG 000/5253 - Independent Study (3 cr.)
- PENG 000/5254 - Research Guidance Thesis (3 cr.)

## General Elective Courses (Maximum 9 credit hours)

Students may elect to take three courses (9 credits). A minimum of two courses must be taken from offerings in petroleum engineering/engineering disciplines (including ENGR). No more than two 4000 level courses may be taken for graduate credit, subject to approval of the advisor and department chair.

## Capstone Project (3 credit hours)

PENG 000/5255 - Capstone Project (3 cr.)

Students are required to attend the library and writing modules of ENGR 5940 and to undertake an engineering project approved by the chair of the supervisory committee, which consists of the student advisor and two additional faculty members. A final report is submitted and orally defended in the presence of the supervisory committee.

## Petroleum Engineering (M.Sc.)

The Master Degree in Petroleum Engineering prepares graduate students to provide the industry with a workforce equipped with technical skills and research capabilities with the understanding of business, management practices, safety and environment and ethical work habits.

### Program Objectives

The Petroleum Engineering Program Educational Objectives for the Master Programs are:

- Perform an independent petroleum engineering research work that meets the current industry standards and needs
- Provide the students with the optimum design experiences required for graduates to join the industry of petroleum engineering and continue life-long professional development.
- Apply and abide with highest standards of ethics, environmental, and societal requirements in petroleum industry

### Admission Requirements

Full admission may be granted to entering students who have met the minimum criteria for the AUC graduate admission in addition to the following requirements:

- A BSc degree in petroleum engineering or closely related field with an overall grade point average (GPA) of at least 2.75 or its equivalent, and 3.0 or its equivalent in the major.
- The department may prescribe a number of prerequisite courses to make up for any deficiency. The prerequisite will depend on the student background, petroleum industry experience and the formal training obtained in the industry.

## Core Courses

### Engineering Core Courses (Minimum 3 credit hours)

**All students select at least one out of the following four ENGR core courses:**

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### Petroleum Engineering Courses (Minimum 15 credit hours)

**Students select a minimum of five courses from the Petroleum Courses.**

- PENG 000/5211 - Advanced Drilling (3 cr.)
- PENG 000/5112 - Well Control (3 cr.)
- PENG 000/5221 - Advanced Production Engineering (3 cr.)
- PENG 000/5222 - Petroleum Assets Evaluation (3 cr.)
- PENG 000/5131 - Applied PVT and EOS Modelling (3 cr.)
- PENG 000/5232 - Advanced Well Testing (3 cr.)
- PENG 000/5233 - Enhanced Oil Recovery (3 cr.)
- PENG 000/5134 - Reservoir Management (3 cr.)
- PENG 000/5235 - Compositional Simulation (3 cr.)
- PENG 000/5136 - Advanced Reservoir Simulation (3 cr.)
- PENG 000/5141 - Advanced formation evaluation (3 cr.)
- PENG 000/5142 - Cased-hole logging (3 cr.)
- PENG 000/5243 - Applied Techniques in Unconventional Reservoirs (3 cr.)
- PENG 000/5144 - Geostatistics (3 cr.)
- PENG 000/5251 - Selected Topics in Fundamentals of Petroleum Engineering (3 cr.)

- PENG 000/5252 - Selected Advanced Topics in Petroleum Engineering (3 cr.)
- PENG 000/5253 - Independent Study (3 cr.)

## General Elective Courses (Maximum 6 credit hours)

The courses are selected from a set of graduate courses in all engineering disciplines, physical sciences, and other related graduate or 4000 level courses subject to advisor and chair's approval.

## Research Guidance Thesis (9 credit hours)

The thesis work will include 3 credit hours of Graduate Seminar (ENGR 5940) and 6 credit hours of Research Guidance Thesis (PENG 5254).

Research guidance thesis work is an important and required part of the Petroleum Engineering Master of Science degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Students must complete ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for PENG 5254, Research Guidance Thesis, by the completion of 18 credit hours. Students must register in PENG 5254 continuously and for at least two semesters. The first two registrations in PENG 5254 must be for three credit hours, after that PENG 5254 is taken for one credit hour each semester until completion of the program requirements.

# Department of Physics

## Department of Physics

### School of Sciences and Engineering

*Professors:* S. Arafa, S. El-Sheikh, H. Omar, A. Shaarawi, S. Sedky

*Associate Professors:* E. Abdel-Rahman, A. El Fiqi, E. Soliman (Chair)

*Assistant Professors:* K.Addas, M.AIFiky, N. Allam, J. El Rifai, A. Galal, M. Swillam

Physics is the most fundamental of the Physical Sciences. Physics lead to a deepened understanding of the phenomena in the world around us. The discipline of Physics is a training of the mind, and a methodology for approaching and solving problems. The significance of Physics is manifested in its accomplishments in the development of the Scientific Method as well as providing an important component of all physical sciences and engineering disciplines.

Physics has always attracted special students, challenged by modern theories that shaped and are still shaping our understanding of the universe like the theory of relativity, quantum mechanics, superconductivity and particle physics; just to name a few. A degree in Physics leaves one poised to enter many professions that include but are not limited to traditional physics. The discipline of Physics teaches skills that are transferable to many other professions, including electronics, computer and oil industries. These transferable skills include: mathematical modeling, problem solving, designing experiments, interpretation of experimental data, reflecting on answers before trusting them, research experience, laboratory techniques and communication skills.

## Physics, with a specialization in Solar Energy (B.S.)

**Bachelor of Science**

The undergraduate program in Physics is designed to provide students with a thorough and flexible training in the fundamental aspects of classical and modern physics. Lecture material is reinforced and complemented by closely integrated laboratory work, and the varied course offerings provide several options from which students may choose according to their interests and abilities.

Physics students can either obtain a bachelor's degree in Physics or a bachelor's degree in Physics with a specialization in Solar Energy.

The Solar Energy specialization is in alignment with both national and international trends that emphasize the importance of renewable energy in general and solar energy in particular. While retaining the fundamentals of the conventional degree in Physics, this specialization provides students with basic and applied knowledge in the solar energy field.

A student who intends to major in Physics or to change from any other major must successfully complete the following courses with a minimum average GPA of 2.5: PHYS 1011; PHYS 1012; PHYS 1021; PHYS 1022; MACT 1122.

A total of 132 credit hours are required for the bachelor's degree in Physics distributed as follows:

## Core Curriculum (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 cr.) and the capstone projects PHYS 4980 (1 cr.) and PHYS 4981 (2 cr.)

## Concentration Requirements (43 credits)

- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- PHYS 204L/2222 - Optics Laboratory (1 cr.)
- PHYS 211/2041 - Foundations of Modern Physics (3 cr.)
- PHYS 000/2042 - Modern Physics Laboratory (1 cr.)
- PHYS 214/2221 - Waves and Optics (3 cr.)
- PHYS 215/2211 - Introduction to Electronics (3 cr.)
- PHYS 221L/2212 - Electronics Laboratory (2 cr.)
- PHYS 279/3241 - Computational Methods in Physics (2 cr. + 1 cr.)
- PHYS 311/3031 - Thermodynamics and Statistical Mechanics (3 cr.)
- PHYS 312/3013 - Theoretical Mechanics (3 cr.)
- PHYS 316/3023 - Electromagnetic Theory (3 cr.)
- PHYS 321L/3052 - Nuclear Physics Lab (1 cr.)
- PHYS 322L/3232 - Solid-State Physics Lab (2 cr.)
- PHYS 325/4231 - Introduction to Solid-State Physics (3 cr.)
- PHYS 421/4042 - Quantum Mechanics I (3 cr.)
- PHYS 404L/4225 - Photonics and Optical Communication Laboratory (1 cr.)

## Collateral Requirements (22 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 232/2124 - Calculus IV (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)

## Thesis Requirement (3 credits)

- PHYS 401/4980 - Research Skills (1 cr.)
- PHYS 000/4981 - Senior Thesis (2 cr.)

## General Electives (at most 12 cr.)

## Collateral Electives (at most 6 cr. of SSE courses)

## Concentration Electives (at least 13 cr.)

For the concentration electives of BS in Physics, the student has to complete at least 13 cr. chosen from PHYS 4910 , PHYS 4930 , groups A, B, C

For the concentration electives of BS in Physics with Solar Energy specialization, the student has to complete at least 13 cr. chosen from group B and at least 6 cr. chosen from group C

PHYS 402/4910 - Independent Study (1-3 cr.)

PHYS 415/4930 - Selected Topics in Physics (3 cr.)

## Group A

- PHYS 000/3071 - General Relativity and Cosmology (3 cr.)
- PHYS 000/4043 - Quantum Mechanics II (3 cr.)
- PHYS 413/4051 - Nuclear and Particle Physics (3 cr.)

## Group B

- PHYS 412/4233 - Semiconductor Physics (3 cr.)
- PHYS 000/4241 - Introduction to Solar Energy (3 cr.)
- PHYS 000/4242 - Introduction to Nanophysics (3 cr.)
- PHYS 000/4243 - Physics of Solar Energy Conversion Nanosystems (3 cr.)
- PHYS 000/4244 - Introduction to Nanotechnology (3 cr.)
- PHYS 323L/4234 - Solar Energy Lab (1 cr.)

## Group C

- PHYS 414/4224 - Photonics (3 cr.)
- PHYS 314/3223 - Advanced Optics (3 cr.)

- PHYS 416/4281 - Experimental Methods in Physics (3 cr.)

## Physics Minor

The minor in physics is designed to provide students majoring in science, computer science or engineering with the opportunity of complementing their major disciplines with a series of courses designed to provide in-depth appreciation of physics.

### Requirements (17 credits)

Students have to complete the following courses (8cr.)

- PHYS 204L/2222 - Optics Laboratory (1 cr.)
- PHYS 211/2041 - Foundations of Modern Physics (3 cr.)
- PHYS 214/2221 - Waves and Optics (3 cr.)
- PHYS 000/2042 - Modern Physics Laboratory (1 cr.)

And a minimum of 9 credits from the following:

- PHYS 311/3031 - Thermodynamics and Statistical Mechanics (3 cr.)
- PHYS 312/3013 - Theoretical Mechanics (3 cr.)
- PHYS 316/3023 - Electromagnetic Theory (3 cr.)
- PHYS 321L/3052 - Nuclear Physics Lab (1 cr.)
- PHYS 322L/3232 - Solid-State Physics Lab (2 cr.)
- PHYS 325/4231 - Introduction to Solid-State Physics (3 cr.)
- PHYS 413/4051 - Nuclear and Particle Physics (3 cr.)
- PHYS 421/4042 - Quantum Mechanics I (3 cr.)

## Physics (M.Sc.)

The Master of Science program in physics provides, along with a deep and solid foundation in basic physics, theoretical and experimental skills that are transferable to many professions besides the traditional physics research careers. These skills, acquired within the main stream of study in theoretical and condensed matter physics, include mathematical modeling, instrumentation and experiment design, and general laboratory and research techniques.

A total of 33 credit hours is required for the Master of Science degree. This consists of 24 credit hours of courses and 9 credit hours of thesis work.

### Admission

A Bachelor's degree in physics or a related field, with a minimum GPA of 3.0 out of 4.0, is required for admission into the physics master's program. Admission is also subject to the general university requirements for the graduate program. For those students whose grade records indicate promising ability, but who otherwise did not have an adequate preparation in physics, admission may be granted under the requirement that remedial courses will be taken.

### Courses (24 credit hours)

The program of study is planned with the faculty advisor; and should include 15 credit hours of core courses, 3-6 credit hours of core elective courses, and 3-6 credit hours of Physics electives.

## Core Courses (15 credit hours)

- PHYS 504/5013 - Classical Mechanics (3 cr.)
- PHYS 502/5023 - Classical Electrodynamics I (3 cr.)
- PHYS 506/5043 - Advanced Quantum Mechanics (3 cr.)
- PHYS 501/5061 - Mathematical Physics (3 cr.)
- PHYS 507/5242 - Computational Physics (3 cr.)

## Core Elective Courses (3-6 credit hours)

Choice of courses with consultation of advisor.

- PHYS 509/5032 - Advanced Thermodynamics and Statistical Mechanics (3 cr.)
- PHYS 508/5282 - Advanced Experimental Techniques (3 cr.)
- PHYS 510/5235 - Solid State Physics I (3 cr.)
- PHYS 602/6025 - Classical Electrodynamics II (3 cr.)

## Physics Electives (3-6 credit hours)

A maximum of 3 credit hours of the physics electives can be taken from graduate level courses in other related areas subject to the advisors' approval.

- PHYS 512/5236 - Advanced Semiconductor Physics (3 cr.)
- PHYS 513/5237 - Solid State Physics II (3 cr.)
- PHYS 549/5024 - Fundamentals of Microwaves (3 cr.)
- PHYS 556/5277 - MEMS/NEMS Technology and Devices (3 cr.)
- PHYS 561/5910 - Independent Studies (1-3 cr.)
- PHYS 562/5930 - Selected topics in Physics (3 cr.)
- PHYS 641/6225 - Integrated Photonics (3 cr.)
- PHYS 642/6243 - Computational Electromagnetics (3 cr.)

## Thesis (9 credit hours)

Each student must submit a thesis topic that has been approved by a faculty supervisor, normally after acquiring 12 credit hours of course work. Various research topics are discussed in SCI 000/5940 - Graduate Thesis Seminar (3 cr.). Students must complete SCI 000/5940 - Graduate Thesis Seminar (3 cr.) before registering for thesis credits. To ensure adequate faculty consultation, two semesters of the PHYS 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.) are required. After that, the course may be taken for one credit hour each semester until completion of the program requirements.

- SCI 000/5940 - Graduate Thesis Seminar (3 cr.)
- PHYS 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)

## Physics (Graduate Diploma)

The graduate diploma in physics is directed at providing the student with advanced background in areas such as computational physics, mathematical modeling, laboratory techniques, instrumentation, experiment design, and research techniques. A total of 18 credit hours (6 courses) is required for the diploma.

### **Admission**

Admission requirements are the same as those for the M. Sc. program.

## **Courses (18 credits)**

The courses may be selected from the 500-level physics courses. No more than two 400-level courses, not previously taken, may be considered for credit. Successfully completed 500-level courses in the diploma program will fulfill master's degree requirements should the student subsequently be admitted into the master's degree program. The diploma program may be completed in one academic year, and no thesis or qualifying examination is required.

## **Biotechnology Program**

Director:*Professor:* A. Amleh (BIOL)

*Steering Committee:Professors:* H. Azzazy (CHEM), H. El-Dorry (BIOL), H. El Fawal (SSE dean and BIOL), R. Siam (BIOL chair)

*Associate professors:* A. Moustafa (BIOL)

*Assistant professors:* A. Abdel Latif (BIOL), W. Fouad (BIOL)

## **Biotechnology (M.Sc.)**

The Master of Science program in biotechnology provides postgraduate education to prepare students for a career in biotechnology through the construction of a firm foundation in the science and engineering of biotechnology and to provide an introduction to bioentrepreneurship.

A total of 33 credit hours is required for the Master of Science degree. This consists of 24 credits hours of courses, 6 credit hours of thesis work, and 3 credit hours of seminar.

### **Program Objectives**

The objectives of the Master of Science in Biotechnology are:

1. To introduce students to a combination of fundamentals and frontline applications in the field of biotechnology.
2. To introduce students to regulatory affairs, intellectual property issues, and ethics related to different aspects of biotechnology.
3. To introduce students to principles and requirements of bio-entrepreneurship.
4. To provide the students with a deep understanding of the research techniques and data analysis in the area of specialization.
5. To train students to solve biotechnology-related problems, think critically, function well in a team, and communicate effectively.
6. To train students at a high standard of written and oral communication skills on technical matters

### **Admission**

A Bachelor's degree in sciences or engineering, with a minimum GPA of 3.0 out of 4.0, is required for admission into the biotechnology master's program. Admission is also subject to the general university requirements for the graduate



program. For those students whose grade records indicate promising ability, but who otherwise did not have an adequate preparation in sciences or engineering, admission may be granted under the requirement that remedial courses will be taken.

## Courses (24 credits)

The program of study is planned with the faculty advisor, and should include 12 credit hours of core courses and 12 credit hours of elective courses.

### Biotechnology Core Courses (12 credit hours)

To be chosen from the following courses:

- BIOT 501/5201 - Biochemistry (3 cr.)
- BIOT 502/5202 - Cell and Molecular Biology (3 cr.)
- BIOT 503/5203 - Biotechnology (3 cr.)
- BIOT 504/5204 - Experimental Biotechnology (3 cr.)
- BIOT 505/5205 - Basics of Bioentrepreneurship (3 cr.)
- BIOT 521/5206 - Fundamentals of Bioinformatics (3 cr.)

### Biotechnology Electives Courses (12 credit hours)

To be chosen from the following list of courses:

- BIOT 531/5207 - Molecular Diagnosis (3 cr.)
- BIOT 541/5208 - Molecular Genetics (3 cr.)
- BIOT 511/5211 - Bioengineering (3 cr.)
- BIOT 543/5210 - Microbial Biotechnology (3 cr.)
- BIOT 551/5930 - Selected Topics in Biotechnology (3 cr.)
- BIOT 604/6204 - Model Systems in Cancer Research (2 cr. + 1 cr. lab)
- BIOT 620/6206 - Computational Genomics and Transcriptomics (3 cr.)
- BIOT 621/6207 - Systems and Computational Biology (3 cr.)
- BIOT 601/6930 - Current Topics in Biotechnology (3 cr.)

## Notes:

Students may also take a maximum of one 400-level course in sciences or engineering, or other related areas subject to their advisor's approval.

## Thesis (9 credit hours)

Each student must submit a thesis topic that has been approved by a faculty supervisor normally after acquiring 12 credit hours of course work. Various research topics are discussed in SCI 5940 graduate thesis seminar. Students must complete SCI 5940 before registering for thesis credits. To ensure adequate faculty consultation, two semesters of the graduate thesis course (BIOT 5980) are required. After that, the course may be taken for one credit hour each semester until completion of the program requirements.

- BIOT 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)

# Doctorate of Philosophy (Ph.D.) Program

## Applied Sciences, with specializations in Biotechnology, Chemistry, Computer Science, Global Public Health and Nanotechnology (Ph.D.)

Director: A. Essawi

Steering Committee: M. Arafa, H. El Fawal, M. Habib, T. Shoeib

Associate professor: K. Addas, A. Amleh, A. El Gendy, M. Moustafa, K. Seddik

### Doctor of Philosophy in Applied Sciences

The Ph.D. in Applied Sciences is an interdisciplinary program that applies modern approaches from the experimental, natural and life sciences in conjunction with theoretical and computational methods from the disciplines of engineering, mathematics and computer science to the solution of advanced problems of fundamental importance. The Ph.D. program in Applied Sciences emphasizes the application of research methods and procedures to advanced areas of importance in the sciences and technology. The program builds on the premise that advancing the applied sciences and technology must be based on fundamental comprehension of the various disciplines, while continually being responsive to the needs of new technologies, and the interdisciplinary nature of the modern scientific enterprise. This program will be administered by a committee which has a representation of faculty from various graduate programs in the School of Sciences and Engineering.

This program offers a Ph.D. degree in Applied Sciences with specializations in:

- Biotechnology,
- Chemistry,
- Computer Science,
- Global Public Health,
- Nanotechnology.

### Admission Requirements

- M.Sc. in an Engineering or Science discipline
- Demonstrated proficiency in English language as determined by AUC graduate admissions
- Obtain an acceptable score in the Graduate Record Exam (GRE)

### Program Objectives

The mission of the Ph.D. program in Applied Sciences and Engineering is to provide in-depth training to students in the natural sciences, modern engineering, and computer science and in the conduct of original research leading to a doctoral dissertation.

The primary goal of the program is to provide students with an opportunity to contribute to the advancement of knowledge in the field of applied sciences and engineering. The program is aimed at providing students with the opportunity to develop their professional knowledge and expertise to a high calibre and to qualify for leadership positions in teaching, in research, in administration and management and in policy analysis and program development. The program caters to demands of industry and research institutes and places a strong emphasis on original thinking, professional behavior and ethical conduct. The objectives of the program are for students to acquire

1. A broad analytic understanding of advanced experimental, theoretical and computational methods in the applied sciences and engineering
2. Substantive knowledge of some field or area of practice (e.g., nanotechnology, biotechnology, computer science, environmental engineering, etc.).

3. Competence to conduct independent, empirical research that extends the knowledge base of the field of interest.
4. Ability to generate new ideas, convince others that their ideas are worth pursuing, do the necessary research to demonstrate that their ideas are viable, and communicate the results of their research in the public domain.

### **Program Outcomes**

Upon completing the degree requirements for the Ph.D. Program in Applied Sciences and Engineering graduating students should have the ability to:

1. Pursue a career in academia in teaching and/or research.
2. Pursue a career in industrial research and development (R&D).
3. Identify well-defined science and/or engineering problems of importance to the profession or the community, as well as generate new ideas and approaches to resolve such problems.
4. Apply advanced experimental, analytical and computational techniques to solve complex science problems.
5. Convince others that their ideas are worth pursuing and explore funding opportunities for their research.
6. Initiate scientific collaborations schemes that advance their research endeavors.
7. Successfully communicate their results to constituencies of various technical backgrounds and fields of specialty.
8. Make significant contributions to their field of specialization and profession through their own continued research, writing, teaching, and practice.
9. Implement the code of ethics within the study and work environments.

### **Doctoral of Philosophy Degree Requirements:**

Students going through this program are expected to successfully complete the following requirements:

1. **Pass the required course work with a GPA 3.0 or higher:** This ensures the breadth of knowledge of the Ph.D. student.
2. **Pass a Qualifying Examination:** This signifies that course work is completed and that the student has sufficient background knowledge in her/his field of specialization.
3. **Present and defend a proposal of the intended research work:** This demonstrates that the candidate has defined her/his research problem and is capable of identifying the research methodology that she/he will adopt.
4. **Submit a written Dissertation and defend it in a final Oral Defense:** This marks the completion of the requirements for the Ph.D. degree.

### **Doctoral Coursework:**

As part of the process of achieving candidacy, a doctoral student must complete a set of courses known as the doctoral candidacy coursework. It includes at least thirty-six (36) credit hours of relevant graduate coursework beyond the bachelor's degree, of which at least eighteen (18) credit hours must be earned at AUC. Students who change their major specialization from that used for their master's degree to a new specialization for their Ph.D. degree may have to take more than thirty-six (36) hours to fulfill the course requirements. Because of the interdisciplinary nature of the program and in order to ensure sufficient breadth of study, the program is designed to include required core coursework in areas outside one's main specialization. In addition, the student must complete 3 credit hours of Seminar courses and register for thirty-three (33) credit hours of Dissertation research work. Courses for each specialization will be listed at the 5000 and 6000 levels in addition to remedial courses to be taken at the 4000 level whenever deemed necessary.

### **The Academic Advisor and the Research Advisory Committee:**

The academic advisor is determined by the specialization of the student, and is particularly important for assistance in the preliminary course planning of a student's Ph.D. program. Each specialization has at least one faculty member advisor (usually the Graduate Program Director of the discipline). The academic advisor will be available to the student to help in her/his preliminary choice of the courses. As the student progresses in the program she/he chooses the members of the Research Advisory Committee, which consists of the Chair of the Committee (Dissertation supervisor) and at least two other members. This committee plays a greater role in finalizing the courses for the student's Plan of Study and in advising her/his research work. It is the responsibility of the student to find an AUC faculty member

willing to serve as the Chair of the Research Advisory Committee and to choose in consultation with her/him the other members.

#### **Ph.D. Plan of Study for Qualification and Candidacy:**

The Ph.D. Plan of Study is intended to help the student select courses and will ensure that she/he has an academic program that meets the Ph.D. coursework requirements. The Plan of Study will also allow the students to identify a sequence of courses that meets her/his professional objectives. A preliminary Plan of Study will be drafted in consultation with the student's academic advisor and should be submitted before the student signs up to take the Ph.D. Qualifying Examination.

As the student advances in the program, she/he should choose the members of her/his Research Advisory Committee. The final plan of Study will be drafted in consultation with the Research Advisory Committee. A final up-to-date copy must be submitted before the student applies to take the qualifying exam.

The Plan of Study must contain a listing of the courses the student has taken or intends to take to satisfy the qualification coursework requirements and must constitute a coherent program within the scope of the chosen specialization. It is the student's responsibility to make sure that all requirements are met. Any departure from the requirements must be requested by written petition, which should normally flow starting from the supervisor, to the director of the specialization area, then the Associate Dean for Graduate Studies and Research for final approval.

#### **Doctoral Qualifying Examination:**

The purpose of the Ph.D. Qualifying Examination is to evaluate the student's ability to analyze problems and to synthesize solutions. It should demonstrate the ability of the student to interrelate basic concepts and ideas in her/his field of study. At least twelve (12) weeks prior to the examination, the student must submit a request indicating her/his intention to take the examination. The Ph.D. Qualifying Examination will be administered by an Examining Committee in each specialization. Following the examination, the Examining Committee will submit an evaluation of the student's performance to Office of the Associate Dean for Graduate Studies and Research. The qualifying examination is typically taken in the semester immediately following the completion of the coursework credit hours, but no later than during the fourth semester since admission into the program. Any deviation from this schedule must be made by written petition and subsequent approval as indicated earlier.

#### **The Proposal Defense:**

Typically in the semester immediately after the successful completion of the qualifying examination, the student has to write a research proposal under the guidance of the Dissertation supervisor and will give a Proposal Presentation in front of the Research Advisory Committee. Upon the acceptance of the proposal by the Research Advisory Committee, the student makes an oral presentation of the research proposal, including relevant background material. During and after the presentation, the committee will explore the research project with the student in order to provide guidance and make an evaluation of its suitability. They will report their recommendation to the Office of the Associate Dean for Graduate Studies and Research. In case the student does not present an acceptable proposal, the student must take immediate steps to refine the proposal in consultation with the dissertation supervisor. The Proposal Presentation requirement are completed when the Research Advisory Committee chair reports a successful proposal presentation to the office of the associate dean for graduate studies and research at the School of Sciences and Engineering.

Following acceptance of the proposal, the Dissertation Defense Committee is finalized. This consists of the three members of the Research Advisory Committee in addition to two external examiners. The external examiners should be well qualified and highly-established experts in the candidate's field of study. The external examiner will be selected in consultation with the supervisor, the Research Advisory Committee and the director of the specialization area and approved by the PhD program director and the associate dean for graduate studies and research at the School of Sciences and Engineering.

**Publications Requirement:**

The candidate is expected to have as a minimum two accepted peer-reviewed international research publications before the dissertation defense, one of which must be a journal publication. The publications should be originating from the PhD (not from a previous MSc).

**The Dissertation and Its Defense --- Final Oral Defense:**

Upon completion, the dissertation will be sent to the external examiners for evaluation. The examiners will be contacted by the PhD program director two months before the final oral defense and will be asked to provide detailed written evaluations of the dissertation. The examiners' recommendations will inform the decision of the PhD program director and the associate dean for graduate studies and research on whether the student proceeds to final oral defense or whether major revisions - including additional work - are needed. Copies of the external examiners reports will be shared with the student before the defense in order to have them addressed. The student will defend the dissertation in an open examination before the committee. The remote attendance of an international external examiner residing abroad in the final oral defense is permitted. Each member of the Dissertation Defense Committee will submit a written evaluation of the dissertation after the Oral Defense. Following the successful oral defense, the student must consult with the dissertation supervisor about any changes required by the committee, and must address these changes before final submission of the dissertation to the school dean.

**Course and Research Requirements**

Minimum number of credit hours beyond the B.Sc. degree: 72

Dissertation hours 33 (BIOT 6980, CHEM 6980, CSCE 6980, NANO 6980)

Seminar hours 3

Course hours 36 (See below)

The required number of semester credit hours of coursework to be taken for the Ph.D. degree is dependent upon the M.Sc. degree and is determined by the academic advisor or program director of the student at the time of admission. At least eighteen (18) credit hours of course work must be earned at AUC.

**Case 1: M.Sc. from AUC**

**Case 1A:** M.Sc. in the same Applied Sciences discipline from AUC.

A candidate may receive up to 24 hours of credit to be counted towards the Ph.D. degree

**Case 1B:** M.Sc. in a different Applied Sciences or Engineering discipline from AUC.

A candidate may receive up to 18 hours of credit to be counted towards the Ph.D. degree

**Case 2: M.Sc. achieved outside of AUC**

**Case 2A:** M.Sc. in the same Applied Sciences discipline achieved outside AUC.

A candidate may receive up to 18 hours of credit to be counted towards the Ph.D. degree

**Case 2B:** M.Sc. in a different Applied sciences or Engineering discipline achieved outside AUC.

A candidate may receive up to 12 hours of credit to be counted towards the Ph.D. degree

A plan of study will be developed under guidance of the academic advisor of the student at the time of admission and may be modified later on by her/his Research Advisory Committee. Courses are to be selected from the following, noting that at least eighteen credit hours of course work must be earned at AUC as earlier indicated:

**I. Core Courses**

Core courses are selected from an area outside of the specialization of the student.

**Admission Case 1A and 1B:** at least 3 credit hours.

**Admission Case 2A and 2B:** at least 6 credit hours.

- BIOT 501/5201 - Biochemistry (3 cr.)
- BIOT 521/5206 - Fundamentals of Bioinformatics (3 cr.)
- CHEM 502/5202 - Organometallics (3 cr.)
- CHEM 503/5203 - Advanced Organic Chemistry (3 cr.)
- CHEM 504/5204 - Methods of Structure Determination (3 cr.)
- CSCE 565/5261 - Advanced Artificial Intelligence (3 cr.)
- CSCE 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 561/5263 - Knowledge Engineering (3 cr.)
- CSCE 664/6261 - Advanced Data Mining (3 cr.)
- ECNG 510/5210 - Advanced Solid-State Devices (3 cr.)
- ECNG 520/5231 - Advanced Digital Communications (3 cr.)
- ENGR 000/5101 - Cross Talk: Implementation Science and Engineering (3 cr.)
- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENVE 562/5251 - Unit Operations in Environmental Engineering (3 cr.)
- NANO 502/5202 - Simulation and Modeling for Nanoscale Materials and Systems (3 cr.)
- NANO 503/5203 - Advanced Testing and Characterization Techniques (3 cr.)
- NANO 504/5204 - Fabrication of Nanomaterials For Films And Devices (3 cr.)
- MACT 604/6111 - Advanced Numerical Methods (3 cr.)
- MACT 605/6121 - Advanced Probability with Engineering Applications (3 cr.)
- MENG 543/5243 - Systems Modeling and Optimization (3 cr.)
- MENG 681/6241 - Stochastic Simulation (3 cr.)
- PHYS 502/5023 - Classical Electrodynamics I (3 cr.)
- RCSS 504/5204 - Applied Estimation (3 cr.)
- RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)
- BIOT 621/6207 - Systems and Computational Biology (3 cr.)
- PHDS/PHDE 612/6216 - Design and analysis of Experiments (3 cr.)

## II- Specialization Courses

Dependent on the admission status, the student will take the following number of credit hours in their relevant area of specialization:

### Admission case 1:

Case 1A: at least 6 credit hours.

Case 1B: at least 12 credit hours.

### Admission case 2:

Case 2A: at least 9 credit hours.

Case 2B: at least 12 credit hours.

5000-level masters courses offered by the graduate programs of Biotechnology (BIOT), Chemistry (CHEM), Computer Science (CSCE), Nanotechnology (NANO) and Physics (PHYS) are considered specialization courses. At least one of the courses taken in the specialization must be a 6000-level course relevant to the student's specialization from the following list:

- BIOT 601/6930 - Current Topics in Biotechnology (3 cr.)
- BIOT 602/6931 - Reading and Conference Course (3 cr.)
- BIOT 604/6204 - Model Systems in Cancer Research (2 cr. + 1 cr. lab)
- BIOT 620/6206 - Computational Genomics and Transcriptomics (3 cr.)
- CHEM 603/6103 - Bioseparation Processes for Food and Pharmaceutical Industries (3 cr.)
- CHEM 615/6105 - Principles and Applications of Mass Spectrometry (3 cr.)
- CHEM 000/6107 - Chemistry of Natural and Synthetic Polymers (3 cr.)
- CHEM 000/6910 - Independent Study in Chemistry (3 cr. max.)
- CHEM 000/6930 - Advanced Selected Topics in Chemistry (3 cr.)
- CSCE 642/6231 - Mobile and Pervasive Computing (3 cr.)
- CSCE 692/6930 - Advanced Selected Topics in Computer Science (3 cr.)
- ECNG 661/6211 - Nanoscale CMOS (3 cr.)
- NANO 621/6121 - Nanophotonics (3 cr.)
- NANO 630/6230 - Biomaterials (3 cr.)
- NANO 642/6242 - Nanocatalysis (3 cr.)
- NANO 505/5205 - Nanochemistry (3 cr.)
- NANO 640/6240 - Nanoporous Materials (3 cr.)
- PHYS 602/6025 - Classical Electrodynamics II (3 cr.)
- PHYS 641/6225 - Integrated Photonics (3 cr.)
- PHYS 642/6243 - Computational Electromagnetics (3 cr.)
- PHYS 662/6930 - Advanced Selected Topics in Physics (3 cr.)

### III - Dissertation and Seminars (Minimum of 36 credit hours)

Dissertation work includes completion of:

- Graduate Thesis Seminar 3cr.

Research Dissertation Guidance, a minimum of 33 cr. (BIOT 6980, CHEM 6980, CSCE 6980, or NANO 6980)

A student may register for up to 12 research dissertation guidance credits while conducting research at an entity outside AUC. Conducting research outside AUC is subject to recommendation from the research advisory committee of the student, and an approval of the PhD program director, as per the latest PhD guidelines. The dissertation supervisor must be fully involved in any such research. Additionally, evidence of demonstrable collaboration between the dissertation supervisor and the entity outside AUC where this research is to be conducted, as well as the contribution of this external entity to this research, must be provided by the dissertation supervisor to the PhD program director prior to the proposal defense.

After completing 33 credit hours of dissertation, the course may be taken for one credit hour each semester until completion of the program requirements.

A PhD guidelines manual will detail advising, the qualifying examination, the proposal defense, and the dissertation defense.

## **Engineering, with specializations in Construction Engineering, Electronics and Communications Engineering, Environmental Engineering, Mechanical Engineering and Robotics, Control & Smart Systems (Ph.D.)**

Director: A. Essawi

Steering Committee: M. Arafa, H. El Fawal, M. Habib, T. Shoeib

Associate professor: K. Addas, A. Amleh, A. El Gendy, M. Moustafa, K. Seddik

### **Doctor of Philosophy in Engineering**

The Ph.D. in Engineering is an interdisciplinary program that applies modern approaches from the experimental, natural and life sciences in conjunction with theoretical and computational methods from the disciplines of engineering, mathematics and computer science to the solution of advanced problems of fundamental importance. The Ph.D. program in Engineering emphasizes the application of research methods and procedures to advanced areas of importance in the sciences and technology. The program builds on the premise that advancing the applied sciences and technology must be based on fundamental comprehension of the various disciplines, while continually being responsive to the needs of new technologies, and the interdisciplinary nature of the modern scientific enterprise. This program will be administered by a committee which has a representation of faculty from various graduate programs in the School of Sciences and Engineering.

This program offers a Ph.D. degree Engineering with specializations in:

- Mechanical Engineering,
- Construction Engineering,
- Electronics and Communications Engineering,
- Robotics, Control and Smart Systems,
- or Environmental Engineering.

### **Admission Requirements**

- M.Sc. in an Engineering discipline.
- Demonstrated proficiency in English language as determined by AUC graduate admissions
- Obtain an acceptable score in the Graduate Record Exam (GRE)

### **Program Objectives**

The mission of the Ph.D. program in Applied Sciences and Engineering is to provide in-depth training to students in the natural sciences, modern engineering, and computer science and in the conduct of original research leading to a doctoral dissertation.

The primary goal of the program is to provide students with an opportunity to contribute to the advancement of knowledge in the field of applied sciences and engineering. The program aims at providing students with the opportunity to develop their professional knowledge and expertise to a high calibre and to qualify for leadership positions in teaching, in research, in administration and management and in policy analysis and program development. The program caters to demands of industry and research institutes and places a strong emphasis on original thinking, professional behavior and ethical conduct. The objectives of the program are for students to acquire



1. A broad analytic understanding of advanced experimental, theoretical and computational methods in the applied sciences and engineering
2. Substantive knowledge of some field or area of practice (e.g., electronics engineering, environmental engineering, etc.).
3. Competence to conduct independent, empirical research that extends the knowledge base of the field of interest.
4. Ability to generate new ideas, convince others that their ideas are worth pursuing, do the necessary research to demonstrate that their ideas are viable, and communicate the results of their research in the public domain.

### **Program Outcomes**

Upon completing the degree requirements for the Ph.D. Program in Engineering, graduating students should have the ability to:

1. Pursue a career in academia in teaching and/or research.
2. Pursue a career in industrial research and development (R&D).
3. Identify well-defined science and/or engineering problems of importance to the profession or the community, as well as generate new ideas and approaches to resolve such problems.
4. Apply advanced experimental, analytical and computational techniques to solve complex science and/or engineering problems.
5. Convince others that their ideas are worth pursuing and explore funding opportunities for their research.
6. Initiate scientific collaborations schemes that advance their research endeavors.
7. Successfully communicate their results to constituencies of various technical backgrounds and fields of specialty.
8. Make significant contributions to their field of specialization and profession through their own continued research, writing, teaching, and practice.
9. Implement the code of ethics within the study and work environments.

### **Doctoral of Philosophy Degree Requirements:**

Students going through this program are expected to successfully complete the following requirements:

1. **Pass the required course work with a GPA 3.0 or higher:** This insures the breadth of knowledge of the Ph.D. student.
2. **Pass a Qualifying Examination:** This signifies that course work is completed and that the student has sufficient background knowledge in her/his field of specialization.
3. **Present and defend a proposal of the intended research work:** This demonstrates that the candidate has defined her/his research problem and is capable of identifying the research methodology that she/he will adopt.
4. **Submit a written Dissertation and defend it in a final Oral Defense:** This marks the completion of the requirements for the Ph.D. degree.

### **Doctoral Coursework:**

As part of the process of achieving candidacy, a doctoral student must complete a set of courses known as the doctoral candidacy coursework. It includes at least thirty-six (36) credit hours of relevant graduate coursework beyond the bachelor's degree, of which at least eighteen (18) credit hours must be earned at AUC. Students who change their major specialization of their master's degree to a new specialization for their Ph.D. degree may have to take more than thirty-six (36) hours to fulfill the course requirements.

Because of the interdisciplinary nature of the program and in order to ensure sufficient breadth of study, the program is designed to include required course work in areas outside one's main specialization. In addition the student must complete 3 credit hours of Seminar courses and register for thirty-three (33) credit hours of Dissertation research work. Courses for each specialization will be listed at the 500 and 600 levels in addition to remedial courses to be taken at the 400 level whenever deemed necessary.

### **The Academic Advisor and the Research Advisory Committee:**

The academic advisor is determined by the specialization of the student, and is particularly important for assistance in the preliminary course planning of a student's Ph.D. program. Each specialization has at least one faculty member advisor (usually the Graduate Program Director of the discipline). The academic advisor will be available to the student to help in her/his preliminary choice of the courses. As the student progresses in the program she/he chooses the members of the Research Advisory Committee, which consists of the Chair of the Committee (Dissertation supervisor) and at least two other members. This committee plays a greater role in finalizing the courses for the student's Plan of Study and in advising her/his research work. It is the responsibility of the student to find an AUC faculty member willing to serve as the Chair of the Research Advisory Committee and to choose in consultation with her/him the other members.

### **Ph.D. Plan of Study for Qualification and Candidacy:**

The Ph.D. Plan of Study is intended to help the student select courses and will ensure that she/he has an academic program that meets the Ph.D. coursework requirements. The Plan of Study will also allow the student to identify a sequence of courses that meets her/his professional objectives. A preliminary Plan of Study will be drafted in consultation with the student's academic advisor and should be submitted before the student signs up to take the Ph.D. Qualifying Examination.

As the student advances in the program, she/he should choose the members of her/his Research Advisory Committee. The final Plan of Study will be drafted in consultation with the Research Advisory Committee. A final up-to-date copy must be submitted before the student applies to take the qualifying exam.

The Plan of Study must contain a listing of the courses the student has taken or intends to take to satisfy the qualification coursework requirements and must constitute a coherent program within the scope of the chosen specialization. It is the student's responsibility to make sure that all requirements are met. Any departure from the requirements must be requested by written petition, which should normally flow starting from the supervisor, to the director of the specialization area, then the Associate Dean for Graduate Studies and Research for final approval.

### **Doctoral Qualifying Examination:**

The purpose of the Ph.D. Qualifying Examination is to evaluate the student's ability to analyze problems and to synthesize solutions. It should demonstrate the ability of the student to interrelate basic concepts and ideas in her/his field of study. At least twelve (12) weeks prior to the examination, the student must submit a request indicating her/his intention to take the examination. The Ph.D. Qualifying Examination will be administered by an Examining Committee in each specialization. Following the examination, the Examining Committee will submit an evaluation of the student's performance to the Office of the Associate Dean for Graduate Studies and Research. The qualifying examination is typically taken in the semester immediately following the completion of the coursework credit hours, but no later than during the fourth semester since admission into the program. Any deviation from this schedule must be made by written petition and subsequent approval as indicated earlier.

### **The Proposal Defense:**

Typically in the semester immediately after the successful completion of the qualifying examination, the student has to write a research proposal under the guidance of the Dissertation supervisor and will give a Proposal Presentation in front of the Research Advisory Committee. Upon the acceptance of the proposal by the Research Advisory Committee, the student makes an oral presentation of the research proposal, including relevant background material. During and after the presentation, the committee will explore the research project with the student in order to provide guidance and make an evaluation of its suitability. They will report their recommendation to the Office of the Associate Dean for Graduate Studies and Research. In case the student does not present an acceptable proposal, the student must take immediate steps to refine the proposal in consultation with the dissertation supervisor. The Proposal Presentation requirement are completed when the Research Advisory Committee chair reports a successful proposal presentation to the office of the associate dean for graduate studies and research at the School of Sciences and Engineering.

Following acceptance of the proposal, the Dissertation Defense Committee is finalized. This consists of the three members of the Research Advisory Committee in addition to two external examiners. The external examiners should be well qualified and highly-established experts in the candidate's field of study. The external examiners will be selected in consultation with the supervisor, the Research Advisory Committee and the director of the specialization area and approved by the PhD program director and the associate dean for graduate studies and research at the School of Sciences and Engineering.

### **Publications Requirement:**

The candidate is expected to have as a minimum two accepted peer-reviewed international research publications before the dissertation defense, one of which must be a journal publication. The publications should be originating from the PhD (not from a previous MSc).

### **The Dissertation and Its Defense - Final Oral Defense:**

Upon completion, the dissertation will be sent to the external examiners for evaluation. The examiners will be contacted by the PhD program director two months before the final oral defense and will be asked to provide detailed written evaluation of the dissertation. The examiners recommendations will inform the decision of the PhD program director and the associate dean for graduate studies and research on whether the student proceeds to final oral defense or whether major revisions - including additional work - are needed. Copies of the external examiners reports will be shared with the student before the defense in order to have them addressed. The student will defend the dissertation in an open examination before the committee. The remote attendance of an international external examiner residing abroad in the final oral defense is permitted. Each member of the Dissertation Defense Committee will submit a written evaluation of the dissertation after the Oral Defense. Following the successful oral defense, the student must consult with the dissertation supervisor about any changes required by the committee, and must address these changes before final submission of the dissertation to the school dean.

### **Course and Research Requirements**

Minimum number of credit hours beyond the B.Sc. degree: 72

Dissertation hours 33 (CENG 6290 , ECNG 6980 , ENVE 6980 , MENG 6980 )

Seminar hours 3

Course hours 36 (See below)

The required number of semester credit hours of coursework to be taken for the PhD degree is dependent upon the M.Sc. degree and is determined by the academic advisor or program director of the student at the time of admission. At least eighteen (18) credit hours of course work must be earned at AUC.

#### **Case 1: M.Sc. from AUC**

**Case 1A:** M.Sc. in the same Engineering discipline from AUC.

A candidate may receive up to 24 hours of credit to be counted towards the Ph.D. degree

**Case 1B:** M.Sc. in a different Engineering discipline from AUC.

A candidate may receive up to 18 hours of credit to be counted towards the Ph.D. degree

**Case 2: M.Sc. achieved outside of AUC**

**Case 2A:** M.Sc. in the same Engineering discipline achieved outside of AUC.

A candidate may receive up to 18 hours of credit to be counted towards the Ph.D. degree

**Case 2B:** M.Sc. in a different Engineering discipline achieved outside of AUC.

A candidate may receive up to 12 hours of credit to be counted towards the Ph.D. degree

A plan of study will be developed under guidance of the academic advisor of the student at the time of admission and may be modified later on by her/his Research Advisory Committee. Courses are to be selected from the following, noting that at least eighteen credit hours of course work must be earned at AUC as earlier indicated:

## I - Core Courses

Core courses are selected from an area outside of the specialization of the student.

Admission Cases 1A and 1B: at least 3 credit hours.

Admission Cases 2A and 2B: at least 6 credit hours.

- BIOT 521/5206 - Fundamentals of Bioinformatics (3 cr.)
- CSCE 565/5261 - Advanced Artificial Intelligence (3 cr.)
- CSCE 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 561/5263 - Knowledge Engineering (3 cr.)
- CSCE 664/6261 - Advanced Data Mining (3 cr.)
- ECNG 510/5210 - Advanced Solid-State Devices (3 cr.)
- ECNG 522/5230 - Probability and Stochastic Processes with Applications (3 cr.)
- ENGR 000/5101 - Cross Talk: Implementation Science and Engineering (3 cr.)
- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENVE 562/5251 - Unit Operations in Environmental Engineering (3 cr.)
- NANO 502/5202 - Simulation and Modeling for Nanoscale Materials and Systems (3 cr.)
- NANO 503/5203 - Advanced Testing and Characterization Techniques (3 cr.)
- NANO 504/5204 - Fabrication of Nanomaterials For Films And Devices (3 cr.)
- MACT 604/6111 - Advanced Numerical Methods (3 cr.)
- MACT 605/6121 - Advanced Probability with Engineering Applications (3 cr.)
- MENG 543/5243 - Systems Modeling and Optimization (3 cr.)
- MENG 681/6241 - Stochastic Simulation (3 cr.)
- PHYS 502/5023 - Classical Electrodynamics I (3 cr.)
- RCSS 504/5204 - Applied Estimation (3 cr.)
- RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)
- BIOT 621/6207 - Systems and Computational Biology (3 cr.)
- PHDS/PHDE 612/6216 - Design and analysis of Experiments (3 cr.)

## II- Specialization Courses

Dependent on the admission status, the student will take the following number of credit hours in their relevant area of specialization:

### Admission Case 1:

Case 1A: at least 6 credit hours.

Case 1B: at least 12 credit hours.

### Admission Case 2:

Case 2A: at least 9 credit hours.

Case 2B: at least 12 credit hours.

5000-level masters courses offered by the graduate programs of Construction Engineering (CENG), Environmental Engineering (ENVE), Electronics and Communications Engineering (ECNG), Mechanical Engineering (MENG) and Nanotechnology (NANO) are considered specialization courses. At least one of the courses taken in the specialization must be a 6000-level course relevant to the student's specialization from the following list:

- ECNG 619/6219 - Design and Analysis of High-Performance Integrated Circuits (3 cr.)
- ECNG 625/6235 - Detection, Classification, and Estimation Theory (3 cr.)
- ECNG 661/6211 - Nanoscale CMOS (3 cr.)
- ECNG 694/6930 - Advanced Selected Topics in Electronics and Communications Engineering (3 cr.)
- ENVE 662/6250 - Advanced Treatment Processes (3 cr.)
- ENVE 680/6910 - Independent Study in Environmental Engineering (3 cr. Max.)
- ENVE 692/6930 - Advanced Selected Topics in Environmental Engineering (3 cr.)
- CENG 611/6211 - Structural Stability (3 cr.)
- CENG 612/6212 - Structural Dynamics (3 cr.)
- CENG 613/6213 - Earthquake Engineering and Seismic Design (3 cr.)
- CENG 631/6222 - Specialty Materials for Construction (3 cr.)
- CENG 632/6231 - Highways Pavement Systems and Design (3 cr.)
- CENG 679/6223 - Preserving, Repair and Sustainability of Structures (3 cr.)
- CENG 680/6291 - Independent Study in Structural and Material Engineering (3 cr. max.)
- CENG 692/6292 - Advanced Selected Topics in Structural and Material Engineering (3 cr.)
- MENG 615/6255 - Continuum Mechanics (3 cr.)
- MENG 620/6270 - Nonlinear and Adaptive Control (3 cr.)
- MENG 660/6261 - Sustainability of Thermal Systems (3 cr.)
- MENG 670/6262 - Advanced Transport Phenomena (3 cr.)
- MENG 000/6263 - Advanced Measurements in Thermofluids (3 cr.)
- NANO 621/6121 - Nanophotonics (3 cr.)
- NANO 642/6242 - Nanocatalysis (3 cr.)
- RCSS 692/6930 - Advanced Selected Topics in Robotics, Control and Smart Systems (RCSS) (3 cr.)

Environmental Engineering students can also register for online graduate course offerings through a cooperative program between AUC's Department of Construction and Architectural Engineering and Iowa State University's Department of Civil, Construction and Environmental Engineering. A maximum of six credit hours can be earned as such. Sample courses are as follows:

- CE 521: Environmental Biotechnology

- CE 522: Water Pollution Control Processes
- CE 569: Environmental Geotechnology
- CE 571: Surface Water Hydrology

### III - Dissertation and Seminars (Minimum of 36 credit hours)

Dissertation work includes completion of:

- Graduate Thesis Seminar 3cr.

Research Dissertation Guidance, a minimum of 33 cr. (CENG 6290, ECNG 6980, ENVE 6980, MENG 6980 or RCSS 6980)

A student may register for up to 12 research dissertation guidance credits while conducting research at an entity outside AUC. Conducting research outside AUC is subject to recommendation from the research advisory committee of the student, and an approval of the PhD program director, as per the latest PhD guidelines. The dissertation supervisor must be fully involved in any such research. Additionally, evidence of demonstrable collaboration between the dissertation supervisor and the entity outside AUC where this research is to be conducted, as well as the contribution of this external entity to this research, must be provided by the dissertation supervisor to the PhD program director prior to the proposal defense.

After completing 33 credit hours of dissertation, the course may be taken for one credit hour each semester until completion of the program requirements.

A PhD guidelines manual will detail advising, the qualifying examination, the proposal defense, and dissertation defense.

## Environmental Engineering Program

*Director: Associate professor : A. El Gendy (ENVE)*

### **Steering Committee**

Professor: H. el fawal (SSE dean and BIOL), S. el hagggar (MENG chair), E. Imam (CENG)

*Associate professor : A. El Gendy (ENVE)*

*Assistant professor: S. el baradei (CENG)*

## Environmental Systems Design (M.Eng.)

*Director: Associate professor : Ahmed El Gendy (ENVE)*

*Steering Committee:*

Professor: Hassan el fawal (SSE dean and BIOL), Salah el hagggar (MENG chair), Emad Imam (CENG)

*Associate professor : Ahmed El Gendy (ENVE)*

*Assistant professor: Sherine el baradei (CENG)*

The Master of Engineering Degree in Environmental Systems Design prepares students for higher level professional practice in local and international markets, whether in private consulting practice, industry, or government and regulatory activities.

### **Program Objectives**

The objectives of the Master of Engineering Degree in Environmental Systems Design are to provide the graduates of the program with:

- Extensive knowledge in fundamental environmental engineering science, the interactions of pollutants in water, air, and subsurface environments, and the design of treatment / pollutant remediation systems.
- In-depth knowledge in an area of student interest deriving from one of the areas of environmental engineering noted above, including applications in environmental hydraulics, solid and hazardous waste engineering, and management of environmental control systems.
- Awareness of the local and global context in which environmental engineering is practiced, including economic and business practices, societal needs, and considerations of public health, safety, culture and ethics.
- An ability to solve unstructured engineering problems of social significance, think critically, and function well in a team.
- A high and ethical standard of written and oral communication on technical matters.

### **Admission**

Admission requirements are the same as those for the Master of Science Program.

## **Courses (33 credit hours)**

Course work for the Master of Engineering degree requires the completion of 33 credit hours as follows:

### **I- Engineering core (6 credits)**

- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)

One course (3 cr.) is selected out of

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### **II- Environmental Engineering core (15 credits)**

- ENVE 561/5250 - Water Quality Control (3 cr.)
- ENVE 562/5251 - Unit Operations in Environmental Engineering (3 cr.)
- ENVE 564/5252 - Air Pollution Control Engineering (3 cr.)
- ENVE 566/5254 - Solid and Hazardous Wastes Engineering (3 cr.)

- ENVE 567/5255 - Environmental Chemistry (3 cr.)
- ENVE 569/5258 - Groundwater Hydrology and Contamination (3 cr.)

### III- Elective Courses (12 credit hours)

Four courses (12 cr.) are to be selected from a set of graduate courses in engineering, physical sciences, social sciences, management and other related graduate level courses subject to advisor and director's approval. No more than one 400-level course in engineering, computer science and other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor and director's approval.

## Environmental Engineering (M.Sc.)

*Director: Associate professor : Ahmed El Gendy (ENVE)*

*Steering Committee:*

Professor: Hassan el fawal (SSE dean and BIOL), Salah el haggar (MENG chair), Emad Imam (CENG)

*Associate professor : Ahmed El Gendy (ENVE)*

*Assistant professor: Sherine el baradei (CENG)*

The Master of Science program in Environmental Engineering is an interdisciplinary engineering degree program that is administered by a director and a steering committee from the engineering departments. Other faculty members from the School of Sciences and Engineering participate in the program. It provides a broad program of study in preparation for careers in advanced engineering areas in addition to in depth knowledge in Environmental Engineering with a strong research component. Graduates will be prepared for Ph.D. studies or for research and leadership in government, industry and international consulting companies.

### Program Objectives

The objectives of the Master of Science in Environmental Engineering graduate program are to provide the graduates of the program with:

- A broad knowledge of modern computational and experimental methods in engineering.
- Extensive knowledge in fundamental environmental engineering science, the interactions of pollutants in water, air, and subsurface environments, and the design of treatment/pollutant remediation systems.
- In-depth understanding of the research methods and data analysis in one of the areas of environmental engineering noted above.
- An ability to solve unstructured engineering problems of social significance, think critically, and function well in a team.
- A high and ethical standard of written and oral communication on technical matters.

### Admission

A candidate for the master's program in environmental engineering must have a Bachelor's degree in engineering. Admission is also subject to the general university requirements for graduate study, including English language proficiency. A minimum GPA of 3.0 out of 4.0 is required for full admission into the master's program. Students who have some deficiency in their undergraduate training but are will-qualified in other aspects may be admitted provisionally. The program director may prescribe a program of noncredit work to make up for the deficiency.



## Courses (24 credit hours)

A minimum of eight courses (24 credit hours) is required. The courses are selected from the following categories:

### I- Core Courses (6 credit hours)

All students select two out of the following four ENGR core courses:

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### II- Concentration Courses (12 credit hours)

Students should select a minimum of four courses from the following environmental engineering courses:

- ENVE 561/5250 - Water Quality Control (3 cr.)
- ENVE 562/5251 - Unit Operations in Environmental Engineering (3 cr.)
- ENVE 564/5252 - Air Pollution Control Engineering (3 cr.)
- ENVE 566/5254 - Solid and Hazardous Wastes Engineering (3 cr.)
- ENVE 567/5255 - Environmental Chemistry (3 cr.)
- ENVE 569/5258 - Groundwater Hydrology and Contamination (3 cr.)

### III- Elective Courses (6 credit hours)

A minimum of two courses are selected as electives. The courses are selected from a set of graduate courses in engineering, physical sciences, social sciences, management and other related graduate level courses subject to advisor and director's approval. No more than one 400-level course in engineering, computer science and other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor and director's approval

## Thesis

Graduate thesis work is an important and required part of the environmental engineering master's degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 5940, Graduate Thesis Seminar. Students must complete ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for ENVE 5980, Research Guidance Thesis, by the completion of 18 credit hours. Students must register in ENVE 5980 continuously and for at least two semesters. Each of the first two registrations in ENVE 5980 must be for three credit hours, after that ENVE 5980 is taken for one credit hour each semester until completion of the program requirements.

## Global Public Health Program

## **Global Public Health (MPH) with concentrations in Environmental Health, Precision Health and Global Public Health Policy and Management**

The Master of Global Public Health (MPH) program provides postgraduate education to prepare students for a career in several essential and innovative areas of interdisciplinary specialization through a sound foundation in the biomedical, engineering, and data sciences. The MPH program also recognizes the need of the practitioner to be cognizant of the social, behavioral, policy and regulatory dimensions of public health in the regional and global context of today's world. This program, through its implementation science and engineering perspective, will prepare practitioners with a mission of innovation, implementation, education, and service as global citizens committed to health, disease identification, mitigation, and prevention. This is essential to meet global public health workforce needs in our region.

### **Program Goals and Objectives**

The mission of the MPH is to prepare graduates to advance the public's health through education, health promotion, and the improvement of health outcomes of populations and individuals domestically and globally by fostering the critical thinking, leadership, and decision-making of a knowledgeable workforce and scholars.

Core Values on which the programs are based:

- Excellence in pedagogy and mentorship of students;
- Excellence in recruitment of the highest quality faculty, staff, and students;
- Engagement in interdisciplinary education on campus, in the community, and in the region;
- Integrity, with mutual respect and consideration of cultural differences, religious and socioeconomic status;
- Inclusivity, through the recognition of the uniqueness of individuals, domestically and globally;
- Creating an environment that nurtures and fosters dialogs across the campus, community, and globe;
- Empowerment of global citizens, women and men, and communities to make a difference in transforming challenges to opportunities.

The curriculum was developed with the following program goals guiding its development:

1. Implement a competency-based curriculum and systematic assessment to ensure that graduates are prepared with the knowledge, values, and skills to assume leadership roles in global public health, as researchers and practitioners
2. Integrate experiential inter-professional teamwork with social and global perspectives into coursework, fieldwork, and thesis projects designed to foster the development of core public health competencies and a commitment to achieving health equity in community service in diverse communities
3. Link public health research and practice by engaging faculty, students, public health and medical professionals and the community in conducting public health scholarly projects and applied research designed to advance the field and practice.
4. Establish a synergy between disciplines with the focus of translation, implementation, and assessment outside the classroom.
5. Foster a holistic approach that respects the individual, the public, the global community, and the environment to ensure sustainability and responsibility and accountability.

### **Learning Outcomes**

The following outcomes for the Programs in Global Public Health are based on the recommendations of the CePH, the accrediting body for Public Health. They also reflect the core public health competencies identified by the Association of Schools and Programs of Public Health (ASPPH).

**Global PH Program Outcomes:**

Upon completion of the MPH graduates will be prepared to:

1. Function with competency in the general five pillars of public health (Social & Behavioral Sciences, Biostatistics, Epidemiology, Environmental Health, and Health Policy and Management) as well as other functional competency areas identified by CePH.
2. Collaborate with communities and community-based health care professionals on public health initiatives.
3. Assume beginning leadership roles in public health (specific to tracks) and in organizations and coalitions that advance public health.
4. Critically analyze research evidence and relevant data (e.g. big data) to determine health care trends, best practices, and develop appropriate public health interventions.
5. Manage public health projects through assessment, planning, implementation, evaluation and sustainability to realize best practices.
6. Communicate effectively and efficiently to foster collaboration, teamwork, and achievement of knowledge-practices dissemination and health outcomes for improved wellness, quality of life and optimal intervention

A distinguishing feature of the proposed MPH. The Precision Health concentration elucidates our commitment in providing our students training in an emerging, cutting-edge, and growing area of expertise. US National Institute of Health [NIH (2017)] is promoting the initiative into Precision Health by initiating the "All of Us" research program with the goal of using new technology to create some of the largest and most diverse longitudinal cohorts in history. The Dean of Stanford School of Medicine, Dr. Minor (2016), highlighted the importance of fostering Precision Health as a way to promote new integrations between health and other fields such as engineering, computer science, and business innovation to achieve our biggest common end: making people healthy. Precision Health, as interpreted in the proposed programs, brings together strengths in targeted delivery of nanoformulation (drugs, genes) with the personalized-medical approaches of biomarker diagnostics, pharmaco- and toxicogenomics, and gene-environment interactions. It also takes a holistic systems approach of the "omics" disciplines (genomics, proteomics, metabolomics), internal environment (e.g., microbiome), external environment, in identifying risk and intervention in nervous system disorders and mental wellbeing. It is based on an appreciation of individual differences that impact on intervention and therapy. These programs, built on engagement, are also intimately keyed in to the need for interpretation of risk to the public through health communication. Health communication is essential to motivate healthy behavior and reduce health risk, and the burden of disease in communities, as well as at institutions and agencies throughout the nation and region, including the Ministry of Health and Population, the World Health Organization, US Agency for International Development (USAID), and governorate and local health departments, as well as the media.

**Students**

Students that may be interested in the MPH degree are students with a Bachelor's degrees from an accredited institution with a cumulative GPA of 3.0 in their major or higher including: 1) Current AUC students of Biology, Chemistry, Physics, Math and Actuarial Sciences, Engineering disciplines, Business, Social and Behavioral Sciences, and from majors with concentrations in environment, behavior, management, policy and management; 2) Students from other academic institutions with a wide range of backgrounds who are interested in expanding their career options in public health particularly current employees from local Departments and Ministries of Health and health agencies such as hospitals, physicians, pharmacists, dentists, veterinarians, nurses, safety engineers, agricultural engineers and chemists. The MPH is one of the most sought-after graduate degree by MDs, who account for 15-20% of graduates from PH programs.; and 3) current employees such as professionals working in hospitals, insurance companies, pharmaceuticals, sustainability and other areas seeking to improve their skills and be eligible for a wider range of career options.

**Degree Requirements****Admission**

A Bachelor's degree in the sciences, medicine, dentistry, veterinary medicine, pharmacy, nursing or engineering, with a minimum GPA of 3.0 out of 4.0, or equivalent, is required for admission into the MPH program. Students with backgrounds in the social and behavioral sciences, policy, management and business can be admitted into selected tracks, but are subject to the core curriculum. Admission is also subject to the general university requirements for graduate programs. For those students whose grade records indicate promising ability, but who otherwise may lack adequate preparation in sciences, biomedicine, or engineering, admission may be granted under the requirement that additional probationary courses will be taken.

### **Program Objectives**

The objectives of the Master of Public Health (MPH) are:

- To introduce students to a combination of fundamentals and field implementation research experience with an appreciation for community engagement, communication, and empowerment in affecting change through behavior, best practices, and policy pertinent to Public Health within the local, regional and global communities. It is also aimed at creating a knowledgeable and needed workforce to tackle the challenges and goals of the UN SDGs.
- Train students to function with competency in the general five pillars of public health (Social & Behavioral Sciences, Biostatistics, Epidemiology, Environmental Health, and Health Policy and Management) as well as other functional competency areas identified by the Council on Education for Public Health (CePH). • Prepare and enable students to collaborate with communities and community-based health care professionals on public health initiatives.
- Empower students to assume beginning leadership roles in public health (specific to tracks) and in organizations and coalitions that advance public health.
- Educate students to critically analyze research evidence and relevant data (e.g. big data) to determine health care trends, best practices, and develop appropriate public health interventions
- Prepare and enable students to manage public health projects through assessment, planning, implementation, evaluation and sustainability to realize best practices.
- Train students to communicate effectively and efficiently, in writing and orally, to foster collaboration, teamwork, and achievement of knowledge-practices dissemination and health outcomes for improved wellness, quality of life and optimal intervention.

### **The MPH Requirements**

Depending on the specific track, a minimum of 42 credit hours\* is required for the MPH, as defined by CePH and ASPPH. This consists of 24 credits hours of core courses, inclusive of 9 credits of research seminar and thesis research, and an additional 18 credit hours of coursework in a given track.

### **Advisors, Advisory Committee, and Study Plan for MPH**

During SCI 000/5940 - Graduate Thesis Seminar (3 cr.) , for the MPH students, this is the second full semester, the student will have identified a track and focus of interest. In discussion with faculty and the Program Director, a primary Research Advisor will be identified. A preliminary research proposal draft will be developed during SCI 000/5940 - Graduate Thesis Seminar (3 cr.). The student, together with the Research Advisor, will develop a study and research plan for the remaining year. It is imperative that this be done in a timely manner to insure scheduling of appropriate course work and ensure student success.

### **Concentrations**

The courses of the core and tracks were selected or developed to reflect the themes supported by the association of Schools and Programs of Public Health (ASPPH) (2012) Framing the Future: The Second 100 years of Education for Public Health", the WHO Eastern Mediterranean priority of Human Resources for Health (<http://www.who.int/alliance-hpsr/projects/middleeast-polforum/en/>), and emerging challenges in Public Health, regionally and globally. These include non-communicable diseases (cardiovascular, diabetes, obesity, malnutrition, congenital defects, mental and neurodegenerative disorders), early detection, surveillance and intervention (Precision Health) [The State of Health in

the Arab World, 1990-2010: An Analysis of the Burden of Diseases, Injuries, and Risk Factors. (2014). The Lancet, 383:309-320]. This document outlines the knowledge, skills, and outcomes expected in Public Health programs.

These themes (tracks) are:

- Environmental Health (GHEH):
- Precision Health (GHPH);
- Public Health Policy and Management (GHPM)

## Concentration in Environmental Health

### Core 24 Credits

GHHE 000/5110 - Biostatistics (3 cr.)

GHHE 000/5120 - Introduction to Epidemiology (3 cr.)

GHHE 000/5130 - Environmental & Occupational Health (3 cr.) or GHHE 000/5135 - Environmental Health for the Non-Scientist (3 cr.)

GHHE 000/5140 - Bioethics in Research (3 cr.)

GHHE 000/5150 - Global Health Communication and Society (3 cr.)

SCI 000/5940 - Graduate Thesis Seminar (3 cr.)

GHHE 000/5160 - Thesis Research (repeated to satisfy PhD research requirements)

### Environmental Health Electives (18 Credit hours):

- ENVE 567/5255 - Environmental Chemistry (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.) GREN 502/5202 - Engineering for a Sustainable Environment (3 cr.)
- ENVE 561/5250 - Water Quality Control (3 cr.)
- ENVE 564/5252 - Air Pollution Control Engineering (3 cr.)
- ENVE 566/5254 - Solid and Hazardous Wastes Engineering (3 cr.) GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)
- GREN 501/5201 - Global Changes and Sustainable Development (3 cr.)
- GREN 503/5203 - Core Concepts & Applications for Social & Environmental Policy (3 cr.)
- GREN 505/5205 - Environment and Society (3 cr.)
- GREN 514/5214 - Green Buildings (3 cr.)
- GREN 532/5232 - Greening the Built Environment (3 cr.)
- GHHE 000/5195 - Advanced Good Laboratory Practices and Laboratory Management (3 cr.)
- GHHE 000/5330 - The Earth Lab (3 cr.)
- GHHE 000/5331 - Health Effects of Environmental Agents (3 cr.)
- GHHE 000/5332 - Environmental Exposure Assessment (3 cr.)
- GHHE 000/5333 - Biological Monitoring in Exposure Assessment (3 cr.)
- GHHE 000/5334 - Field Research in Environmental Health and Safety (3 cr.)
- GHHE 000/5335 - Occupational Safety and Ergonomics (3 cr.)
- GHHE 000/5336 - Kinesiology and Biomechanics (3 cr.)
- GHHE 000/5337 - Ergonomics for Injury Prevention and Accommodation (3 cr.)

- GHHE 000/5340 - Principles of Toxicokinetics, Toxicodynamics, and Chemical Classes (3 cr.)
- GHHE 000/5341 - Systemic and Molecular Toxicology (3 cr.)
- GHHE 000/5342 - Case Studies in Pharmaceutical Toxicology (3 cr.)
- GHHE 000/5343 - Chemical Teratogenesis (3 cr.)
- GHHE 000/5344 - Chemical Carcinogenesis (3 cr.)
- GHHE 000/5345 - Autonomic and Autocoid Pharmacology and Toxicology (3 cr.)
- GHHE 000/5346 - Immunopharmacology and Immunotoxicology (3 cr.)
- GHHE 000/5347 - Environmental Cardiopulmonary Diseases (3 cr.)
- GHHE 000/5348 - Nanotoxicology and Safety: From Mechanisms to Regulation (3 cr.)
- GHHE 000/5349 - Neurotoxicology (3 cr.)
- GHHE 000/5350 - Contemporary Issues in Environment, Sustainable Development and Health (3 cr.)
- GHHE 000/5351 - Environmental Health and Sustainability in the Context of Human Geography (3 cr.)
- GHHE 000/5352 - Geography of Health and Healthcare (3 cr.)

## Concentration in Precision Health

### Core 24 Credits

GHHE 000/5110 - Biostatistics (3 cr.)

GHHE 000/5120 - Introduction to Epidemiology (3 cr.)

GHHE 000/5130 - Environmental & Occupational Health (3 cr.)

GHHE 000/5140 - Bioethics in Research (3 cr.)

GHHE 000/5150 - Global Health Communication and Society (3 cr.)

SCI 000/5940 - Graduate Thesis Seminar (3 cr.)

GHHE 000/5160 - Thesis Research (repeated to satisfy PhD research requirements)

### Precision Health Electives (18 Credit hours):

- BIOT 521/5206 - Fundamentals of Bioinformatics (3 cr.)
- NANO 505/5205 - Nanochemistry (3 cr.)
- BIOT 531/5207 - Molecular Diagnosis (3 cr.)
- BIOT 620/6206 - Computational Genomics and Transcriptomics (3 cr.)
- GHHE 000/5410 - Biomarkers: Exposure, Susceptibility, Effects and Efficacy (3 cr.)
- GHHE 000/5420 - Pharmacogenomics and Personalized Medicine (3 cr.)
- GHHE 000/5430 - Integrating Biomarkers in Population-based Research (3 cr.)
- GHHE 000/5440 - Nanotechnology: Scope and Frontiers in Precision Health (3 cr.)
- GHHE 000/5450 - Nanoformulation, Targeting and Applications (3 cr.)
- GHHE 000/5460 - Nanomanufacturing, QC and Regulatory Affairs (3 cr.)
- GHHE 000/5348 - Nanotoxicology and Safety: From Mechanisms to Regulation (3 cr.)
- GHHE 000/5470 - Nano-Enabled Precision Health (3 cr.)
- GHHE 000/5510 - Applied Neuroscience I (3 cr.)
- GHHE 000/5520 - Applied Neuroscience II (3 cr.)
- GHHE 000/5530 - Neuroimmunology (3 cr.)

- GHHE 000/5540 - Genetics and Molecular Basis of Disease (3 cr.)
- GHHE 000/5550 - Systems Neurobiology in Public Health (3 cr.)

## Concentration in Global Public Health Policy and Management

### Core 24 Credits

GHHE 000/5110 - Biostatistics (3 cr.)

GHHE 000/5120 - Introduction to Epidemiology (3 cr.)

GHHE 000/5130 - Environmental & Occupational Health (3 cr.)

GHHE 000/5140 - Bioethics in Research (3 cr.)

GHHE 000/5150 - Global Health Communication and Society (3 cr.)

SCI 000/5940 - Graduate Thesis Seminar (3 cr.)

GHHE 000/5160 - Thesis Research (repeated to satisfy PhD research requirements)

### Global Public Health Policy and Management Electives (18 Credit hours):

- PPAD 515/5202 - Public Policy Theory & Practice (3 cr.)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
- PPAD 516/5132 - Social and Environmental Policy (3 cr.)
- PPAD 520/5133 - Global Health Issues and Policies (3 cr.)
- PPAD 525/5127 - Reforming Delivery of Social Services (3 cr.)
- PPAD 511/5122 - Administrative Environment and Public Policy in Egypt and the Middle East (3 cr.)
- PPAD 512/5114 - Management of Development Programs (3 cr.)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.)
- PPAD 501/5221 - Strategic Management for Government and Nonprofit Organizations (3 cr.)
- PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.)
- PPAD 504/5222 - Fundamentals of Financial Planning and Management for Government and Nonprofit Organizations (3 cr.)
- ECON 530/5217 - Health Economics in Developing Countries (3 cr.)
- GHHE 000/6100 - Contemporary Challenges in Global Health I (3 cr.)
- GHHE 000/6110 - Global Challenges in Environmental Medicine (3 cr.)
- GHHE 000/6120 - Leadership and Professional Development for Public Health Professionals (3 cr.)
- GHHE 000/6130 - Current Issues in Public Health Outcomes (3 cr.)
- GHHE 000/6210 - Public Health Informatics (3 cr.)
- GHHE 000/6220 - Health Informatics and Management (3 cr.)
- GHHE 000/6230 - Health Informatics in Health Surveillance (3 cr.)

### Research Seminar and Thesis Research (9 credits)

## Nanotechnology Program

*Director:* professor: A. Essawi (MENG and associate dean for graduate studies and research)

*Steering Committee:* M. Anis (ECNG), H. Al Fawal (SSE dean and BIOL), H. Azzazy (CHEM), O. Hosny (CENG), A. Ramadan (CHEM and Dean of Graduate Studies), H.Salem (MENG)

Associate professor: N. Allam (PHYS), A. Amleh (BIOL)

Assistant professor: W. Mamdough (CHEM)

## **Nanotechnology (M.Sc.)**

### **Masters of Science in Nanotechnology**

The Masters of Science in Nanotechnology provides academic excellence in advanced sciences and technologies through an interdisciplinary education in the fields of materials science, physics, chemistry and engineering preparing students for careers in industry, education and research, with the capacity necessary to compete and excel in the ever expanding world of nanotechnology.

This program is facilitated by the available state of the art equipment at the Yousef Jamil Science and Technology Research Center (YJSTRC).

A total of 33 credit hours are required for the Masters of Science degree. This consists of 24 credit hours of courses, 6 credit hours of thesis work, and 3 credit hours of seminar.

### **Program Objectives:**

#### **The Masters of Science in Nanotechnology graduates scientists and engineers who:**

1. Have the knowledge of the enabling technologies and the key aspects relevant to application in nanotechnology
2. Foster a strong culture of interdisciplinary research and development at AUC, Egypt and the region
3. Engage in advanced academic and research careers
4. Excel in an interdisciplinary environment both as individuals and within a team
5. Seize and develop commercial opportunities in the fast-advancing nanotechnology field locally and globally.

### **Admissions**

A bachelor's degree in sciences or engineering, with minimum GPA of 3.0 out of 4.0 is required for admissions into the nanotechnology master's program. Admission is also subject to the general university requirements for graduate program. For those students whose grade records indicate promising ability, but who otherwise are not have adequate preparation in sciences or engineering, admission may be granted under the requirement that remedial courses will be taken.

### **Courses (24 credit hours):**



The program of study is planned with the faculty advisor, and should include a minimum of 9 hours of core courses and a minimum of 12 credit hours of electives:

## I. Core Courses (at least 9 credit hours)

- NANO 500/5200 - Nanomaterials, Synthesis, Processing and Applications (3 cr.)
- NANO 502/5202 - Simulation and Modeling for Nanoscale Materials and Systems (3 cr.)
- NANO 503/5203 - Advanced Testing and Characterization Techniques (3 cr.)
- NANO 504/5204 - Fabrication of Nanomaterials For Films And Devices (3 cr.)
- NANO 505/5205 - Nanochemistry (3 cr.)
- NANO 506/5206 - Management and Economics of Nanotechnology (3 cr.)
- NANO 000/5207 - Advanced Nanophysics (3 cr.)

## II. Nanotechnology Elective courses (at least 9 credit hours)

A minimum of 9 credit hours are required from this list of courses.

- NANO 520/5210 - Advanced Quantum Mechanics (3 cr.)
- NANO 521/5221 - MEMS/NEMS Technology and Devices (3 cr.)
- NANO 522/5222 - Advanced Semiconductor Physics (3 cr.)
- NANO 532/5232 - Nanocomposite Science and Technology (3 cr.)
- NANO 533/5233 - Materials for Energy Conversion and Storage (3 cr.)
- NANO 541/5241 - The Chemistry of Nanostructures (3 cr.)
- NANO 542/5242 - Nanoelectrochemistry (3 cr.)
- NANO 551/5251 - Nanotechnology Applications in Construction Materials (3 cr.)
- NANO 552/5252 - Nanotechnology in Studying Damage and Failure in Structures (3 cr.)
- NANO 561/5261 - Advanced Solid-State Devices (3 cr.)
- NANO 562/5262 - Advanced Integrated Circuit Design (3 cr.)
- NANO 571/5271 - Bionanotechnology (3 cr.)
- NANO 592/5930 - Selected Topics in Nanotechnology (3 cr.)

## III. General Elective Courses (Maximum 6 credit hours)

A maximum of two courses are selected as electives. The courses are selected from a set of graduate courses in all engineering disciplines, physical sciences, social sciences, management and other related graduate or 4000-level courses subject to advisor's and chair's approval.

## Thesis (9 credit hours)

Each student must submit a thesis topic that has been approved by a faculty supervisor by the end of the first academic year. Various research topics are discussed in SCI 5940, Graduate Thesis Seminar. Students must complete SCI 5940 before registering for thesis credits. To insure adequate faculty consultation on the thesis, the student must register for the Research Thesis Guidance course (NANO 5980) by the completion of 18 credit hours. The NANO 5980 course must be registered over two consecutive semesters after which the course may be registered for one credit hour each semester until completion of the program requirement.

- NANO 599/5980 - Research Guidance Thesis (3 cr.)

# Robotics, Control and Smart Systems Program

*Director:* M. Habib (MENG)

## Robotics, Control and Smart Systems (M.Eng.)

### Master of Engineering in Robotics, Control and Smart Systems (RCSS)

The Master of Engineering in Robotics, Control and Smart Systems provides academic excellence through an interdisciplinary education in the fields with aim to prepare graduate students for careers in industry, education and research (local, regional and global).

#### Program Objectives:

The Master of Engineering in Robotics, Control and Smart Systems graduates engineers who :

1. Have broad foundation in both the theoretical and the practical skills of RCSS interdisciplinary knowledge space,
2. Integrate fundamental and advanced knowledge to solve complex interdisciplinary problems in the field of RCSS,
3. Work independently as well as collaboratively within interdisciplinary teams and prepared to be team leaders,
4. Demonstrate competitive professional advancement, and engage in advanced academic and research in areas of their interest within industry, research centers, and academia both in local and global environment.

#### Admissions

A bachelor's degree in engineering, with minimum GPA of 3.0 out of 4.0 in major area is required as a basic requirement or admissions into the RCSS master's program. Admission is also subject to the general university requirements for graduate programs. For those students whose grade records indicate promising ability, but who otherwise are not have adequate preparation in sciences or engineering, admission may be granted under the requirement that remedial courses will be taken.

#### Program Structure

A total of 33 credit hours are required for the Master of Engineering in RCSS. The program of study should include 33 credit hours of courses.

### Courses (33 credit hours):

#### I. Group I (6 credit hours)

A minimum of 6 credit hours are required from this list of courses:

- RCSS 501/5201 - Robotics: Kinematics, Dynamics and Control (3 cr.)
- RCSS 502/5202 - Embedded Real Time Systems (3 cr.)
- RCSS 503/5203 - Modern Control Design (3 cr.)
- RCSS 504/5204 - Applied Estimation (3 cr.)

## II. Group II (18 credit hours)

A minimum of 18 credit hours are required from this list of courses:

- RCSS 521/5221 - Intelligent and Autonomous Robotic Systems (3 cr.)
- RCSS 522/5222 - Mechatronics Innovations and Experimental Robotics (3 cr.)
- RCSS 523/5223 - Bioinspired Robotics and Multi Robotic Systems (3 cr.)
- RCSS 524/5224 - Robotics and Intelligent Automated Manufacturing (3 cr.)
- RCSS 531/5231 - Teleoperation, Haptic Systems and Collaborative Control (3 cr.)
- RCSS 532/5232 - Robust and Optimal Control (3 cr.)
- RCSS 533/5233 - Nonlinear and Adaptive Control (3 cr.)
- RCSS 534/5234 - Networked Control Systems: Design and Applications (3 cr.)
- RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)
- RCSS 542/5242 - MEMS/NEMS Technology and Devices (3 cr.)
- RCSS 543/5243 - Image Analysis and Computer Vision (3 cr.)
- RCSS 544/5244 - Sensors, Perception and Smart Systems (3 cr.)
- RCSS 545/5245 - Advanced Artificial Intelligence (3 cr.)
- RCSS 592/5930 - Selected Topics in RCSS (3 cr.)

## III. Group III (3 credit hours)

- RCSS 593/5980 - Capstone Project (3 cr.)

## IV. Group IV (6 credit hours)

Select (6 credits) from the above two groups or from other graduate courses in engineering, physical sciences, or management subject to advisor and director's approval. No more than one 400-level course in engineering or other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor and director's approval.

# Robotics, Control and Smart Systems (M.Sc.)

## Master of Science in Robotics, Control and Smart Systems (RCSS)

The specialized master program in Robotics, Control and Smart Systems (RCSS) provides interdisciplinary academic and educational excellence in advanced sciences and technologies with unique educational, learning and research environment that advances scientific understanding enabling students to develop innovative and intelligent ideas for autonomous and smart products and systems to meet today's most pressing challenges and prepare them for careers in industry, academia and research.

The Master of Science in Robotics, Control and Smart Systems provides academic excellence through an interdisciplinary education in the fields with the aim to prepare graduate students for careers in industry, academia and research (local, regional and global).

This program is facilitated by the available state of the art equipment at two Mechatronics Laboratories (Mechatronics Design Lab., Mechatronics and Intelligent Systems Lab.) in Mechanical Engineering department and MEM/NEM facilities at Yousef Jameel Science and Technology Research Center (YJSTRC).

### **Program Objectives:**

The Master of Science in Robotics, Control and Smart Systems graduates scientists and engineers who:

1. Have broad knowledge in both the theoretical and the practical skills of RCSS interdisciplinary field.
2. Integrate fundamental and advanced knowledge to solve complex interdisciplinary problems in RCSS field,
3. Undertake interdisciplinary research, find new knowledge, analyze and document results, apply and communicate the results reflecting knowledge depth of the research in RCSS field,
4. Work independently as well as collaboratively within interdisciplinary teams and be prepared to be team leaders,
5. Demonstrate competitive professional advancement, pursue higher graduate degrees and engage in advanced academic and research in areas of their interest within industry, research centers, and academia both in local and global environment.

### **Admissions**

A bachelor's degree in engineering, with minimum GPA of 3.0 out of 4.0 in major area is required as a basic requirement or admissions into the RCSS master's program. Admission is also subject to the general university requirements for graduate programs. For those students whose grade records indicate promising ability, but who otherwise do not have adequate preparation in sciences or engineering, admission may be granted under the requirement that remedial courses will be taken.

### **Program Structure**

A total of 33 credit hours are required for the Master of Science in RCSS. The program of study should include 24 credit hours of courses, 9 credit hours of thesis work.

## **Courses (24 credit hours):**

### **I. Group I (6 credit hours)**

A minimum of 6 credit hours are required from this list of courses:

- RCSS 501/5201 - Robotics: Kinematics, Dynamics and Control (3 cr.)
- RCSS 502/5202 - Embedded Real Time Systems (3 cr.)
- RCSS 503/5203 - Modern Control Design (3 cr.)
- RCSS 504/5204 - Applied Estimation (3 cr.)

### **II. Group II (12 credit hours)**

A minimum of 12 credit hours are required from this list of courses:

- RCSS 521/5221 - Intelligent and Autonomous Robotic Systems (3 cr.)
- RCSS 522/5222 - Mechatronics Innovations and Experimental Robotics (3 cr.)
- RCSS 523/5223 - Bioinspired Robotics and Multi Robotic Systems (3 cr.)
- RCSS 524/5224 - Robotics and Intelligent Automated Manufacturing (3 cr.)
- RCSS 531/5231 - Teleoperation, Haptic Systems and Collaborative Control (3 cr.)
- RCSS 532/5232 - Robust and Optimal Control (3 cr.)

- RCSS 533/5233 - Nonlinear and Adaptive Control (3 cr.)
- RCSS 534/5234 - Networked Control Systems: Design and Applications (3 cr.)
- RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)
- RCSS 542/5242 - MEMS/NEMS Technology and Devices (3 cr.)
- RCSS 543/5243 - Image Analysis and Computer Vision (3 cr.)
- RCSS 544/5244 - Sensors, Perception and Smart Systems (3 cr.)
- RCSS 545/5245 - Advanced Artificial Intelligence (3 cr.)
- RCSS 592/5930 - Selected Topics in RCSS (3 cr.)

### III. Group III (6 credit hours)

Select (6 credits) from the above two groups or from other graduate courses in engineering, physical sciences, or management subject to advisor and director's approval. No more than one 400-level course in engineering or other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor and director's approval.

### Thesis (9 credit hours)

Graduate thesis work is an important part of the requirements for the Master of Science degree program in RCSS. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 5940 , Graduate Thesis Seminar. Students must complete ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for RCSS 5989, Graduate Thesis, by the completion of 18 credit hours. Students must register in RCSS 5989 continuously and for at least two semesters. The first two registrations in RCSS 5989 must be for three credit hours, after that RCSS 5989 is taken for one credit hour each semester until completion of the thesis requirements.

- RCSS 599/5989 - Research Guidance Thesis (3 cr.)

## Sustainable Development Program

### Sustainable Development M.Sc. (Dual Degree)

The M.Sc. Sustainable Development program at AUC and the various English language delivered LaureaMagistrale in Ingegneria, Architecture or Design at the Politecnico di Milano offer a dual degree program. This cooperation between the American University in Cairo and the Politecnico di Milano provides students interested in both universities the opportunity to have two masters but not obligatory. Students interested only to study at the AUC still can apply only for the AUC Masters in Sustainable Development, so they do not have to apply for a second degree from Italy and the same for the students interested only in Politecnico di Milano.

Students from Politecnico di Milano, after completing their first year of LaureaMagistrale and achieving a minimum of 60 ECTS (18 Credit Hours), join the M.Sc. program in Sustainable Development offered by AUC. Such students will complete 18 Credit Hours (60 ECTS), divided into 9 Credit Hours of Core Module courses (GREN 5201 is mandatory, plus selected ones from among GREN 5202 , GREN 5203 , GREN 5204 , and GREN 5205) and 9 Credit Hours from the modules: Green Technologies Module (GREN 5211 , GREN 5213 , GREN 5214 , GREN 5215 ), the Entrepreneurship Module (GREN 5221 , GREN 5222 , GREN 5223 , GREN 5224), the Sustainable Cities Module (GREN 5231 , GREN 5232 , GREN 5233 , GREN 5235), or the Sustainable Communities Module (GREN 5244 , GREN 5245, GREN 5246, GREN 5247 , GREN 5248). An additional 9 Credit Hours (30 ECTS) are required as Sustainable Development Project, to be carried out either as a project work/internships at the Politecnico di Milano or

at AUC in the form of three courses (GREN 5281, GREN 5282, GREN 5283). Finally, such students will produce a final thesis in English through 30 ECTS (9 Credit Hours) defended to faculty at both institutions. After completing 180 ECTS (60 ECTS at POLIMI, 18 Credit Hours at AUC, 9 credit hours/30 ECTS of project and 30 ECTS thesis), students shall be awarded two MSc degrees: the "LaureaMagistrale" in Ingegneria, Architettura or Design, according to the specific course of studies at the POLIMI and the Master of Science in Sustainable Development.

Students from the American University in Cairo, after completing 18 Credit Hours (60 ECTS) in the M.Sc. Sustainable Development program, join one of the English-language delivered LaureaMagistrale programs at the Politecnico di Milano to take 60 ECTS (18 Credit Hours). At AUC, the initial 18 Credit Hours is divided into 9 Credit Hours of Core Module courses (GREN 5201 is mandatory, plus selected ones from among GREN 5202, GREN 5203, GREN 5204, and GREN 5205) and 9 Credit Hours from the modules: Green Technologies Module (GREN 5211, GREN 5213, GREN 5214, GREN 5215), the Entrepreneurship Module (GREN 5221, GREN 5222, GREN 5223, GREN 5224), the Sustainable Cities Module (GREN 5231, GREN 5232, GREN 5233, GREN 5235), or the Sustainable Communities Module (GREN 5244, GREN 5245, GREN 5246, GREN 5247, GREN 5248). Upon completion of those 18 Credit Hours, students who began at AUC study for one year at Politecnico di Milano for 60 ECTS (18 Credit Hours) in one of the approved programs; approved courses are those that meet the qualifications for the selected degree program (list of available programs and admission rules can be found under: <http://www.polinternational.polimi.it/educational-offer/laurea-magistrale-equivalent-to-master-of-science-programmes/>)

Students will have also to complete an additional 9 Credit Hours (30 ECTS) of Sustainable Development Project at AUC in the form of three courses (GREN 5281, GREN 5282 and GREN 5283) or as a project work/internships at the Politecnico di Milano. Finally, such students will produce a final thesis in English through 9 Credit Hours (GREN 5251, GREN 5252, GREN 5253) defended to faculty at both institutions. After completing total 54 Credit Hours (180 ECTS), students shall be awarded two MSc degrees: the "LaureaMagistrale in Ingegneria, Architettura or Design, according to the specific course of studies at the POLIMI and the Master of Science in Sustainable Development.

The conversion of credits from Politecnico di Milano to the American University in Cairo is calculated as follows: 1 Credit Hours is equal to 3.33 ECTS.

### **Admissions**

A candidate for the Dual Degree Program, at both AUC and the Politecnico di Milano must meet the requirements for admission to the AUC M.Sc. Sustainable Development program and the selected LaureaMagistrale. AUC students can apply after completing their first semester latest by 30th March of each year. Admission to the Dual Degree Program is based on academic qualifications, experience, and a personal statement of interest.

## **Sustainable Development (M.Sc.) with concentrations in Green Technologies, Entrepreneurship, Sustainable Cities and Sustainable Communities**

Steering Committee: K. Abdelhalim (GAPP), S. El-Hagger (SSE), A. Ismail (BUS), G. Marquis (HUSS), T. Purinton (GSE), A. Ramadan (Dean of Graduate Studies), H. Sewilam (Program Director), and the Associate Deans of the SSE, HUSS, BUS, GAPP and GSE.

### **Master of Science in Sustainable Development**

The MSc program in Sustainable Development is designed to take advantage of sustainable development as an

economic growth opportunity. This MSc program aims to create a whole new generation of business and social entrepreneurs with the skills will allow them to start up green businesses, launch innovative ventures and products, and put in place public policy and social entrepreneurship innovations that, together, address society's environmental and natural resource challenges. The program aims to provide students with a sound theoretical and practical understanding of innovation and entrepreneurship in all three sectors-private, governmental and non-profit- in preparation for careers as entrepreneurs and "intrapreneurs" in a range of organizations.

Through this program, students will learn how to identify, assess and shape environmental ideas into real business opportunities and how to support such ventures through entrepreneurial private, government and civil society initiatives. Adopting an interdisciplinary approach, the course work combines a conceptual review of the relationships among business, industry, environment, policy and society, with a much more applied examination of the wide range of initiatives that relate to environmental management and sustainable economic development.

The MSc is facilitated by the available state-of-the-art equipment and facilities available at the SSE, BUS and GAPP.

A minimum of 33 credit hours is required for the MSc. The degree to be awarded is an "AUC MSc in Sustainable Development."

## Objectives

### The graduates of the MSc in Sustainable Development will

1. Have the multi-disciplinary knowledge of green innovation and the key aspects and dimensions of sustainable development.
2. Foster a strong culture of green entrepreneurship and business in Egypt and the region
3. Engage in advanced green industry careers
4. Excel in an interdisciplinary environment both as individuals and within a team
5. Seize and develop commercial opportunities in the fast advancing green technologies field locally and globally.

## Admissions

A candidate for the program must have a bachelor's degree in Engineering, policy, business or social background. Admission is also subject to the general university requirements for graduate study, including English language proficiency. A minimum GPA of 3.0 out of 4.0 is required for full admission into the program. Students who have some deficiency in their undergraduate training but are well-qualified in other aspects maybe admitted provisionally. The program director and track coordinators may prescribe a program of non-credit work to make up for the deficiency.

## Courses (24 credit hours)

The program of study is planned with the program director, and should include a minimum of 9 credit hours of core courses and a minimum of 15 credit hours of electives from three of the four sustainable development sub-modules. A maximum of 3 credits hours may be taken as independent study ( GREN 000/5910 - Independent Study in Sustainable

Development (3 cr.)) with prior approval of the program director. Students might be asked to take additional non-credit courses from the balance module to qualify them for this program.

## I. Core Module- M1 (9 Credit Hours)

All students must take GREN 5201 Global Changes and Sustainable Development and select two more courses out of GREN 5202 , GREN 5203 , GREN 5204 and GREN 5205 .

- GREN 502/5202 - Engineering for a Sustainable Environment (3 cr.)
- GREN 503/5203 - Core Concepts & Applications for Social & Environmental Policy (3 cr.)
- GREN 504/5204 - Entrepreneurship and Innovation (3 cr.)
- GREN 505/5205 - Environment and Society (3 cr.)

## II. Balance Module- M2 (0 Credit Hours)

Students might be asked to take one or more courses from a list of courses approved by the GREN advisory committee and selected with their advisor to upgrade their knowledge and qualify them for this program.

## III. Sustainable Development Concentration Module M3- Electives (15 Credit Hours)

Students should take five courses (15 cr.) in the Sustainable Development Concentration Module to cover three of the four sub-modules. These courses are to include three courses (9 cr.) from the sub-module the student wants to concentrate in. All students must take at least one course (3 cr.) out of these five courses from the Green Technologies sub-module M3-A. A maximum of 3 credit hours can be taken as an independent study course or as a 4000-level course of a topic of relevance with prior approval of the program director.

### Green Technologies Concentration Module (M3-A):

- GREN 511/5211 - Water Desalination (3 cr.)
- GREN 000/5215 - Sustainability of Thermal Systems (3 cr.)
- GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)
- GREN 514/5214 - Green Buildings (3 cr.)
- GREN 000/5219 - Selected Topics in Green Technologies (3 cr.)

### Entrepreneurship Concentration Module (M3-B):

- GREN 521/5221 - Marketing Management (3 cr.)
- GREN 522/5222 - Strategic Management of Innovation (3 cr.)
- GREN 523/5223 - Managing in a Dynamic Environment (3 cr.)
- GREN 524/5224 - Financial Management (3 cr.)

### Sustainable Cities Concentration Module (M3-C):



- GREN 531/5231 - Policy for Sustainable Cities (3 cr.)
- GREN 532/5232 - Greening the Built Environment (3 cr.)
- GREN 533/5233 - Urban Infrastructure Development for Sustainability (3 cr.)
- GREN 000/5235 - Corporate Social Responsibility and NGO Partnerships (3 cr.)

### Sustainable Communities Concentration Module (M3-D):

- GREN 544/5244 - Cities: Structure and Dynamics (3 cr.)
- GREN 000/5245 - Community Assessment and Program Evaluation (3 cr.)
- GREN 000/5246 - Community Psychology and Systems Theory (3 cr.)
- GREN 000/5247 - Prevention and Intervention in Communities (3 cr.)
- GREN 000/5248 - Consultation to Non-Profit Organizations (3 cr.)

### Thesis (9 Credit Hours)

Each student must submit a thesis topic that has been approved by a faculty supervisor by the end of the first academic year. Various research topics are discussed in GREN 5251 and GREN 5252, Graduate Thesis Seminar I and II, respectively. Students must register for Graduate Thesis Seminar I (GREN 5251) before submitting a thesis topic while Graduate Thesis Seminar II (GREN 5252) should be taken during the execution of the thesis research work. To ensure adequate faculty consultation on the thesis, the student must register for the Research Thesis Guidance Course (GREN 5253) by the completion of 18 credit hours. The GREN 5253 course must be registered over two consecutive semesters after which the course may be registered for one credit hour each semester until completion of the program requirement. The Thesis seminar will be developed and offered by all the schools involved in the program.

- GREN 571/5251 - Graduate Thesis Seminar I (2 cr.)
- GREN 572/5252 - Graduate Thesis Seminar II (1 cr.)
- GREN 573/5253 - Research Guidance Thesis (3 cr. + 3 cr.)

Students are encouraged to "twin" in the thesis work. At least two students can agree on submitting a topic for a "twinning thesis" that has to be approved by their faculty supervisors from at least two different schools by the end of the first academic year. The twinning thesis does not mean reducing the workload, since each student should complete minimum 33 credits to be awarded a twinning MSc degree. Students work on one topic from different perspectives and submit two theses.

## Sustainable Development (Graduate Diploma)

*Director:* H. Sewilam

### Graduate Diploma in Sustainable Development

The Diploma in Sustainable Development considers the concept of sustainable development as an economic growth opportunity. The Diploma is designed for candidates who desire to make a contribution to the emerging field of sustainable development. The Diploma is directed at providing the student with multi-disciplinary background in areas such as innovation and entrepreneurship, sustainable technologies, social and environmental policy. It aims at preparing students for careers in green industry with the capacity necessary to lead sustainable development in Egypt and the Middle East. Adopting an interdisciplinary approach, the course work combines a conceptual review of the relationships between business, industry, environment, policy and society, with a much more applied examination of the wide range of initiatives that relate to environmental management and sustainable economic development.

The Diploma is facilitated by the available state-of-the-art equipment and facilities available at the SSE, BUSS, GAPP, HUSS, GSE and DDC.

A minimum of 18 credit hours (6 courses) are required for the diploma. The degree to be awarded is a "Graduate Diploma" as an AUC Degree.

## Objectives:

### The graduates of the Diploma in Sustainable Development will

1. Have the multi-disciplinary knowledge of green innovation and the key aspects and dimensions of sustainable development
2. Foster a strong culture of green entrepreneurship and business development in Egypt and the region
3. Engage in advanced green industry careers
4. Excel in an interdisciplinary environment both as individuals and within a team
5. Seize and develop commercial opportunities in the fast-advancing green technologies field locally and globally.

## Admissions

A candidate for the program must have a Bachelor's in Engineering, policy, business or social sciences. Admission is also subject to the general university requirements for graduate study, including English language proficiency. A minimum GPA of 3.0 out of 4.0 is required for full admission into the program. Students who have some deficiency in their undergraduate training but are well-qualified in other aspects may be admitted provisionally. The program director and tract coordinators may prescribe a program of noncredit work to make up for the deficiency.

## Courses (18 credit hours)

The program of study is planned with the program director, and should include a minimum of 9 credit hours of core courses and a minimum of 9 credit hours of electives from two of the four sustainable development sub-modules. A maximum of 3 credit hours may be taken as independent study ( GREN 000/5910 - Independent Study in Sustainable Development (3 cr.)) with prior approval of the program director. Students might be asked to take additional non-credit courses from the balance module to qualify them for this program.

## I. Core Module- M1 (9 Credit Hours)

All students must take GREN 5201 and select two more courses out of GREN 5202 ,GREN 5203 ,GREN 5204 and GREN 5205 .

- GREN 501/5201 - Global Changes and Sustainable Development (3 cr.)
- GREN 502/5202 - Engineering for a Sustainable Environment (3 cr.)
- GREN 503/5203 - Core Concepts & Applications for Social & Environmental Policy (3 cr.)
- GREN 504/5204 - Entrepreneurship and Innovation (3 cr.)

- GREN 505/5205 - Environment and Society (3 cr.)

## II. Balance Module- M2 (0 Credit Hours)

Students might be asked to take one or more courses from a list of courses approved by the GREN advisory committee and selected with their advisor to upgrade their knowledge and qualify them for this program.

## III. Sustainable Development Module M3- Electives (9 Credit Hours)

Students should take a total of three courses (9 cr.) in the Sustainable Development Module to cover two of the four sub-modules. These courses are to include two courses (6 cr.) from the sub-module the student wants to concentrate in. All students must take at least one course (3 cr.) out of these three courses from the Green Technologies sub-module M3-A. A maximum of three credit hours can be taken as an independent study course or as a 4000-level course of a topic of relevance with prior approval of the program director.

### Green Technologies Module (M3-A):

- GREN 511/5211 - Water Desalination (3 cr.)
- GREN 000/5215 - Sustainability of Thermal Systems (3 cr.)
- GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)
- GREN 514/5214 - Green Buildings (3 cr.)
- GREN 000/5219 - Selected Topics in Green Technologies (3 cr.)

### Entrepreneurship Module (M3-B):

- GREN 521/5221 - Marketing Management (3 cr.)
- GREN 522/5222 - Strategic Management of Innovation (3 cr.)
- GREN 523/5223 - Managing in a Dynamic Environment (3 cr.)
- GREN 524/5224 - Financial Management (3 cr.)

### Sustainable Cities Module (M3-C):

- GREN 531/5231 - Policy for Sustainable Cities (3 cr.)
- GREN 532/5232 - Greening the Built Environment (3 cr.)
- GREN 533/5233 - Urban Infrastructure Development for Sustainability (3 cr.)
- GREN 000/5235 - Corporate Social Responsibility and NGO Partnerships (3 cr.)

### Sustainable Communities Module (M3-D):

- GREN 544/5244 - Cities: Structure and Dynamics (3 cr.)
- GREN 000/5245 - Community Assessment and Program Evaluation (3 cr.)
- GREN 000/5246 - Community Psychology and Systems Theory (3 cr.)
- GREN 000/5247 - Prevention and Intervention in Communities (3 cr.)
- GREN 000/5248 - Consultation to Non-Profit Organizations (3 cr.)

## Engineering Steering Committee for ENGR Graduate Courses

*Professors:* M. Abou-Zeid (CENG Chair), H. Amer, H. Elayat, A. Elimam, A. Esawi, A. Ezzeldin, E. Fahmy, M. Farag (Director of Engineering Services), M. Fouad, L. Gaafar, M. Habib, S. El-Haggar (MENG Chair), M. Haroun (Provost), A. Hassanein, E. Imam (Director of Graduate Program), S. Khedr, A. Nassef, M. Nasrallah (PENG Chair), H. Salem (Director of Nanotechnology Graduate Program), A. Serag El-Din, A. Sherif, N. Sherif (Associate Chair), E. Smith (Director of Environmental Program), M. Younan (Associate Dean for Undergraduate Studies).

*Associate Professors:* S. Abdel-Azeem, A. Abou Auf, A. Ahmed, M. Anis, M. Arafa, A. Darwish, A. Elezabi (ECNG Chair), T. El-Kweidy, M. Mostafa, K. Nassar, S. Safar, A. Zanon.

*Assistant Professors:* M. Ali, M. Arafa, S. El-Baradei, H. Fayek, L. El-Gabry, M. Hassan, M. El-Morsi, A. Waly.

*Research Professor:* O. Hosny

The Engineering core and seminar courses are administered by a steering committee represented by the different Engineering departments. All admitted graduate students pursuing their master degrees in the different Engineering departments (CENG, ECNG, ENVE & MENG) are required to select from those ENGR core courses which provide students with research fundamentals and methodology. The seminar course (ENGR 5940) is also a requirement of the thesis and research component that have to be fulfilled by all graduate students.

Refer to respective departments for information on graduate programs and degrees offered.

## Engineering Steering Committee for ENGR Undergraduate Courses

*Professors:* A. El Ezabi (Chair, Electronics and Communications Engineering), S. El Haggar (Chair, Mechanical Engineering), S. Ezz El Din (Chair, Construction and Architecture Engineering), A. Rafae (Chair, Computer Science and Engineering), A. SeragElDin (Chair, Petroleum Engineering), A. Sherif (Chair, Architecture Engineering), M. Younan (Associate Dean for Undergraduate Studies)

*Associate Professors:* S. Abdel-Azeem, A. Abou Auf, A. Ahmed, M. Anis, M. Arafa, A. Darwish, A. Elezabi (ECNG Chair), T. El-Kweidy, M. Mostafa, K. Nassar, S. Safar, A. Zanon.

*Assistant Professors:* M. Ali, M. Arafa, S. El-Baradei, H. Fayek, L. El-Gabry, M. Hassan, M. El-Morsi, A. Waly.

*Research Professor:* O. Hosny

All engineering students are required to take a set of common engineering courses (ENGR). The objective of these courses is to introduce the fundamentals of engineering science, and prepare the students for the more specialized courses. The common engineering courses are administered by Undergraduate Engineering Steering Committee (UESC) and taught by faculty from the Departments of Construction and Architectural Engineering, Electronics and Communications Engineering, Mechanical Engineering and Petroleum and Energy Engineering.

Refer to the respective department for the required ENGR courses.

## Undergraduate Admissions

- Admission Policy and Procedures
- Academic Preparation
- English Language Proficiency
- The Admission Decision
- Transfer Credit After Matriculation
- Readmission
- Study Abroad/Non-Degree Admissions
- Change of Status from Non-Degree to Degree

- Admission to an Undergraduate Degree Program
- Transfer Admissions
- Transfer Credit Award
- Auditors
- The Department of Arabic Language Instruction
- Arabic Language Placement

### **Admission Policy and Procedures**

The American University in Cairo admits undergraduate and graduate degree-seeking applicants for the fall and spring semesters. The university welcomes the applications of Arabic Language Institute, Study Abroad and non-degree applicants for the summer session, as well as the fall, spring and winter semesters.

The university, in keeping with the long-standing protocol with the Egyptian government, maintains an enrollment of undergraduate degree-seeking students that is at least seventy-five percent Egyptian. Accordingly, AUC establishes quotas regarding the offer of admission and enrollment of non-Egyptian students.

Applicants may apply for admission up to one year in advance of their anticipated date of first enrollment. The University reviews completed admission applications as per the announced deadlines. AUC cannot determine the admissibility of candidates with incomplete credentials.

The university and the Egyptian Ministry of Education require that all students joining AUC undergraduate program complete a minimum of twelve years of primary and secondary education prior to enrollment in university courses. Applicants must provide proof, that they have completed at least twelve years of education.

All undergraduate degree-seeking admission applicants are required to submit official secondary school academic transcripts, and certificates. Applicants who have attempted post-secondary studies must also submit official academic transcripts, and/ certificates from each post-secondary school attended regardless of whether they have earned credit or seek transfer credit. All academic records not in English or Arabic must be accompanied by certified English translations.

All undergraduate degree applicants must demonstrate proficiency in English by submitting valid Academic IELTS, or International TOEFL or completed college-level English coursework.

Non-Egyptian applicants and/or their sponsors must provide official evidence indicating that a minimum of \$36,000 is available to cover the tuition, fees, travel, and living expenses for the first year of study at the University.

### **Academic Preparation**

The University seeks highly qualified applicants who complete the most demanding courses available in secondary school. Excellent grades in honors classes indicate the applicant's ability and willingness to meet the academic challenges of university study. The University's most capable first-year applicants have achieved excellent grades while completing a well-balanced university preparatory program.

In addition, AUC considers the personal qualities of applicants - how well they have taken advantage of available resources, whether they have faced and withstood unusual adversity, and the extent to which they show promise as a contributing member of the AUC community. The University also considers applicants' personal achievements outside the classroom as demonstrated by sustained participation, commitment, and leadership in school and community activities.

### **English Language Proficiency**

All new undergraduate students who apply as degree students and non-degree students must provide evidence of academic English proficiency with the admission application. The University does not exempt applicants from this

requirement solely on the basis of citizenship or graduation from an English-medium secondary school.

Applicants who satisfy one or more of the following criteria qualify for exemption:

- Satisfactory scores on appropriate standardized tests and College Board exams
- Successful completion of one or more non-remedial academic writing course in a post secondary institution whose English language admission requirements are recognised and approved by the office of Registrar at AUC
- Successful completion of English-medium secondary school coursework and examinations that qualify for advanced placement
- Valid Academic IELTS or International TOEFL scores are required of an applicant who does not attend an English Language university or who has attended less than three semesters at a university where the language of instruction is English
- Students in the following programs are exempted from the English language proficiency requirement:
  - Study abroad applicants from English-medium universities
  - Center for Arabic Study Abroad (CASA) students
  - Arabic Language Institute (ALI) students. While the submission of English proficiency test results are not required, you must be able to read and write in English to study at the Arabic Language Institute.

Applicants not exempted are required to submit valid official test results from the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (Academic IELTS). Tests must be completed no more than two years prior to the first day of the term for which applicants are applying for admission.

The University determines English Language placement using applicants' highest score on the TOEFL or Academic IELTS. AUC may offer applicants that do not qualify for the Rhetoric and Composition the opportunity to enroll in AUC's Intensive English Program (IEP) or Academic English for Freshmen (ENGL 0210 ). ENGL 0210 is the University's bridge course between the IEP and the Rhetoric and Composition. IEP students must complete the program within one calendar year (two semesters and the summer session).

All students who have been admitted into ENGL 0210 must satisfactorily complete the course work within a time period not to exceed two full semesters and a summer session. Students taking ENGL 0210 in summer may not enroll in any academic courses.

### **The Admission Decision**

The undergraduate admission application review process at the University requires evidence of successful completion of an accredited secondary school program, as well as success in collegiate studies (if applicants have enrolled in a post-secondary program). The quality of work, appropriateness of program, and academic standing among peers are also important considerations. Applicants who have selected a rigorous academic program and who have achieved distinction in a range of academic courses are the most likely candidates to receive an offer of admission.

The University's most qualified candidates have earned excellent grades in their courses. When determining admission, the University considers a combination of factors including academic grades and test scores, as well as diversified background, and participation in extracurricular activities. The vast majority of those applying to AUC are capable of succeeding scholastically at the University. Many more academically qualified students apply for admission than there is room available. The University's task is not simply to select those who are qualified, but to identify those who have distinguished themselves. Applications submitted beyond the deadline dates will be wait listed and may be considered pending space availability only.

### **Admission to an Undergraduate Degree Program**

A complete file with all required credentials must be submitted to be considered for admission. Information about the required credentials is available on the World Wide Web at: [www.aucegypt.edu/admissions](http://www.aucegypt.edu/admissions)

AUC's minimum requirements for new applicants vary by the type of secondary program. Because of the large number of qualified applicants, those offered admission generally score well above the following minimums:

- Egyptian Thanawiya Amma - Arts, or Science (General Secondary School Certificate). Submit the results of the final sitting of the Thanawiya Amma. Applicants must earn at least 70 percent on the final sitting to be considered for admission.
- Thanawiya Amma from Arab countries - Arts, or Science (General Secondary School Certificate). Submit the results of the final sitting of the Thanawiya Amma. Applicants must earn at least 75 percent on the final sitting to be considered for admission.
- GCE/GCSE/IGCSE: Submit eight subjects. Applicants who have completed Advanced/Advanced Supplementary level subjects and have earned excellent grades are given preference. For admission consideration, grades 'A to C' are accepted at the Ordinary and Advanced Supplementary levels and grade 'D' is accepted at the Advanced level only. Subjects completed at the Advanced and Advanced Supplementary level are not double counted, and only the higher grade is considered. Applicants must submit all certificates to the University. However, AUC utilizes only the best eight subjects during the admission evaluation process.
- American High School. Complete a college preparatory program of courses and earn a high school diploma with at least a 2.0 (on a four-point scale) grade point average in academic courses. The minimum SAT-I score is 950 for admission consideration.

Applicants who have attended an accredited high school for less than three semesters must also submit official results in SAT-II in two subjects with a total score of 1100 and a minimum score of 500 on each subject.

### **Medical Examination**

A recent medical report stating that the student is physically and mentally capable of doing university work should be submitted with the application.

### **Medical Insurance for Non-Egyptian Applicants**

It is recommended that non-Egyptian students have health and accident insurance which will cover them while they are in Egypt. In addition, all non-Egyptian students are required to enroll in the medical insurance service plan offered by the American University in Cairo which provides for limited care at a specified hospital in Cairo. Exemptions are made only for those non-Egyptian students who reside in Cairo with their families, or who are provided for by their companies, embassies or sponsoring agencies in Cairo. The medical service fee is announced by the Office of Student Financial Affairs every year.

### **Transfer Admissions**

Applicants who have attempted post-secondary school studies of an advanced-level subjects or at a university level during or following their secondary school program are transfer applicants. These students are classified as follows:

#### *Lower Division Transfer Student (LDTS)*

A lower division transfer student is an applicant with less than 60 transferable units (with a minimum grade of C in each subject). A transfer applicant will be held to the same standards as a "first time freshman." In addition, applicants must be in good academic standing at all previously attended universities and have an overall university grade point average (GPA) of 2.0 or higher. Admission is based on the available places and the student academic performance.

#### *Upper Division Transfer Student (UDTS)*

An upper division transfer student is an applicant who is evaluated at the admission stage to have 60 or more eligible credits for transfer consideration (with a minimum grade of C in each subject). However, beyond the admissions stage, the number of transfer credit that will be granted to this applicant will be subject to the academic department's evaluation and decision. Applicants in this category must have a 2.00 average or higher in all transferable college

course work in order to be admitted. Although each applicant in this category is required to have earned a secondary school certificate, the grade point average (GPA) of this certificate will not be considered a factor in the admissions process.

A transfer student is not guaranteed acceptance into his/her current major. Admission to the same major is ultimately decided upon by the School Dean.

### **Transfer Credit Award**

The University awards transfer credit for coursework completed at post secondary institution and/or advanced level subjects completed within the certificates mentioned below. Transfer credit is granted for coursework that is comparable in nature, scope, content, and depth; in addition to the appropriateness and applicability of the credit earned to the courses at AUC. Studies completed more than five years prior to matriculation into the university are not transferable. The University awards transfer credit to two categories of students:

**1. Applicants who are transferring from accredited post-secondary institutions and have taken courses at the university level.** The university awards transfer credit to students who complete coursework in fields of study that are comparable to those offered by AUC, with a minimum grade of "C" from institutions operating in the USA, a minimum grade of "Good" from the National Universities of Egypt, and equivalent grade to a "C" (at AUC) from other institutions. The determination of transfer credit award occurs following the submission of an official academic transcript, the university catalog, as well as required course-related materials. Internships, Occupational, vocational, remedial coursework, and studies classified as less than first-year (Freshman) level by the sending institution or AUC are not transferable. Credits earned to satisfy the requirements of a previous degree are not considered for transfer credit.

The transferable coursework must have been completed at post-secondary institutions that are recognized by the Ministry of Higher Education, and/or the Supreme Council of Universities, depending on the country in which the institution is operation. Post-secondary institutions in the United States must be accredited by one of the following six "Regional Accrediting Organizations":

- Middle States Association of Colleges and Schools, Commission on Higher Education
- New England Association of Schools and Colleges, Commission on Institutions of Higher Education
- North Central Association of Colleges and Schools, the Higher Learning Commission
- Northwest Commission on Colleges and Universities
- Southern Association of Colleges and Schools, Commission on Colleges
- Western Association of Schools and Colleges, Commission for Senior Colleges and Universities

**2. Applicants who have completed collegiate-level studies, prior to matriculation into the university, with a grade that is comparable to at least a "B" at AUC.**

The following is the policy applied in relation to the different certificates:

#### ***o International Baccalaureate Diploma/Certificate***

The University grants up to 30 transfer credit for the IB Diploma as follows:

- Transfer credits for higher level academic subjects with grade of five, six or seven (out of seven).
- Up to 15 credits of lower-division general elective transfer credit for the completion of the IB Diploma with a minimum total point of 30.

The AUC does not grant transfer credit for subsidiary level subjects.

#### ***o The College Board Advanced Placement (AP) Examinations.***

The University grants transfer credits for academic subjects with scores of four or five (out of five).



***o German Secondary School Certificate-Abitur***

The University grants up to 30 transfer credits for academic subjects with scores of ten or more (out of 15).

***o French Baccalaureat II***

The University grants up to 30 transfer credits for academic subjects with advanced level scores of 14 or more (out of 20).

***o GCE/GCSE/IGCSE***

The University grants transfer credits for A-level subjects with grades of "A" or "B". The University does not grant transfer credit for subjects completed at the AS, AL, or O' levels.

**Transfer Credit After Matriculation**

The University transfers a maximum of 36 hours of semester credit from other post-secondary institutions after students enroll at AUC. The University awards a maximum of 12 credit hours for coursework completed in any one summer. (Students may not enroll in more than 12 credits in any one summer, AUC summer courses included.) The University transfers a maximum of nine credits for courses completed through correspondence and/or distance learning following matriculation. Students may not enroll in correspondence courses offered by other institutions during academic terms in which they are registered for courses at AUC.

**Readmission**

AUC students who withdraw from the University in good standing and subsequently wish to return after an absence of one or more semesters may apply for readmission. Readmission is offered on a space-available basis and is not guaranteed. Selected applicants must submit recent TOEFL or Academic IELTS results with their readmission application.

<b>English Level at Time of Withdrawal</b>	<b>Lapse of Time</b>	<b>TOEFL/IELTS Required</b>
Successfully completed RHET 201, RHET 2010, RHET 1020	Less than 24 months	No
	More than 24 months	Yes
Enrolled in ENGL 0210	Less than 6 months	No
, or RHET 101 or RHET 1000, RHET 1010 & CORE 1010 (Tandem Sections)		
RHET 102, RHET 1100 (RHET 1010 Stand alone section) or RHET 201,	Between 6-12 months	Optional
RHET 2010 , RHET 1020		
Enrolled in IEP	Less than 6 months	No

Enrolled in IEP, ENGL 0210

, or RHET 101, RHET 1000 , RHET 1010), RHET102, RHET 1100

More than 12  
months

Yes

(RHET 1010 Stand alone section) or RHET 201, RHET 2010, RHET 1020)

### **Study Abroad/Non-Degree Admissions**

Degree-seeking students at other recognized institutions who wish to augment their education by enrolling for a period of time at the American University in Cairo are invited to apply for admission as visiting Study Abroad/Non-Degree students.

Since AUC is both a US-accredited institution, and one recognized by the Ministry of Higher Education in Egypt, students from most universities around the world are able to transfer credits earned at AUC to their home institutions.

Study Abroad/Non-Degree applicants must submit application materials that include post-secondary school transcripts, letters of reference, and a study plan approved by their home university.. Information about the application deadlines and the specific documents that applicants must submit to complete their file is available on the AUC website at: [www.aucegypt.edu/admissions](http://www.aucegypt.edu/admissions)

### **Change of Status from Non-Degree to Degree**

Upon request, the university may approve a change of status from Non-Degree to degree seeking. The student should submit an undergraduate application in the Admission office and submit all the relevant documents. Courses taken in undergraduate non-degree status are then transferred to the degree record and all grades are considered when calculating the grade point average.

### **Auditors**

Individuals who wish to attend individual classes without credit may apply as auditors. Auditors are not eligible to sit for final examinations, receive academic credit, or enrollment certification from the University. Permission to audit is granted on a space-available basis. Auditors generally enroll during the late registration period after other students have had an opportunity to register. Auditors are not allowed to enroll in language courses.

### **The Department of Arabic Language Institute**

The Department of Arabic Language Instruction is one of the most respected Arabic language study programs in the world. The department offers intensive programs beginning three times each year that range in length from eight weeks to one or more years. It also offers courses to fulfill the Arabic Language requirements of undergraduates at AUC. The department's world-class faculty teaches classes in Modern Standard Arabic, Classical Arabic, and Egyptian Colloquial Arabic at the elementary, intermediate, and advanced levels. The department's programs culminate in certificates of achievement recognized around the world.

The Department of Arabic Language Instruction applicants submit completed application forms, as well as other credentials mentioned on our website: at: <http://schools.aucegypt.edu/academics/ali/Pages/default.aspx>  
Students registered to the ALIN wishing to change their program to AUC undergraduate, graduate and non-degree programs have to satisfy the admission requirements listed in the catalog for these programs.

### **Arabic Language Placement**

All non-Thanawiya Amma students should sit for an Arabic placement exam, administered by the ALNG Unit, to determine the Arabic language course level they must register for. According to the exam results, students may be exempted or required to take one or two Arabic language courses (3 or 6 credits).

Non-degree and study abroad students sit for an Arabic placement exam if they are registering for an Arabic course higher than ALNG 1101 or ALNG 1501.

# First-Year Experience Program

## First-Year Program (FYP) Orientation

A mandatory orientation introducing new students to the academic and social culture of AUC, as well as the policies and support services with which all students should be familiar. Students attending the FYP orientation will engage in both classroom and out-of-class activities.

### Goals

This orientation familiarizes new degree-seeking students with *knowledge* of the purposes and expectations of liberal arts education, AUC culture, student rights and responsibilities, and academic, personal and social competencies necessary for college success; it also equips them with the *skills* to become self-reliant in the use of university information resources, and in identifying relevant service offices when needed; finally it promotes the *values* of respect and appreciation for the institution, fellow members of the AUC community, and the learning experience.

### Participants

All admitted undergraduate degree-seeking students, including students entering the ELI, will take part in the FYP Orientation.

Transfer students, international non-degree students (e.g. study abroad), and new graduate students are **not included** in this program.

### Facilitators

Class content is created and approved by the Dean of Students. Classes are facilitated by trained senior undergraduate students. Staff from the Office of the Dean of Students and the Office of Student Life provide managerial and logistical oversight, as well as mentoring.

Student leaders organize social events to help first year students integrate and make social connections with other incoming students and peer leaders.

### Structure

The FYP is designed as a thematic-based experiential learning program that includes interactive classroom sessions, outdoor hands-on activities, and a large social event. Each of the program days covers a theme that highlights a key area of knowledge essential for success in the first year.

### Attendance and Successful Completion

First year students are required to attend all days of this program. Students who miss the entire FYP orientation or a portion thereof will be required to demonstrate knowledge of the material covered by the orientation by successfully passing an online quiz. The quiz will be administered later in the semester, but before registration takes place for the following semester. Students have two chances to pass the quiz, and tutorial materials are provided in advance to students to prepare for the quiz.

# Undergraduate Studies

## Undergraduate Studies

- The Office of the Dean of Undergraduate Studies
- Academic Advising Center
- The Core Curriculum
- Dialogue Program
- Community Based Learning
- Undergraduate Research Program

### The Office of the Dean of Undergraduate Studies

The Office of the Dean of Undergraduate Studies acts to support and enhance undergraduate education at AUC, through administration of the Core Curriculum, the Academic Advising Center, Community Based Learning (CBL) and Undergraduate Research, as well as through facilitating the development of new Freshman Year, Bridge and Honors programs. Focusing on non-declared students and working as well in close collaboration with the deans, faculty and staff of the Schools, the office seeks to further the integration and coordination of teaching and learning across the curriculum, pertinent registration and student petition issues, and related University policies and procedures - and to serve overall as an advocate for undergraduate students and studies at AUC.

### Dialogue Program

The courses are based on the principles of cross-cultural dialogue, incorporating various engaging mediums such as videoconferencing technologies. The courses give the students the opportunity to explore the dialogue process with counter-partners from around the globe, discussing topics that range from current local events to a wide variety of global socioeconomic, political and cultural issues.

### Undergraduate Research Program (UGR)

The Undergraduate Research Program institutionalizes, supports and expands opportunities for undergraduate student research, entrepreneurship and creative achievement. It nurtures amongst the academic community, across the disciplines, a culture of research and development, and the drive to advance the liberal education outcomes of undergraduate inquiry and critical and creative competence.

Among other programs and services, the Program administers a conference and mini-grant program for undergraduate researchers and hosts the yearly EURECA conference featuring student research and creative work.

# The Core Curriculum

## Graduation Requirements

The Core Curriculum sets out a series of requirements that are a vital part of an AUC education, and that all students must meet to graduate with an undergraduate degree from this university. Although it is not possible to be exempted from these requirements, in some cases students may petition for approval for credit from outside AUC in meeting them, for example through advance standing or transfer credits. All students transferring to AUC from another institution of higher learning should be aware of AUC's residency requirements. In addition to but integrated with the Core Curriculum, AUC has an Arabic Language requirement, described below. Depending on their entrance qualifications or Arabic placement examination results, many students are exempted from these requirements.

## The Core Curriculum

*"A Liberal Arts education is a celebration of learning that encompasses pretty much everything: the arts and the humanities, the social sciences and the 'hard' sciences, business training and other professional studies. It grounds us in a sound understanding of our own culture and history, but also makes us aware and tolerant of the histories and cultures of others. Liberal learning seeks to emphasize the growth of intellectual self-reliance and independence while encouraging co-operative endeavor. It is the competence to think, analyze and understand independently."* - Former AUC President Thomas Bartlett

## Goals and Objectives

The Core Curriculum is a body of courses designed to ensure that all students, regardless of major, receive a strong grounding in the traditional liberal arts and sciences. It aims to develop basic academic and intellectual traits while enhancing students' writing skills, as well as their ability to reason and construct a logical argument. It strives to familiarize students with a diverse body of knowledge and intellectual tradition, and helps them understand themselves, in addition to their culture, society and place in the world. It encourages them to address the patterns of rational thought and argumentation that underpin the world's great intellectual traditions, and introduces them to the ways in which science seeks to comprehend the natural world. In sum, the Core Curriculum lies at the heart of AUC's commitment to the liberal arts. It is, first and foremost, an education in the fundamentals of learning itself.

## Restrictions

No course that a student employs to meet a requirement of the Core Curriculum in the Freshman or Secondary Levels may be used to also meet any of the requirements - including concentration requirements, specialization requirements, collateral requirements, major core requirements, concentration electives, and general electives - of that student's major. Similarly, a course that a student employs to meet any of the requirements of a major may not be used to meet any of the requirements of the Core Curriculum, except in the Core capstone level. At the Core capstone level (and nowhere else), one course may do double service ("double count") for both Core Curriculum and major credit. In addition, any course that meets Core Curriculum requirements, at any level of the Core, may also count towards meeting requirements of a minor, to the extent consistent with stipulations of the department or program offering the minor.

**The Core Curriculum consists of three parts: The Freshman Level, the Secondary Level, and the Capstone Level.**

### I. The Freshman Level: 22 credit hours

The Freshman Program aims to offer students a coherent, integrated introduction to one of the defining features of AUC: liberal arts education. In addition, the Program equips students with communication skills in English and enables them to transfer these skills to content courses so they are prepared to cope with assignments in their majors, and enhances critical thinking skills and their application in a variety of disciplines. Finally, Freshman Program courses aim to help students think with clarity and insight about themselves, their goals and the decisions they face, and to foster their civic responsibility, personal and academic integrity, and appreciation of diversity.

For students entering AUC in the 2013-14 academic year and later, the Freshman Program consists of the following requirements: In their first semester, students begin as members of a "learning community:" small groups of students taking two closely linked classes together, a Rhetoric class (RHET 1010) and a multidisciplinary seminar (CORE 1010), that work in tandem to develop and enhance the reading, writing, critical thinking and general academic skills needed for success throughout study at AUC. The program also includes six other courses, to be taken over the first three semesters (four semesters for engineering students): a second RHET course in research skills and writing, Scientific Thinking, Philosophical Thinking, Information Literacy, and two "Pathways of Learning" courses.

### **Timely Completion of Required Freshman Program Classes in Core Curriculum**

- All AUC students should complete their RHET classes in their first two semesters, and all their other Freshman Program classes, including their Information Literacy class, by the end of their first three or (in the case of engineering students) four semesters.
- Timely completion of Freshman Program courses is of vital importance, insofar as these courses aim at accomplishing basic learning outcomes, in an integrated and sequenced manner, as a foundation for subsequent study in the Core and in the majors.

#### **Policies:**

- All students should complete their RHET courses before proceeding to Sophomore-level status.
- If students fail to register for their second RHET course, RHET 1020, in the semester immediately following successful completion of RHET 1010 (or immediately after receiving equivalent credit for or exemption from the course), a hold will be placed on their subsequent registration until the issue is satisfactorily resolved.
- Students other than those in the School of Science and Engineering must enroll in Scientific Thinking, and the Pathways One (Scientific Encounters) and Pathways Two (Cultural Explorations) required Core courses, within their first four semesters. (All SSE students are deemed to fulfill their Pathways One requirement within the major, so they need to complete six rather than seven courses in their Freshman Program; SSE students majoring or intending to major in engineering, will take slightly longer to complete Freshman Program requirements, in line with the Five Year Plans of their majors.). For students wishing to declare engineering, the requirement that Scientific Thinking be completed prior to declaration does not apply.
- If students fail to register for all of the following: a Pathways One class + the 1 cr. hr. lab (non-science students only), a Pathways Two class, Scientific Thinking\*, Philosophical Thinking, and LALT 1020, Information Literacy, by the end of their third semester (end of the fourth semester for engineering students), a hold will be placed on their subsequent registration until the issue is satisfactorily resolved.
- For undeclared students, only those who have completed the RHET 1010/ CORE 1010 tandem classes, RHET 1020, LALT 1020, and Scientific Thinking, will be eligible to declare a major at AUC. During the semester in which they wish to declare, these students must also have completed or be currently enrolled in either ALL or ALL BUT ONE of their required Pathways course(s) and Philosophical Thinking.

Only those students who have completed all Freshman Level courses can proceed to the Junior Level of their major, according to the four- or five-year plan of that major.

Any student who wishes to declare or proceed in his or her major without having completed the Freshman Program requirements according to the terms set out above, will require explicit written approval from the Office of the Dean of Undergraduate Studies. Such approval will be granted only upon acceptance of a signed statement from the student indicating precisely how and when he or she will complete all outstanding Freshman Program requirements. Students who fail to fulfill their stated plans, without sufficient, documented justification, will be placed on probation, leading to dismissal.

These rules shall apply to students who begin the Freshman Program at AUC in fall 2014 and thereafter. Provisions concerning holds on registration will apply to all students, at whatever level, beginning in fall 2014.

After the release of registration holds, students will not be allowed to drop the Freshman Program courses concerned, following the timelines mentioned above, without the consent of the Core Curriculum program.

\*For students wishing to declare engineering, the requirement that Scientific Thinking be completed prior to declaration does not apply.

#### **Specific rules applied to RHET 1010/CORE 1010 or RHET 1020 courses taken in the freshman level of the core curriculum:**

Students may attempt RHET 1010, CORE 1010 and RHET 1020 up to three times in three consecutive semesters. If the second retake is unsuccessful, students will receive a warning, and continued study at AUC will be contingent on successful completion of the course, on a third retake, in the following semester.

- All students, except for those with transfer credits or advanced standing, take the RHET 1010/CORE 1010 tandem classes (6 cr hrs total) in their first semester as freshmen. Students cannot drop one without dropping the other, and dropping both can only happen with permission.
- All students must take RHET 1020 concurrently with LALT 1020, information literacy. Students registering in RHET 1020 will automatically be registered as well in a section of LALT 1020
- Dropping one of the two courses RHET 1010 or CORE 1010 (Freshman Writing or Freshman Seminar) will result in the other course being dropped as well, automatically. In the same way dropping one of the two courses RHET 1020 and LALT 1020 will result in the other being dropped as well, automatically.
- Students retaking the tandem courses CORE 1010/RHET 1010 must enroll in a different theme.
- Students may pass or fail one or both of the tandem courses RHET 1010 and CORE 1010, depending on their performance in each course. The same applies to RHET 1020 and LALT 1020

### Freshman Program Requirements:

- RHET 110/1010 - Freshman Writing (3 cr.) and
- CORE 110/1010 - Freshman Seminar (3 cr.) (semester one, 6 credit hours)
- RHET 120/1020 - Research Writing (3 cr.) (3 credit hours)
- LALT 101/1020 - Libraries and Learning Technologies (0 cr.)
- SCI 120/1020 - Scientific Thinking (3 cr.) (3 credit hours)
- PHIL 220/2100 - Philosophical Thinking (core curriculum requirement) (3 cr.) (3 credit hours; pre-requisite RHET 1020 or concurrent; normally taken in semester three)

### Pathways of Learning courses:

#### Pathways One: Scientific Encounters (3 credit hours plus 1 lab credit)

Note: Students majoring in any program in the School of Sciences and Engineering meet these requirements through their program requirements rather than as part of the Core Curriculum. Actuarial science students are required to take a lab as part of the Core Curriculum.

Students must choose one course with lab component from the following list:

- BIOL 102/1040 - Essentials of Environmental Biology (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)
- BIOL 103/1010 - Introduction to Life Sciences (3 cr. + 1 cr. lab)
- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)
- BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab)
- BIOL 130/1410 - Current Health Issues (4 cr.)
- BIOL 199/1930 - Selected Topic for Core Curriculum (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)
- CHEM 103/1003 - Chemistry and Society (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.) (for students with no chemistry background)
- CHEM 104/1004 - Man and the Environment (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)

- CHEM 105/1005 - General Chemistry I (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)
- PHYS 100/1001 - Physics for Poets (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)
- PHYS 199/1930 - Selected Topic for Core Curriculum (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)
- SCI 105/1005 - Science and Technology of Ancient Egypt (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)
- SCI 109/1009 - Exploration of the Universe (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)
- SCI 199/1930 - Selected Topic for Core Curriculum (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)
- SCI 240/2004 - Chemistry, Art and Archaeology (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)
- SCI 250/2005 - Introduction to Geology (3 cr.) &
- SCI 251L/2015 - Introduction to Geology Lab (1 cr.)
- MACT 112/1221 - Statistical Reasoning (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)
- MACT 199/1930 - Selected Topic for Core Curriculum (3 cr.) &
- SCI 150L/1015 - General Science Laboratory (1 cr.)

## Pathways Two: Cultural Explorations (3 credit hours)

Courses taken to fulfill the Humanities / Social Science requirement at the Secondary Level must be from a department/discipline other than the one offering the course taken to meet the Pathways Two requirement. This rule applies to all courses except for courses with the prefix of SEMR and CORE as these are interdisciplinary courses. Students can therefore take a course with the CORE prefix to meet the Pathways 2 requirement at the freshman level and another course with the CORE prefix for the secondary level humanities/Social Science requirement. Most students will complete these requirements in their first three semesters. Students can only take one course from the Pathways 2: Cultural Explorations category.

- AMST 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- AMST 000/1090 - What is America?
- ANTH 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- ARIC 199/1099 - Selected Topics for Core Curriculum (3cr.)
- ARIC 000/1102 - Passionate Love in Arabic and World Literatures (3 cr.)
- ARIC 100/1300 - Arabs and Muslims Encountering the Other (3 cr.)
- ARTV 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- CORE 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- CORE 000/1130 - The Human Spirit (3 cr.)



- CORE 000/1140 - Community Matters (3 cr.)
- CREL 135/2601 - Dimensions of the Sacred: Exploring Religious Experience (3 cr.)
- ECLT 123/1023 - Experiencing Creativity: Texts and Images
- ECLT 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- ECON 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- EDUC 000/1099 - Selected Topics for the Core Curriculum (3 cr.)
- EGPT 199/1099 - Selected Topics for the Core Curriculum (3 cr.)
- FILM 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- HIST 110/1101 - World Cultures (3 cr.)
- HIST 111/1102 - Big History for Freshmen (3 cr.)
- HIST 122/1103 - Words That Made History: Great Speeches of the 20th Century (3 cr.)
- HIST 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- HIST 123/1201 - Family History in the Modern Middle East (3 cr.)
- MUSC 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- POLS 101/1001 - Introduction to Political Science (3 cr.)
- RHET 199/1099 - Selected Topics (3 cr.)
- SEMR 123/1023 - Celebrating Ideas: A Voyage Through Books, film, Art and Theater (3 cr.)
- SEMR 199/1099 - Selected Topics in Core Curriculum (3 cr.)
- SOC 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- SEMR 000/1110 - Creative Thinking & Problem Solving (3 cr.)
- THTR 130/1101 - The World of the Theatre (3 cr.)
- THTR 199/1099 - Selected Topics for Core Curriculum (3 cr.)

## Arabic Language (0-6 credit hours)

All newly admitted students, except those who have passed the Thanawiya Amma exam or its equivalent, will take an Arabic placement exam. Students can only sit for the placement exam once in the freshman year. Based on the exam results, students may be required to take up to two modern standard Arabic courses.

Starting Fall 2019, all students are required to take up to 6 credits from the following ALNG courses:

ALNG 000/1010 - Eye on Press (3 cr.)

ALNG 000/1020 - Arabic in Context (3 cr. per semester)

ALNG 000/2010 - Current Issues and Egyptian Society (3 cr. per semester)

These courses will replace the previously required ALNG courses:

ALNG 101-102 -103/1101-1102-1103 - Elementary Modern Standard Arabic (3 cr. each per semester)

ALNG 201-202-203/2101-2102-2103 - Intermediate Arabic (3 cr. each per semester)

### Policies:

- The Timely completion of the Arabic Language requirement applies to all enrolled students, regardless of their year of admission.
- All students must sit for an Arabic language placement exam during their freshman year unless they have submitted a Thanawiyya Amma certificate or its equivalent before the date of the last placement exam for any given academic year.

- Students may sit for the Arabic Placement exam only once during their first year. Retaking of the exam is not allowed. Based on the placement exam score, students will either be exempted from required Arabic Language courses, or be required to take one or two sequenced (not concurrent) courses.
- Students who fail to take their placement exam during their first two semesters will receive registration holds upon the completion of 30 credits, and they will be automatically required to do two Arabic language courses.
- Students must take all required Arabic language courses before completing 90 credit hours. For students required to take two courses, the first of the required courses must be taken before completing 60 credit hours. Students failing to register for (or registering and dropping) their required Arabic courses in time to meet the Arabic Timely Completion Policy will be issued registration holds preventing them from registering for other courses before registering for the required Arabic courses.
- Students who have taken the placement exam before fall 2019, and have not completed their required ALNG courses following the old course numbering, will be placed in the new ALNG courses, as determined by the department of Arabic Language Instruction.

For more information on policies and procedures, please check the department of Arabic Language instruction page in the Catalog.

Please check the ALNG webpage to see the instructions and schedule of the exam.

- ALNG 000/1020 - Arabic in Context (3 cr. per semester)
- ALNG 000/2010 - Current Issues and Egyptian Society (3 cr. per semester)

## II. Secondary Level: 12 credit hours

### Category 1: Humanities and Social Sciences (3 credit hours)

Every student must choose and complete one course in this category. It must be from a department other than the one offering the course taken to meet the Pathways Two requirement in the Freshman Level, and should be from a different discipline. The requirement should be completed by the end of the student's sixth semester.

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- ANTH 299/2099 - Selected Topics for Core Curriculum (3 cr.)
- ARIC 369/3269 - The Arts of Fire: Ceramics and Glass of the Islamic World (3 cr.)
- ARIC 206/2206 - The City of Cairo (3 cr.)
- ARIC 270-271/2270-2271 - From Andalusia to Indonesia: Introduction to Islamic Art and Architecture (3 cr. per semester)
- ARCH 314/2211 - History and Philosophy of Modern and Contemporary Architecture (3 cr.)
- ARIC 320/3020 - Introduction to Sufism (3 cr.)
- ARIC 371-372/3271-3272 - Islamic Architecture in Egypt and Syria (3 cr. per semester)
- ARIC 354/3405 - Islamic Philosophy (3cr.)
- ARIC 335/3435 - Introduction to the Study of Islam (3 cr.)
- ARIC 299/2099 - Selected Topics for the Core Curriculum in Humanities (3 cr.)
- ARIC 336/3336 - Studies in Ibn Khaldun (3 cr.)
- ARIC 337/3337 - Shi'i Muslims in History (3 cr.)
- ARIC 370/3270 - The Age of Transition: Early Islamic Art and the Pre-Islamic Past (3 cr.)
- ARTV 213/2113 - Introduction to Visual Cultures (3 cr.)
- ARTV 200/2200 - Analogue and Digital Practices (3 cr.) DSGN 2200
- ARTV 315/3115 - Art Theory (3 cr.)
- ARTV 370/3270 - Selected Topics in Art (3 cr.)
- CREL 299/2099 - Selected Topics for Core Curriculum (3 cr.)

- DSGN 210/2210 - Typography I (3 cr.)
- ECLT 200/2010 - Introduction to Literature (3 cr.)
- ECLT 201/2011 - Survey of British Literature (3 cr.)
- ECLT 202/2012 - Global Literature in English (3 cr.)
- ECLT 299/2099 - Selected Topics for the Core Curriculum in Humanities (3 cr.)
- ECLT 344/3014 - Literature and Philosophy (3 cr.)
- ECLT 370/3070 - Creative Writing (3 cr.)
- ECLT 303/3003 - Seventeenth-Century Literature (3 cr.)
- ECLT 304/3004 - Eighteenth-Century Literature (3 cr.)
- ECLT 305/3005 - Romanticism (3 cr.)
- ECLT 306/3006 - Nineteenth-Century European Literature (3 cr.)
- ECLT 310/3010 - American Literature to 1900 (3 cr.)
- ECLT 360/3060 - Shakespeare (3 cr.)
- EDUC 000/2099 - Selected Topics in Core Curriculum (3 cr.)
- FILM 220/2120 - Introduction to Film Art (3 cr.)
- FILM 299/2099 - Selected Topics for Core Curriculum (3 cr.)
- FILM 000/3150 - Women and Film (3 cr.)
- HIST 211/2202 - History In The Making (3 cr.)
- HIST 203/2401 - Western Civilization from Antiquity to Medieval Europe (3 cr.)
- HIST 204/2402 - Europe from the Middle Ages to the Enlightenment (1337-1789) (3 cr.)
- HIST 205/2403 - Europe in the Age of Revolution and Reform (1789-1914) (3 cr.)
- HIST 299/2099 - Selected Topics for the Core Curriculum in Humanities (3 cr.)
- HIST 307/3405 - The Middle Ages, the Renaissance and the Reformation (3 cr.)
- HIST 308/3406 - Europe in the Age of Reason (3 cr.)
- MUSC 220/2200 - Introduction to Music (3 cr.)
- MUSC 240/2400 - Western Music Theory I (3 cr.)
- MUSC 299/2099 - Selected Topics for Core Curriculum (3 cr.)
- PHIL 221/2010 - Truth, Lies, and Logical Reasoning (3 cr.)
- PHIL 230/2113 - Introduction to Ethics (3 cr.)
- PHIL 299/2099 - Selected Topics for Core Curriculum (3 cr.)
- PHIL 344/3014 - Literature and Philosophy (3 cr.)
- RHET 225/3220 - Public Speaking (3 cr.)
- RHET 299/2099 - Selected Topics (3 cr.)
- RHET 310/3310 - Discourse and Power (3 cr.)
- RHET 323/3330 - Words that Change the World (3 cr.)
- RHET 325/3340 - Making Your Case: The Art of Persuasion (3 cr.)
- RHET 340/3120 - Life Narratives (3 cr.)
- RHET 345/3110 - The Writer's Workshop (3 cr.)
- RHET 380/3150 - Poetry Writing (3 cr.)
- RHET 399/3099 - Selected Topics (3 cr.)
- SEMR 299/2099 - Selected Topics in the Humanities (3 cr.)
- SEMR 300/3099 - Core Honors Seminar (3 cr.)
- SEMR 200/2010 - Core Seminar (3 cr.)
- THTR 203/1201 - Theatre in the Making (3 cr.)
- THTR 230/2301 - Play Analysis (3 cr.)
- THTR 299/2099 - Selected Topics for Core Curriculum (3 cr.)
- THTR 000/3103 - Drama in Context I: Greeks to English Renaissance (3 cr.)

- THTR 360/3501 - Playwriting I (3 cr.)
- THTR 361/3503 - Playwriting II (3 cr.)
- ARIC 323/3323 - Marriage and the Family in the Medieval and Early Modern Middle East (3 cr.)
- ARIC 325/3325 - Beggars, Madmen, Prostitutes: the Marginalized in Pre-Modern Mideast History. (3 cr.)
- ARIC 353/3353 - Muslim Political Thought (3 cr.)
- CORE 299/2099 - Selected Topics for Core Curriculum (3 cr.)
- CORE 000/2142 - Profiles in Civic Leadership and Civic Project Development (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)
- EGPT 202/2020 - Ancient Egypt: An Introduction (3 cr.)
- EGPT 299/2099 - Selected Topics for Core Curriculum (3 cr.)
- LING 252/2200 - Introduction to Linguistics (3 cr.)
- LING 268/2210 - Principles and Practice of Teaching English (3 cr.)
- PPAD 299/2099 - Selected Topics for the Core Curriculum (3 cr.)
- PPAD 308/3198 - Management in Government (3 cr.)
- PHIL 226/2112 - Philosophy of Religion (3 cr.)
- PHIL 258/2117 - Political Philosophy (3 cr.)
- PSYC 201/1000 - Introduction to Psychology (3 cr.)
- PSYC 299/2099 - Selected Topics in Psychology (3 cr.)
- PSYC 330/3003 - Community Psychology (3 cr.)
- RHET 320/3210 - Business Communication (3 cr.)
- RHET 321/3230 - Technical Communication (3 cr.)
- RHET 322/3320 - Writing in the Social Sciences (3 cr.)
- RHET 330/3350 - Writing and Cognition: The Mind and the Machine (3 cr.)
- RHET 332/3240 - Principles of Mediation and Negotiation (3 cr.)
- RHET 334/3250 - Digital Rhetoric (3 cr.)
- SOC 201/2101 - Introduction to Sociology (3 cr.)
- SOC 240/2201 - Introduction to Community Development (3 cr.)
- SOC 299/2099 - Selected Topics for Core Curriculum (3 cr.)

## Category 2: Arab World Studies (6 credit hours)

Every student must choose and complete two courses in this category. This requirement should be completed by the end of the student's sixth semester. Starting Fall 2019, Students must complete one generic course in Arab World studies and another course which focuses on Egypt must be taken from the Arab World Studies: Egypt Category. Total of 6 credit hours.

- ANTH 210/2005 - Arab Society (3 cr.)
- ANTH 312/3301 - Anthropologies of Middle East and North Africa (3 cr.)
- ANTH 390/3305 - Selected People and Culture Areas (3 cr.)
- ARIC 201/2101 - Introduction to Classical Arabic Literature (3 cr.)
- ARIC 202/2102 - Introduction to Modern Arabic Literature (3 cr.)
- ARIC 203/2103 - Classical Arabic Literature in Translation (3 cr.)
- ARIC 204/2104 - Modern Arabic Literature in Translation (3 cr.)
- ARIC 205/2205 - The World of Islamic Architecture, from the Beginnings to the Present Day (3 cr.)
- ARIC 246/2346 - Survey of Arab History (3 cr.)
- ARIC 299/2097 - Selected Topics for the Core Curriculum in Arab World Studies (3 cr.)
- ARIC 305/3104 - Arabic Literature and Gender (3 cr.)

- ARIC 306/3106 - Arabic Literature and Film (3 cr.)
- ARIC 307/3107 - The Writer and the State (3 cr.)
- ARIC 308/3108 - Colloquial and Folk Literature (3 cr.)
- ARIC 309/3097 - Selected Themes and Topics in Arabic Literature (3 cr.)
- ARIC 000/3098 - Selected Topics in Islamic Studies (3 cr.)
- ARIC 310/3197 - Selected Themes and Topics in Arabic Literature in Translation (3 cr.)
- ARIC 314/3114 - The Arabic Novel (3 cr.)
- ARIC 315/3115 - Arabic Drama (3 cr.)
- ARIC 316/3116 - The Arabic Short Story (3 cr.)
- ARIC 321/3321 - Zawiyas, Harems, Coffee shops, Everyday Life in the Pre-Modern Mideast (3 cr.)
- ARIC 322/3322 - Land, Trade and Power: a History of Economic Relations in the Middle East, 600-1800 A.D. (3 cr.)
- ARIC 324/3324 - Non-Muslim Communities in the Muslim World (3 cr.)
- ARIC 343/3343 - Birth of Muslim Community and Rise of the Arab Caliphates (3 cr.)
- ARIC 344/3344 - Caliphs and Sultans in the Age of Crusades and Mongols (3 cr.)
- ARIC 345/3345 - Gunpowder Empires: Ottomans, Safavids and Mughols (3 cr.)
- ARIC 355/3355 - State and Society in the Middle East, 1699-1914 (3 cr.)
- ARIC 357/3397 - Selected topic in Middle East History (3 cr.)
- ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)
- CREL 299/2097 - Selected Topics for the Core Curriculum in Arab World Studies (3 cr.)
- FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)
- HIST 247/2204 - The Making of the Modern Arab World (3 cr.)
- HIST 299/2097 - Selected Topics for the Core Curriculum in Arab World Studies (3 cr.)
- HIST 330/3206 - Urban Landscapes in the Modern Middle East/North Africa (3 cr.)
- HIST 331/3207 - History of Palestine/Israel (3 cr.)
- HIST 333/3208 - Zionism and Modern Judaism (3 cr.)
- HIST 357/3288 - Selected topics in Middle East History (3 cr.)
- MUSC 342/3250 - Music in the Arab Tradition (3 cr.)
- MUSC 245/2450 - Arab Music Theory I (3 cr.)
- SOC 203/2301 - Social Problems of the Middle East (3 cr.)
- SOC 206/2302 - Arab Family Structure and Dynamics (3 cr.)
- SOC 240/2201 - Introduction to Community Development (3 cr.)

### Category 3: Global Studies (3 credit hours)

Every student must choose and complete one course in this category. The requirement should be completed by the end of the student's sixth semester.

- AMST 299/2096 - Selected Topics for Core Curriculum (3 cr.)
- AMST 301/3100 - The US and the World Economy (3 cr.)
- ANTH 302/3015 - Global Families: Kinship and Relatedness in Late Modernity (3 cr.)
- ANTH 320/3040 - States, Capital and Rural Lives (3 cr.)
- ANTH 352/3075 - Language in Culture (3 cr.)
- ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)
- ANTH 372/3090 - Public Anthropology (3 cr.)
- ANTH 382/3302 - Anthropologies of Africa (3 cr.)
- ARIC 299/2096 - Selected Topics for the Core Curriculum in International/World Studies (3 cr.)
- ARIC 368/3268 - The Art of the Book in the Islamic World (3 cr.)

- ARIC 319/3319 - Islamic Spain and North Africa (711-1492 A.D.) (3 cr.)
- ARIC 345/3345 - Gunpowder Empires: Ottomans, Safavids and Mughols (3 cr.)
- CREL 210/2603 - Religions of the World (3 cr.)
- CREL 220/2606 - Hinduism and Buddhism in India (3 cr.)
- CREL 230/2607 - Pilgrimage Traditions in the World's Religions (3 cr.)
- CREL 299/2096 - Selected Topics for the Core Curriculum in Global Studies (3 cr.)
- CREL 320/3608 - Masters, Saints, and Saviors: Sacred Biography in the World's Religions (3 cr.)
- CORE 000/2096 - Selected Topics for the Core Curriculum in Global Studies (3 cr.)
- ECLT 209/2019 - Introduction to American Studies (3 cr.)
- ECLT 299/2096 - Selected Topics for the Core Curriculum in Global Studies (3 cr.)
- ECLT 301/3001 - Medieval Literature (3 cr.)
- ECLT 302/3002 - Literature of the Renaissance (3 cr.)
- ECLT 308/3008 - Modern European and American Literature (3 cr.)
- ECLT 311/3011 - Modern American Literature (3 cr.) AMST 3011
- ECLT 332/3032 - World Literature (3 cr.)
- ECLT 330/3030 - Literature and Cinema (3 cr.)
- ECLT 333/3033 - African Literature (3 cr.)
- ECLT 346/3046 - Third World Literature (3 cr.)
- ECLT 345/3045 - Literature and Gender (3 cr.)
- ECLT 348/3048 - Contemporary Literature (3 cr.)
- ECLT 352/3052 - Recurrent Themes in Literature (3 cr.)
- ECLT 347/3099 - Selected Topics (3 cr.)
- ECLT 353/3053 - Modern Drama (3 cr.)
- FILM 000/3115 - American Cinema 1895-1945 (3 cr.)
- FILM 000/3117 - American Cinema 1945-present (3 cr.)
- FILM 370/3070 - Selected Topics in Film (3 cr.)
- HIST 250/2301 - Colonial and Postcolonial Africa
- HIST 299/2096 - Selected Topics for the Core Curriculum in Global Studies (3 cr.)
- HIST 207/2104 - World History (3 cr.)
- HIST 206/2404 - Europe in International Politics in the Twentieth Century (3 cr.)
- HIST 201/2501 - History of American Civilization to the Nineteenth Century (3 cr.)
- HIST 202/2502 - History of Modern American Civilization (3 cr.)
- HIST 320/3105 - Big History (3 cr.)
- HIST 212/2604 - The Quest for the Historical Jesus (3 cr.)
- LING 200/2201 - Languages of the World (3 cr.)
- LING 352/3075 - Language in Culture (3 cr.)
- MUSC 225/2000 - World Music (3 cr.)
- MUSC 240/2400 - Western Music Theory I (3 cr.)
- MUSC 255/1010 - The Songs of America (3 cr.)
- MUSC 370/3099 - Selected Topics in Music (3 cr.)
- MUSC 360/3200 - Music in the Western Tradition (3 cr.)
- PHIL 356/3016 - American Philosophy (3 cr.)
- POLS 299/2096 - Selected Topics for Core Curriculum (3 cr.)
- RHET 341/3130 - Travel Writing (3 cr.)
- SOC 303/3303 - Social Movements (3 cr.)
- SOC 304/3025 - Development Agencies (3 cr.)
- SOC 307/3304 - Social Class and Inequality (3 cr.)

- SOC 321/3045 - The Urban Experience (3 cr.)
- SOC 322/3050 - Rural Sociology (3 cr.)
- SOC 323/3055 - Fundamentals of Population Studies (3 cr.)
- SOC 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)
- SOC 370/3085 - Environmental Issues in Egypt (3 cr.)
- SOC 306/3030 - Sociology of Literature (3 cr.)

### III. Capstone Level: 6 credit hours

The requirements may be met by selecting two courses from a variety of options, including Senior Project or Thesis, Senior Seminar, Senior Internship, Study Abroad, Community Engagement, Honors Seminar, Interdisciplinary Senior Seminar or a 400 level course counting toward a double major. No more than 3 of the 6 credit hour requirements may be taken in the department of major.

This requirement should be completed during the student's senior year.

- ACCT 403/4003 - Contemporary Issues in Financial Reporting (3 cr.) \*
- AMST 400/4001 - Selected Topics in American Studies (3 cr.)
- ANTH 462/4065 - Culture, Economy and the Everyday (3 cr.)
- ARIC 000/5102 - Cairo in the Cultural Imaginary (3 cr.)
- ARIC 000/5137 - International Trade 1000 - 1700: Egypt and the Mediterranean - Red Sea Trade (3 cr.)
- ARCH 490/4980 - Senior Project I (2 cr.) \*
- ARCH 491/4981 - Senior Project (5 cr.) \*
- ANTH 340/3202 - Participatory Action Research in Community Settings (3 cr.)
- ANTH 422/4025 - Religion in a Global World (3cr.) \*
- ANTH 440/4203 - Practicum in Community Development (3 cr.) \*
- ANTH 460/4560 - Development Studies Seminar (3 cr.) \*
- ANTH 495/4107 - Senior Seminar (3 cr.) \*
- ARTV 470/4270 - Senior Project (B) (3 cr.) \*
- BADM 480/4001 - Business Planning and Strategy (3 cr.) \*
- BIOL 495/4980 - Senior Research Thesis (1 cr.) \*
- BIOL 496/4981 - Seminar in Biology (2 cr.) \*
- CENG 490/4980 - Senior Project I (1 cr.) \*
- CENG 491/4981 - Senior Project II (2 cr.) \*
- CHEM 495/4980 - Senior Thesis I (1 cr.) \*
- CHEM 496/4981 - Senior Thesis II (2 cr.) \*
- CORE 499/4198 - Selected Topic for Core Curriculum (3 cr.)
- CSCE 491/4980 - Senior Project I (1 cr.) \*
- CSCE 492/4981 - Senior Project II (2 cr.) \*
- DSGN 470/4270 - Senior Project Practice (3 cr.)
- ECLT 409/4009 - Greek Classics in Translation (3 cr.)
- ECLT 410/4010 - Classics of the Ancient World (3 cr.)
- ECLT 411/4011 - History of Literary Criticism (3 cr.)
- ECLT 412/4012 - Modern Literary Criticism (3 cr.)
- ECLT 447/4099 - Capstone Seminar: Selected Topics (3 cr.)
- ECON 308/3071 - Labor Economics (3 cr.) \*
- ECON 411/4099 - Seminar: Special Topics in Economics (3 cr.) \*
- ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.) \*

- ECNG 490/4980 - Senior Project I (1 cr.) \*
- ECNG 491/4981 - Senior Project II (2 cr.) \*
- EDUC 000/4098 - Selected Topics for Core Curriculum (3 cr.)
- EGPT 440/4040 - Ancient Egyptian Religion and Ethics (3 cr.) \*\*
- EGPT 499/5199 - Selected Topics in Egyptology (3 cr.) \*\*
- ENGR 494/4990 - Entrepreneurial Development and Innovation (3 cr.)
- ENGR 000/5101 - Cross Talk: Implementation Science and Engineering (3 cr.)
- ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.) \*
- FILM 450/4250 - Senior Film Project (3 cr.) \*
- FILM 470/5170 - Advanced Seminar in Film Studies and Research (3 cr.)
- HIST 405/4188 - Selected Topics in World History (3 cr.)
- HIST 401/4588 - Selected Topics in the History of the United States (3 cr.)
- HIST 412/4290 - Selected Topics in Modern Egyptian History (3 cr.)
- HIST 415/4215 - The Marriage Crisis and the Middle East (3 cr.)
- HIST 435/4216 - Social and Political History of Modern Cairo (3 cr.)
- HIST 454/4219 - Modern Movements in Islam (3 cr.)
- HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)
- HIST 450/4303 - Global Capitalism and Africa: An Economic History (3 cr.)
- HIST 402/4488 - Selected Topics in European History (3 cr.)
- JPMC 420/4420 - Media Management (3 cr.) \*
- JPMC 425/4425 - Integrated Marketing Communication Campaigns Capstone (3 cr.) \*
- JPMC 480/4480 - Multimedia Reporting Capstone (3 cr.) \*
- JPMC 482/4482 - Media Convergence Capstone (3 cr.) \*
- MACT 495/4980 - Senior Thesis (3 cr.) \*
- MACT 497/4950 - Practical Internship (3 cr.) \*
- MACT 000/4990 - Enterprise Risk Management (3 cr.) \*
- MENG 490/4980 - Senior Project I (1 cr.) \*
- MENG 491/4981 - Senior Project II (2 cr.) \*
- MEST 430/4301 - Special Topics in Middle East Studies (3 cr.)
- MKTG 480/4602 - Marketing Strategy (3 cr.) \*
- MUSC 492/4980 - Capstone Final Recital (3 cr.)
- MGMT 470/4402 - Business Consultancy (3 cr.)
- MRS 507/5100 - Introduction to Migration and Refugee Studies (3 cr.)
- MRS 500/5102 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)
- PENG 490/4980 - Senior Project I (1 cr.) \*
- PENG 491/4981 - Senior Project II (2 cr.) \*
- PHIL 500/5101 - Advanced Seminar in Classical Philosophy (3 cr.)
- PHIL 410/5112 - Advanced Seminar in Aesthetics (3 cr.) \*\*
- PHIL 458-558/5119 - Advanced Seminar in Political Philosophy (3 cr.)
- PHYS 401/4980 - Research Skills (1 cr.) \*
- PHYS 000/4981 - Senior Thesis (2 cr.) \*
- POLS 400/4000 - The Discipline and Critical Social Theory (3 cr.) \*
- POLS 430/4030 - Seminar: Special Topics in Political Science for Undergraduates (3 cr.) \*
- POLS 430/5130 - Seminar: Special Topics in Political Science for both Undergraduates and Graduates (3 cr.)
- POLS 440/5140 - Seminar: Special Topics in International Relations for both Undergraduates and Graduates (3 cr.)
- POLS 440/4640 - Seminar: Special Topics in International Relations for Undergraduates (3 cr.)
- PPAD 491/5198 - Practicum (3 cr.) \*



- PPAD 540/5161 - Diplomacy: Theory and Practice (3 cr.)
  - PSYC 340/3202 - Participatory Action Research in Community Settings (3 cr.)
  - PSYC 440/4203 - Practicum in Community Development (3 cr.)
  - PSYC 430/4063 - Advanced Community Psychology (3 cr.) \*
  - PSYC 442/4062 - Clinical Psychology (3 cr.) \*
  - RHET 342/3140 - Writing Children's Literature (3 cr.) \*
  - RHET 400/4360 - Writing for Publication (3 cr.) \*
  - RHET 410/4260 - Writing for Project Funding (3 cr.) \*
  - RHET 450/4160 - Imagining the Book (3 cr.) \*
  - RHET 480/4270 - Research and Writing Internship (3 cr.) \*
  - RHET 490/4280 - Advanced Scientific and Technical Writing (3 cr.) \*
  - SEMR 300/3099 - Core Honors Seminar (3 cr.)
  - SEMR 410/4018 - East-West Dialogue: Cross-Cultural Perceptions and Reflections (3 cr.)
  - SEMR 411/4028 - The Arab Spring in Arab Eyes: Perceptions and Reflections from the Arab World (3 cr.)
  - SEMR 412/4038 - South-South Dialogue: Perceptions and Reflections from the Global South (3 cr.)
  - SOC 340/3202 - Participatory Action Research in Community Settings (3 cr.)
  - SOC 440/4203 - Practicum in Community Development (3 cr.)
  - SOC 460/4560 - Development Studies Seminar (3 cr.)
  - THTR 490/4703 - Senior Thesis (3 cr.) \*
  - THTR 495/4705 - Senior Honors Project (3 cr.) \*\*
- All prerequisites apply
  - \*\* by instructor's permission
  - **To see SEMR course descriptions, please click here.**
  - **To see CORE course descriptions, please click here.**

## Academic Advising Center

### Academic Advising Center (AAC)

The mission of the Academic Advising Center (AAC) at AUC is to provide academic advising and assist all undeclared undergraduate students in developing their educational plans, and setting career and life goals while helping them appreciate the values of liberal arts education until they declare their major. This is done through advising and mentoring systems offered to students throughout their year (s) at the center. Once they declare a major, the students should receive the same service in their department of major while the center will continue providing the needed academic support, advice and help regarding the core curriculum and general academic rules and regulations. AAC operates on the basis of shared responsibility where AUC community (faculty, student and staff) interact and coordinate efforts to achieve advising goals and desired student outcomes from admission to graduation.

One of the goals of AAC is to provide developmental advising, a process that involves both teaching and learning as it engages the students actively in their education and helps them to develop a sense of responsibility for their academic choices. Continuity and follow up on the student's academic, mental, intellectual, psychological and post-graduate planning status on a one-on-one basis are fundamental practices and assessment of the center's goals and outcomes is integral.

# Undergraduate Academic Requirements & Regulations

## Student Responsibility

Students are responsible for familiarizing themselves with the information presented in this catalog and for observing all policies and procedures related to their participation in the university community. In addition, AUC has adopted a set of policies and procedures concerning the statutes and regulations on the campus. Copies of these policies and procedures may be obtained at the Office of the Registrar.

Regulations will not be waived nor exceptions granted based on a student's lack of awareness of the policies and procedures of the American University in Cairo. Although a number of university personnel (e.g. advisors, faculty members, registrar, departmental staff, and student affairs staff members) assist students, the student is personally responsible for following all policies and meeting deadlines and requirements. This responsibility includes, but is not limited to, academic requirements and the rules listed under the appropriate information sections of this catalog.

## Privacy Rights of Student Records

Students have the right to access their own official records. The written consent of the student must be received before personally identifiable data is released from the student's records to any party other than the exceptions specified below.

While the university is authorized under the United States Family Educational Rights and Privacy Act of 1974 to release "directory information" about students, AUC does not publish a student directory. Student information is subject to release by the university unless the university has received prior written objection from the student specifying information that the student requests not to be released. Such written objection should be submitted to the Office of the Registrar.

AUC is authorized to provide access to student records to campus officials and employees who have legitimate educational interests in such access. These persons are those who have responsibilities in connection with the academic, administrative, or service functions of the university and who have reason for using student records connected with their academic or other university responsibilities. Disclosure may also be made to other persons or organizations under certain conditions (e.g. as part of an accreditation or program evaluation; in response to a court order or subpoena; in connection with financial aid; or to US institutions to which the student is transferring).

### Click on any of the following links for information:

[Undergraduate Academic Requirements](#)  
[Undergraduate Academic Regulations](#)

Academic requirements and regulations govern the relationship between the university and its students. Students must complete the general academic requirements described below as well as those listed under an individual degree program in order to obtain an academic degree.

The academic regulations described in this section are effective at the time of publication. The university reserves the right to modify them, in which case changes will be announced when necessary. The student is responsible for being aware of all academic requirements and regulations. These can only be waived by action of the university, as appropriate. Current university regulations apply regardless of the regulations in effect at the time a student entered the university, except where current regulations specifically state the contrary.

## **Undergraduate Academic Requirements**

The general academic requirements apply to all students working toward a bachelor of arts or bachelor of science degree. These requirements reflect the university's effort to bridge two cultures. Thus the university requires a high concentration of courses in its undergraduate majors, a characteristic of Egyptian education, while at the same time requiring a core of general education, the approach taken by institutions in the United States. The main components of AUC's undergraduate programs are:

1. A Core Curriculum: foundation of general education in the natural sciences, social sciences, and humanities.
2. Arabic language requirements.
3. Concentrations: subjects in which students concentrate their studies and receive degrees.
4. Collaterals: subjects in supporting disciplines specified by the department of major.
5. Minors: subjects which students may, if they wish, study beyond the introductory level.
6. Electives: courses chosen by students in consultation with their advisers.

## **Residence**

To obtain a bachelor's degree a student must take at least 45 credit hours of courses in residence at the American University in Cairo. At least 30 of the 45 hours must be in courses at the 3000 and 4000 levels; with a stipulation that no more than 15 transfer credits in 3000-4000 level courses, will satisfy concentration requirement of any program. The maximum credit to be considered for each program is as follows:

1. A maximum of 15 transfer credit hours in the 3000-4000 level courses in programs offered by the School of Business.
2. A maximum of 15 transfer credit hours in the 3000-4000 level courses in programs offered by the School of Sciences and Engineering.
3. A maximum of 15 transfer credit hours in the 3000-4000 level courses in programs offered by the School of Global Affairs and Public Policy except for Middle East Studies program; a maximum of 12 transfer credit hours.
4. A maximum of 12 transfer credit hours in the 3000-4000 level courses in programs offered by the School of Humanities and Social Sciences.

AUC students who join a year abroad exchange program administered by the university are exempted from the residence requirement part of maximum transfer credits in 3000-4000 level courses towards concentration requirements.

## **Graduation**

To be awarded the Bachelor of Arts degree, students must complete a minimum of 120 credit hours (127 in Business Administration and in Accounting also 133 in Management of Information and Communication Technology) in courses in which the grades are "D" or better, and must earn a grade-point average of "C" or better, both overall and in the field of concentration. These requirements must be completed within seven years of the date of first registration as a freshman.

To be awarded the Bachelor of Science degree students must complete between 130 and 162 credit hours, depending on the major, in courses with grades of "D" or better and earn a grade-point average of "C" or better, both overall and in the field of concentration. These requirements must be completed within eight years of the date of first registration as a freshman.

Any period of withdrawal from the university is counted as part of the seven- or eight-year limit mentioned above.

## **Majors**

The university offers courses of study leading to bachelor's degrees in various academic fields in the arts and sciences and in professional fields. Undergraduates must select a major and fulfill the requirements of the department offering the degree. The fields of major and the departmental requirements are described in the "Fields of Study" section.

Academic regulations concerning the declaration of major and change of major are described in the "Academic Regulations" section.

### **Double Majors**

Students may earn two majors in related or unrelated fields and receive one bachelor's degree. While it is acknowledged that some students will not be able to manage the heavy workload that a double major entails, the American University in Cairo enthusiastically endorses the principle that any undergraduate student should be permitted to pursue a double major, subject to the following rules:

1. Acceptance into a second major must occur before the last semester of the senior year. Acceptance into a second major will be on the same basis as if it were the first major.
2. No student will be accepted into a second major without the formal approval of the chair of the department offering the student's first choice of major as well as the chair of the department offering the student's second choice of major.
3. Any student considering a second major should review carefully the catalog descriptions of both her/his first major and his/her intended second major, paying special attention to any specific rules established by the relevant departments with regard to double majors. For example, departments may restrict the ability of one of their own majors to declare a second major by limiting the range of majors eligible as "second majors."
4. Students who are pursuing a double-major must complete all of the requirements for both majors. In the rare circumstance where one course is eligible to meet both the concentration, collateral or elective requirements of one major and also the concentration, collateral or elective requirements of a second major, this course may be counted for both majors - unless the catalog description of either major explicitly states otherwise.
5. Students must have a faculty adviser in each major. The student must meet with each of his/her advisors and plan the student's academic program. Both advisers must sign the student's registration forms.
6. One degree will be awarded upon successful completion of both majors. If one major qualifies for the bachelor of arts degree and the other for the bachelor of science degree, the student in consultation with his/her advisers will decide which degree to receive.
7. In considering whether to major in two subjects, students should be aware that it may take more than four years to complete all requirements, that scheduling of prerequisites and required courses in two majors may be difficult, and that some AUC departments, particularly those which limit enrollment, may not allow students to take a second major in their programs.

### **Minors**

In addition to major subjects leading to a degree, students may select one or two minor academic disciplines. The minor program is available to students who would like to study a particular subject beyond the introductory courses but not to the level of expertise required for a major. An undergraduate minor introduces the student to the scope and methodology of the minor field and is often an important auxiliary to his/her major field. The American University in Cairo enthusiastically endorses the principle that undergraduate students should be permitted and even encouraged to pursue a minor discipline that will broaden their experience at AUC and enhance the interdisciplinary character of the undergraduate programs.

Minors may be within a given discipline, or interdisciplinary. Students wishing to minor in a given discipline may do so if they satisfy the requirements of the department or unit offering the minor, using the requirements for the AUC catalog year in which they declare the related minor. Students should be aware that in some cases the minimum credit hours required for graduation may have to be exceeded. At least 15 hours of courses as specified under each field are required for a minor.

In the circumstance where one course is eligible to meet both the concentration, collateral or elective requirements of a major and also any of the requirements of a minor, this course may be counted for both the major and the minor - unless the catalog description of either the major or the minor explicitly states otherwise.

The requirements for individual minors appear under the relevant field of study. Each interdisciplinary minor is administered by a steering committee which is itself interdisciplinary. Steering committee membership is open either to all teachers in the program or to representation from each department in the program in any given year.

Students who are pursuing a minor must have a faculty adviser in for the minor. This adviser will meet with the student to review the academic requirements for the minor and the student's plans to complete these requirements.

### **Dual Undergraduate/Graduate Programs**

A dual undergraduate/graduate degree program is an approved program in which a student pursues a graduate degree with an undergraduate degree in a related field. The total time for the two degrees could be decreased through the acceptance of up to 12 credit hours of required courses in both degrees. A student enrolled in a such a program must complete all requirements for the two degrees and is awarded both degrees at the end of the program. In this regard, this student is admitted to the graduate program before he/she have earned a bachelor's degree. The student is typically able to take both undergraduate and graduate courses for the program during his/her senior year.

A student who decides to withdraw from this dual degree program, will receive his/her appropriate undergraduate degree contingent on having completed all requirements for this undergraduate degree.

### **Undergraduate Academic Regulations**

#### **Registration**

Students must register during the official registration period at the times announced in the university calendar. They should plan their courses with their advisers prior to registration and follow the instructions in the Registrar's web page: [www.aucegypt.edu/students/registrar/Pages/default.aspx](http://www.aucegypt.edu/students/registrar/Pages/default.aspx). Students must attend the section of the course for which they are registered. No instructor has the authority to permit a student to shift from one section of the course to another without following official drop/add procedures. Students are responsible for registering on time and for the correct courses. You may not attend classes without being properly registered for them, you cannot receive credit for courses in which you are not registered and students may not register or add courses retroactively.

#### **Change of Courses**

With careful attention to the degree requirements and course offerings there should be minimal need for course changes after registration has been completed. Any student who desires a course change must follow the instructions in the Registrar's web page: [www.aucegypt.edu/students/registrar/Pages/default.aspx](http://www.aucegypt.edu/students/registrar/Pages/default.aspx)

- Another course may not be substituted for a required course unless university action requires that the change be made.
- Students may not drop 1000-level Rhetoric and Composition (RHET) courses without permission from the Department of Rhetoric and Composition.
- Students may drop and/or add courses without penalty during the formal "Late Registration and Course Changes Period" specified in the instructions in the Registrar's web page: [www.aucegypt.edu/students/registrar/Pages/default.aspx](http://www.aucegypt.edu/students/registrar/Pages/default.aspx)
- A course may not be added to the student's schedule after the end of the period of Late Registration and Course Changes.
- Students may drop a course and receive a "W" grade during the seven weeks following the conclusion of any period of Late Registration and Course Changes associated with a fall or spring semester.
- Students are not permitted to drop classes after the seventh week of the closing date of Late Registration and Drop/Add operations.
- Students will receive a grade of "F" if they stop attending classes without officially dropping the course.
- Students may petition their Deans - or, in the case of non-declared students, the Dean for Undergraduate Studies and Director of the Core Curriculum - for permission to drop a class and receive a "W" grade after the seventh week of the closing date of Late Registration and Drop/Add operations. However, such petitions will be approved only in special cases, which in most extraordinary circumstances will mean documented health or family crises. Petitions will be neither accepted nor approved for the purpose of avoiding a low or failing grade.

- Fulltime international transfer students and fulltime non-declared international students may petition for permission to drop a class and receive a "W" grade after the seventh week of the closing date of Late Registration and Drop/Add operations by seeking the approval of the Faculty Advisor in the International Programs Office and then submitting the petition for approval to the responsible department chair and dean. In general, such petitions will be approved only in special cases, which in most circumstances will mean documented health or family crises.

### **Credit Hours**

Coursework is counted in credit hours. In general, a credit hour represents a one-hour class period that requires at least two hours of individual study each week for one semester. Thus a course of three credit hours would meet for three hours a week and the student would be expected to study for six hours outside of class. Laboratory courses involve less outside work, so usually one hour of credit is granted for a three-hour session.

### **Class Standing**

Class standing is determined by the number of credit hours completed. Students become sophomores on completing 30 credit hours, juniors on completing 60 credit hours, and seniors on completing 90 credit hours.

### **Declaration of Major**

#### **Declaring intended Program:**

Students are required to indicate their preferred "Intended Program" during admission. Only students intending Engineering majors may be accepted into their "Intended Program" at the same time as they are offered admission into the University. All other students are admitted as "Undeclared students".

Any student in good standing (i.e., who has a cumulative grade point average of 2.0 or above) may seek admission to any major offered by any AUC academic program. AUC is proud of the quality and rigor of all of its undergraduate programs, and the University undertakes to insure that every student admitted to the University will have several major disciplines from which to choose. However, AUC does not undertake to insure that every student will be admitted to the specific major program(s) that the student may prefer. Admission to a student's preferred major is not guaranteed and is subject to the following factors:

1. Departments that offer majors that are in such high demand that the number of students applying for a major exceeds the department's capacity may limit the number of majors whom they admit in accordance with the number of full-time faculty and the availability of appropriate facilities. These departments will announce the number of new places available in the major each semester as well as the criteria and associated rationale according to which the programs determine the number of places of available.
2. A department that has limited capacity relative to the numbers of students seeking to major in that department's discipline(s), must employ a variety of criteria in identifying those students who will be admitted into the major(s). These criteria include, but must not be limited to, a measure of academic performance in all courses taken at AUC joined with a measure of academic performance in specific courses taken at AUC essential to the academic discipline in question. All criteria must be appropriately weighted in admission decisions when employed. These criteria may include (among other things):
  - Secondary school performance. (This criterion is especially important in the case of Engineering, which selects many of the students who will be permitted to pursue Engineering majors during Admission).
  - Interviews.
  - Assigned essays.
  - Aptitude tests.
  - Portfolios.
3. Admission into some majors may also be dependent on meeting standards of aptitude or skill (e.g. musical training, mathematics or linguistics skills).

Students may choose to declare their major at any time between the end of their second semester and the beginning of the fifth semester - that is, after they have completed from 26 to 30 credits, as determined by each department for its

major(s), and before they have completed 60 credits. Once a student has achieved junior standing (that is, has completed 60 credit hours), he or she must have declared a major. No student who has achieved junior standing will be permitted to register in courses unless he or she has declared a major, and no student will be considered a "declared major" unless and until the student has received a formal statement, signed by the chair of the department or the person most directly responsible for offering the major in question, confirming that the student has been admitted to this major.

Students follow the degree requirements stated in the catalog of the year in which they make their declaration. However, if a student withdraws from the university and is later readmitted s/he will be required to follow the catalog requirements of the year in which readmission occurs.

### **Change of Major**

A student who has achieved junior standing is expected to complete the requirements of and graduate with the major in which he or she is declared. However, students may change their field of study or be required to change it by university action at any time up to the end of their junior year. A change requires approval from the department of the new major. Students follow the degree requirements stated in the catalog of the year in which they make the change.

Students may not change their major after the start of their senior year. That is, once a student has completed 90 credit hours and achieved senior standing, he or she will only be permitted to complete and graduate with the undergraduate major in which he or she is declared at that time.

### **Academic Load**

Full time undergraduate students normally take an academic load of twelve to sixteen hours, with the exception of science, engineering and computer science students who may take up to eighteen hours. In the summer session, students may take up to seven credit hours. In the Winter session, summer A session and summer B session, students may take up to four credit hours.

Permission to exceed the above maximums, up to twenty one credit hours in fall and spring semesters and nine credit hours in the summer, is based on the student's previous academic record in addition to the recommendation of the department chair and the University Registrar. Freshman and Sophomore students are not permitted to exceed the maximum load, and courses taken for no credit are included within that load.

Students taking less than twelve credit hours are part-time students unless they are seniors who need to complete their degree requirements, or are prevented from taking normal load as a result of university restrictions. Students may not change their status from full time to part time during the semester without the approval of the University Registrar.

The university encourages students to carry a full load and to devote all their effort to university work and activities to obtain full benefit from their undergraduate education. Those who cannot devote full time to their undergraduate program, whether because of needed employment or other obligations, may carry a lighter course load of six to nine hours. The university cannot reschedule classes because they conflict with outside obligations.

Full-time students are entitled to university certification concerning deferment from military service and are eligible for student aid and employment. Part-time students are not entitled to certification concerning military deferment and are not eligible for student aid or employment.

Foreign students carrying a full academic load are entitled to university certification for use in obtaining their student visa. In case of withdrawal, the university reports the Egyptian authorities to cancel the student residence visa that was received through the university. Part-time students are not entitled to university certification for obtaining a student visa.

### **Grades/Examinations**

Student work in each course is evaluated throughout the semester. Examinations, quizzes, reports, discussions or other means of evaluation help students know how they stand in a course.

Final examinations review the entire semester's work but are not heavily emphasized. Each examination lasts no longer than two hours and counts for no more than one-third of the final course grade. Except in 400-level courses and higher where extensive writing assignments and projects pertain, no other element in the final course grade will count for more than one-third. Final examinations are held during the official examination period, which is listed in the academic calendar of the university.

At the close of the semester students receive a final grade in each course. The grade is the professor's official estimate of the student's achievement as reflected in examinations, assignments, and class participation. The final grades are recorded on the student's permanent record at the Office of the Registrar. The grade may not be changed on the student record.

The following grading system is used at the American University in Cairo:

<b>Grade</b>	<b>Points</b>	<b>Description</b>
A	4.0	Excellent
A-	3.7	
B+	3.3	Very good
B	3.0	
B-	2.7	Good
C+	2.3	
C	2.0	Passing
C-	1.7	
D+	1.3	Conditionally passing
D	1.0	
F	<b>0.0</b>	<b>Failing</b>

**Grades not included in the Grade Point Average:**

<b>P</b>	<b>Pass*</b>
F	Fail
I	Incomplete
S	Satisfactory
U	Unsatisfactory
W	Withdrew
AU	Audit



IP Incremental /In Progress\*\*

\*Pass indicates a quality of performance at the minimum level of "C." "Pass/Fail" grades are assigned only to certain courses as defined in their course description.

\*\* For Pass/Fail, an 'IP' grade may be assigned to students that are attending and progressing but not achieving an acceptable level of proficiency in meeting the course outcomes. It is not to be used as an alternative to an 'I' or 'F'. An 'IP' will appear and remain on the student's transcript with no credits awarded. The course with an 'IP' grade must be retaken at the same level in the following semester.

The grade point average is calculated by multiplying the grade value by the number of credit hours the course represents; the result is the column listed as quality points. The total quality points is then divided by the total credit hours, excluding the credit hours for "P/F" courses, as illustrated below.

An example for calculating the grade point average:

Course ID	Grade	Credit Hrs	QualityPoints		
RHET 1010	C	3	6		
CHEM 1005	D	3	3		
CHEM 1015	C+	1	2.3		
MACT 1121	F	3	0		
PHYS 1011	A-	3	11.1		
PHYS 1012	B+	1	3.3		
Current AHRS	EHRS	QHRS	QPTS	GPA	
14	11	14	25.7	1.83	

**AHRS:** Attempted Hours are the credit hours that the student is registering for.

**EHRS:** Earned Hours are hours of courses in which the student achieved a passing grade, including courses with "pass/fail" grades. The earned hours (not attempted) are counted to determine the student's class and graduation.

**QHRS:** Quality Hours are hours of courses which are graded, excluding pass/fail or satisfactory/unsatisfactory courses.

**QPTS:** Quality Points are points allotted to each course, which are the result of multiplying the credit hours of the course by the points assigned to each grade mentioned above.

**GPA:** Grade Point Average is the quotient obtained by dividing the total quality points by the total quality hours i.e.  $25.7/14 = 1.83$ .

A "C" average (2.00) is required to graduate from the American University in Cairo. Likewise, a minimum grade point average of 2.00 is required in majors and minors.

Grades of "pass/fail", "I", "S", "U", "W", "AU" and "IP" are not assigned grade point values and are not used in the computation of the grade point average. Decimals beyond 2 places are truncated, not rounded up, in computing the grade point average.

#### Incomplete Work

In very rare cases, undergraduate students who are unable to complete a course may be permitted to continue work in that course beyond the examination period. Any professor submitting an incomplete grade must supplement this submission with a form to the Office of the Registrar (copies to the instructor, and the student) giving the following information:

1. Reason for the incomplete.
2. The material which is lacking.
3. Action necessary for removal of the incomplete.

In such a case, a grade of "I", for "incomplete," is assigned. The students must make arrangements with the professor to complete the course within one month after the beginning of the new academic session, whether they are in school or not. Failure to complete the course within one month after the beginning of the new academic session causes the grade in that course to be recorded as "IF", signifying failure.

If students have one incomplete grade, their academic load limit the following semester will not be affected. If they have more than one incomplete grade, the credit hours of the incomplete will be included in their academic load for the following semester.

Students who receive an incomplete grade(s) while on warning due to a deficiency in their overall grade point average will not be allowed to register the following semester. If, however, they complete their incomplete work before the end of the late registration period, and are academically eligible, they will be allowed to proceed with registration.

### **Class Attendance**

Attendance and participation in class and laboratory sessions are essential to achieving learning outcomes in all AUC courses. Students benefit from lectures and discussions with their instructors and fellow students, and if they fail to attend class, they fail to take advantage of an educational opportunity that may be vital to their academic progress. For this reason, students are expected to attend class regularly in accordance with the general university policy described below and the specific policy detailed in each course syllabus.

### **The Policy**

1. Regular attendance is expected of each student. Students are expected to maintain awareness of their records of attendance and avoid excessive absences, thereby avoiding circumstances in which it may become difficult or impossible for an instructor to evaluate and assess a student properly.
2. The attendance policy at AUC allows a maximum of the equivalent to three weeks of absences. However, students' grades may suffer if their absences from any class session cause them to miss any direct assessment activities, unless otherwise approved by the instructor.
3. On the first day of classes, each instructor will provide his or her students with a syllabus in which the rules and procedures governing the attendance in the course are specified and detailed, and are applied equally and without bias to all members of the course in question.
4. Students are personally responsible for making up any academic tasks, assignments or assessments due to any absence, in accordance with the attendance policy described in the syllabus for each course.
5. Although attendance is required in all courses, it is not a learning outcome; therefore attendance will not be graded as such.
6. A student who misses more than the three-week equivalent of class sessions may be assigned a reduced grade for the course including the grade of "F" solely on the basis of inadequate attendance as outlined in the syllabus of the course, or announced and published by academic programs.
7. Individual academic programs may establish an alternative attendance policy for specific courses, such as courses that rely heavily on in class or outside of class learning activities. Any such policy should be authorized and approved by the dean of the school offering the course(s) in question. Any faculty member who teaches such a course is also expected to observe the course wide attendance policy.
8. As AUC recognizes the value of all extra-curricular activities, faculty will accept excuses for absences that are the consequence of participation in formal AUC activities or formally representing Egypt in national or international sporting and/or cultural and academic activities and events. It is also recognized that medical

and family emergencies may cause absences. Students will not be penalized and the instructor will provide the opportunity to make up the missed assessments for such absences subject to the following conditions:

a. extra-curricular activity excuses are only valid if signed by a university officer designated by the Dean of Students and if the student has informed the instructor in advance of the absences in question.

b. medical and family emergency excuses are only valid if documented and approved by an authorized medical officer and certified by an AUC officer designated by the AUC clinic director and if the student has informed the instructor within a period of seven working days.

9. Students who miss more than the maximum three-week equivalent of absences due to any of the excuses stated in item (8) above,

a. may petition to drop their course after the formal deadline to drop courses and before the deadline for withdrawal from the university. The dean of the school under which is the course is administrated will determine the merit of any such petitions based on the documented absences from the instructor, department chair, or

b. may petition to continue the course. The instructor of the course will determine the merit and have the final decision.

### **Repeating Courses Under the Course Repeat Policy**

All Undergraduate students may repeat a course once for the purpose of improving a grade. The Repeat Policy is subject to the following limitations:

1. Students may repeat a maximum of 5 courses during the entire undergraduate career.
2. The rule applies to courses taken at AUC within two consecutive Academic Years (Four Successive Semesters).
3. All course repeats must be taken in residency at AUC.
4. Students must repeat the same course that was previously taken. In case that the same course is no longer offered within the permissible two years, the department offering the course is authorized to substitute it by another course with the approval of the department of major.
5. Students cannot make use of the Repeat policy if the grade is related to Academic Integrity.
6. After a course is repeated, the credit hours of the first attempt will not be matriculated in the total earned hours of the student record. Also the grade received in the first attempt will not be deleted from the student's record but will no more be calculated in the grade point average; instead the second grade is the one that will be calculated in the grade point average.
7. The Online Course Repeat form is available on the Registrar Web Page: [student.aucegypt.edu](http://student.aucegypt.edu). The Online form must be submitted by maximum the eighth week of the semester in which the course is being repeated.

### **Retaking Courses Outside of the Course Repeat Policy**

Students who have consumed all privileges of the Course Repeat Policy such as Academic Integrity, Exceeding the Five Repeats, Repeating the same course more than once and earned grades of "D", "D+", or "F" will follow a different calculation path which entails that grades of the first and second attempt are kept on the student record and the average of both are matriculated, but only the credit hours of one attempt will be included in the earned hours of the student record

The Online Course Repeat form is available on the Registrar Web Page: [student.aucegypt.edu](http://student.aucegypt.edu)

The Online form must be submitted by maximum the eighth week of the semester in which the course is being repeated.

### **Honors**

The university awards honors to students who do superior work. Full-time students who earn a grade point average of 3.50 or above for the previous semester are placed on the dean's honor roll. This distinction is noted on the student's academic record.

Graduation honors are awarded to students who have maintained a superior grade point average throughout their college careers:

1. Students who enter the university as freshmen or sophomores earn honors (Cum Laude) if they graduate with a cumulative average of 3.4, high honors (Magna Cum Laude) with 3.6 and highest honors (Summa Cum Laude) with 3.8.
2. Students who graduate from the university with transfer credits of 45 hours or more receive graduation honors if they earn a cumulative average of 3.5, high honors if they earn a grade point average of 3.7 and highest honors if they earn a grade point average of 3.9.

### **Probation/Warning**

Students who fail to meet the academic standards established by the university will be placed on probation. The probation period provides the student with an opportunity to correct the deficiency, but that period may last for no more than two regular semesters. Failure to achieve the required standard by the end of the probation period disqualifies the student from further attendance at the university.

Students who fail to maintain a cumulative grade point average of 2.0 or better at the end of a semester will be placed on probation. Students who fail ENGL 0210 will be placed on warning.

In the above cases, an email is sent to the student, which includes a statement of what is required to avoid dismissal from the university. To be allowed to continue on probation the following semester students in this category must show satisfactory improvement during the first semester of their probation period (i.e. achieve at least a 2.0 semester GPA).

Students placed on probation for a deficiency in their cumulative GPA must limit their academic load during their probation period to four courses with a maximum of 13 credit hours per semester. The permissible load for students taking ENGL 0210 is a maximum of 7 credit hours per semester. It is the responsibility of the adviser to follow up on the student's performance and academic load.

Students who fail to maintain a grade point average of 2.0 in their major at the end of any semester following their declaration of major, will be placed on major probation. An email is sent to the student, with a copy to the department of major.

Students will have two semesters to clear the deficiency in their major. If by the end of the two semesters the deficiency is not corrected, they will be discontinued unless accepted in another major.

Students on probation/warning for any of the above deficiencies are not allowed to participate actively, or represent the university, in co-curricular activities, such as sports, teams, clubs, associations, organizations, conferences, or competitions. They may not participate in office-led programs. They may not serve in the Student Government.

### **Dismissal**

To avoid dismissal, students on overall probation must achieve a semester grade point average of 2.0 following the first semester of their probation period, and a cumulative grade point average of 2.0 at the end of the second semester of their probation period.

A student who fails ENGL 0210 twice in two regular semesters and a third time in a Summer session will be dismissed from the University and must wait one full semester before applying for readmission. The student must score high enough on the TOEFL for direct admission to the Department of Rhetoric and Composition courses (RHET) since s/he will not be allowed to take ENGL 0210 for a third time during a regular semester.

### **Planned Educational Leave of Absence**

Students at The American University in Cairo may apply for a Planned Educational Leave of Absence. A Planned Educational Leave of Absence is defined as a planned interruption or pause in a student's regular education during which the student temporarily ceases his or her formal studies at AUC while pursuing other activities that may assist in clarifying the student's educational goals. The intent of the policy is to make it possible for a student to suspend his or her academic work, leave the campus without jeopardizing his or her rights and privileges, and later resume his or her studies with a minimum of procedural difficulty. A student who is approved for a planned leave will be considered as maintaining his or her status as a continuing student.

Planned educational leaves may be granted for a variety of reasons or projects, but certain characteristics must be contained in any request for a leave:

1. The leave must have a definite purpose relevant to the student's overall educational objectives and goals.
2. The request must be for a specific period of time which should not exceed 3 regular semesters for students pursuing an undergraduate program.
3. The student must plan to return to AUC at the conclusion of his or her leave.

The following regulations apply to the planned educational leave:

1. An application for a Planned Educational Leave of Absence and additional information can be obtained from the Office of the Registrar or on the Registrar web page <http://student.aucegypt.edu>
2. The student must obtain the approval of his or her faculty advisor, the department chair of his or her major (or, in the case of an undeclared student, the Freshman Advisor) and the University Registrar.
3. The student should be in academic good standing at the time of the leave request. The leave application must be submitted to the Office of the Registrar by the start of the final examination period of the semester immediately preceding the requested leave. The Office of the Registrar will notify the leave applicant of the status of the request after all of his or her final grades have been submitted.
4. The student may cancel a leave of absence as late as the first day of classes of the term for which the leave has been requested.
5. A degree student who discontinues active enrollment in degree studies without being granted a leave of absence, or a student granted a leave who does not return to active study at the close of the period of approved absence, will be considered to have withdrawn from the University and must apply for readmission and be subject to the regulations and requirements then in force.
6. The right to use university facilities is suspended while the leave is in effect, with the exception of library privileges subject of the approval of the department of major.
7. A Planned Educational Leave of Absence is counted as part of the time limitations specified under the heading "Graduation" in this section. A student returning from an approved leave remains under the requirements of the catalog that s/he was following upon the declaration of major.
8. Any academic credit during a Planned Educational Leave of Absence is accredited by AUC only if permission is granted in advance by the University Registrar.

#### **Withdrawal from the University**

Students who drop all their courses during a semester are requested to pass by the Office of the Registrar to activate their registration screens before the advising/registration period for the consecutive semester.

Students who wish to withdraw from the University for one semester or more due to illness or other emergency circumstances are requested to fill in a "Withdrawal Form" and submit it to the Office of the Registrar - forms are available at the Office of the Registrar and on the Registrar web page <http://student.aucegypt.edu>

Withdrawal grades "W" will be recorded for each course. No academic credit is given for courses from which students withdraw.

Students who wish to return after an absence of one or more semesters may apply for readmission. Readmission is not granted automatically. (See the "Admissions" section of the catalog.)

#### **Transcripts**

Students who have graduated or who withdrew from the University can apply for official or student transcripts of their academic record. There will be a charge for this service. No transcript of academic record will be issued during the examination, registration, or graduation periods. Academic transcripts will not be issued when unsatisfied financial obligations to the university exist.

### **Non-degree Academic Regulations**

Since non-degree students are usually seeking credit for transfer to other institutions, not all of the academic regulations in the previous section are applicable to them. They will be primarily concerned about the academic regulations of their home institutions to ensure that they receive maximum possible credit for their AUC work.

Non-degree students should note the sections pertaining to registration, change of courses, academic load, grades, probation, incomplete work, class attendance, and transcripts in the undergraduate section as appropriate.

Non-degree students who wish to transfer their ALIN (Arabic Language Intensive Program) credits towards a degree in a regular AUC program should get the approval of their department of major. Those wishing to transfer credits to their home universities should check these universities' policies before coming to Cairo.

### **Academic Integrity Policy**

*Preamble:* Valuing the concepts of academic integrity and independent effort, the American University in Cairo expects from its students the highest standards of scholarly conduct. The University community asserts that the reputation of the institution depends on the integrity of both faculty and students in their academic pursuits and that it is their joint responsibility to promote an atmosphere conducive to such standards.

1. Academic dishonesty is not acceptable in an institution dedicated to learning or in any society. Academic dishonesty includes, but is not limited to:
  1. Cheating: using unauthorized notes, aids, or information on an examination; altering a graded work prior to its return to a faculty member; allowing another person to do one's own work and submitting it for grading.
  2. Plagiarism: submitting material that in part or whole is not one's own work; submitting one's own work without properly attributing the correct sources of its content.
  3. Fabrication: inventing or falsifying information, data, or citation; presenting data gathered outside of acceptable professorial guidelines; failing to provide an accurate account of how information, data or citations were gathered; altering documents affecting academic records; forging signatures or authorizing false information on an official academic document, grade, letter, form, ID card, or any other university document; submitting false excuses for absence, delay or illness.
  4. Multiple Submissions: submitting identical papers or course work for credit in more than one course without prior permission of the instructor.
  5. Obtaining or Attempting to Obtain Unfair Advantage:
    1. gaining or providing access to examination materials prior to the time authorized by an instructor;
    2. stealing, defacing, or destroying library or research materials which can deprive others of their use;
    3. unauthorized collaboration on an academic assignment;
    4. retaining, possessing, or circulating previously used examination materials without the instructor's permission;
    5. obstructing or interfering with another student's academic work;
    6. engaging in any activity designed to obtain an unfair advantage over another student in the same course;
    7. offering bribes to staff or any university employee to effect a grade change, or gain unfair advantage over other students.
  6. Unauthorized Access: viewing or altering in any way computer records, modifying computer programs or systems, releasing or distributing information gathered via unauthorized access, or in any way interfering with the use or availability of computer systems/information.

7. Aiding and Abetting: providing material, information, or other assistance which violates the above Standards for Academic Integrity; providing false information in connection with any inquiry regarding academic integrity.
8. Impersonation: impersonating or allowing to be impersonated by another individual during classes, examination or other university activities.
9. Threatening harm: threatening, effecting, or encouraging bodily, professional or financial harm to any faculty, staff, administrator or student who has witnessed or reported a violation of the Code of Ethics.
10. Misconduct: behaving in a manner that violates or adversely affects the rights of other members of the AUC community (disrupting meetings or activities, unruly behavior, etc).
11. Copyright infringement: using copyrighted materials (print, electronic, or multimedia) in a manner that violates international copyright laws.

The University reserves the right to take disciplinary action as severe as dismissal according to procedures delineated in section II.

2. An instructor has full authority to deal with an academic dishonesty incident within the context of his/her course. Disciplinary action may cover the range from reprimand to "F" for the course grade. The instructor may also recommend suspension or dismissal from the University.

The instructor's action on incidents of academic dishonesty must be communicated to the student(s) involved as well as to the Student Affairs Office and the office responsible for monitoring academic integrity by her/him within two weeks of the time the instructor became aware of the incident.

All cases of academic dishonesty are to be immediately reported to the chair of the Academic Integrity Committee and to the Chair of the instructor's department. In the case of a recommendation for suspension or dismissal, the Academic Integrity Committee will meet promptly to investigate and submit a recommendation to the Provost, who is the final authority.

All students involved in academic dishonesty will receive an official letter of warning from the University administration, a copy of which will remain in the students' file in the department as well as in the Student Affairs Office and the office responsible for monitoring academic integrity.

3. Once the Academic Integrity Committee has given a hearing to the student and submitted its recommendation to the Provost, no further appeal may be made unless substantial new evidence is presented to the Chair of the Academic Integrity Committee, who will evaluate the evidence and reopen the case if deemed necessary.

## Graduate Admissions

Click on any of the following links for information:

Graduate Admissions  
Non-degree Admissions  
Other Admissions

## Graduate Admissions

Graduate applicants must complete the Graduate Admission application by the set deadlines, including all required documents/credentials. A file for each applicant is prepared, and evaluated by the Office of Graduate Admissions to ensure that the applicants have met the minimum requirements as indicated by the university catalog. The file is then evaluated by the relevant program for recommendation. The relevant school dean then reviews the file and the program

recommendation, and sends his/her recommendation to the Dean of Graduate Studies for review and final recommendation. The Office of Graduate Admissions finalizes the admission evaluation, and admission decisions are then announced based on the four stages of evaluation. If accepted, then letters of admission are sent out to the applicants indicating the conditions of the admission offer. Additionally, information regarding advising, registration, tuition payment, contact persons, and next steps in general are also provided.

A student may not seek new admission to the same program from which he/she has been dismissed for the expiration of study period.

### **Criteria for Admission of Graduate Students**

The university requires the following minimum standards in admitting graduate students. Actual admissions for a given program may be at a higher level as specified by this program.

#### ***Qualifications for graduate programs***

Applicants for graduate study must have an accredited Bachelor's degree with an academic record at a level sufficient to qualify for full or provisional admission as described under "Categories of Admission" below. For consistency, the final grades for all transcripts submitted will be calculated to a final GPA mark on a scale of 1 to 4, where 4 is the highest grade. Transcripts showing only a rank grade (such as gayyed gidan), without indication of a GPA or percent value will be calculated as follows:

Emteyaz	= Excellent	=3.75 GPA
Gayyed Gidan	=Very Good	=3.25 GPA
Gayyid	= Good	= 2.75 GPA
Makboul	= Pass	= 2.25 GPA

However, when transcripts show grade rank value (such as gayyed gidan), as well as GPA or percent value, then the GPA or percent value will be calculated to a GPA value on a scale of 1-4, and will take priority over the rank value.

Additional criteria such as the following may also be considered when evaluating a candidate for admission to the graduate program:

1. Evidence of academic English proficiency as required by the relevant graduate program.
2. Test scores (GRE, GMAT, etc. where applicable).
3. Maturing time since undergraduate experience.
4. Work experience in a field related to the program applied for.
5. Strong faculty advocacy with written intent to mentor the student.
6. References from instructor and/or employer speaking to motivation and maturity.
7. Personal interview.
8. Departmental Arabic language test for specific programs.
9. Any post high-school academic records showing evidence of being prepared for graduate level courses.

#### ***Qualifications for Ph.D. Degree programs***

Applicants must have completed both an accredited Bachelor of Science degree and Master's degree with an academic record at a level sufficient to qualify for admissions. In addition to the criteria mentioned above for MA and MS degrees the following is also considered when evaluating a candidate for admission to the PhD program:

1. Academic performance showing evidence they are prepared for PhD level courses.
2. GRE test scores that suggest potential.
3. Thesis abstract.
4. Research interest and objectives.



5. Evidence of academic English proficiency prior to enrollment.

***English Language Proficiency***

Applicants must demonstrate knowledge of adequate English language for graduate studies. For full admission to the university, graduate applicants must attain the required score on the Test of English as a Foreign Language (International TOEFL, iBT), or on the International English Language Testing System (Academic IELTS) examination, or on the academic Cambridge Assessment English test. (only Advanced or Proficiency exams are accepted).

**Exemptions from these English language examinations is allowed if all the following conditions are met:**

1. The applicant is currently enrolled or recently enrolled (within a maximum of 2 years prior to the intended start semester at AUC) or graduated from an accredited university where English is the sole language of instruction for its programs, and the program of study is an academic one and was, instructed solely in English.

Enrollment refers to one continuous year of full course load (a minimum of 9 credit hours per semester for graduate studies or 12 credit hours per semester of undergraduate studies, or their equivalent). English language courses are not included in this count.

2. The mode of study was full time attendance.

3. The accredited university is in a country where English is an official language.

In the absence of the condition that English is an official language of the country, exemption from the required English language examinations applies, conditional to both the following points:

a. If the University is classified in the World Higher Education Database (WHED) or in the International Handbook of Universities as an institution where English is the "sole" language of instruction.

b. If the English language requirements of the home university are no less than those required at AUC for a full admission status. In this case, the applicant must submit an official confirmation from the home university's registrar, with reference to test details and results, that the applicant has met the home university English language placement requirements for admission.

**There can be no waiver for the required English language examination if:**

- It is a mandatory requirement for fellowship eligibility at AUC.
- The accredited degrees earned were completed under an affiliation or joint program, where such degrees are earned from an accredited institute where English is the sole language of instruction, but full time attendance was at another accredited institute that is in a country where English is not an official language. In case this other accredited institute is one where English is the sole language of instruction as per the classification of the World Higher Education Database or in the International Handbook of Universities, point (3.a) above applies.
- Valid iBT TOEFL or academic IELTS or Cambridge Assessment English tests results are evident and indicating a placement of less than full admission, in which case the test results will over-rule all other reasons for possible test exemptions.

**Additional notes:**

- Degree seeking applicants who do not attain the minimum test score required for full admission, but are otherwise qualified for admission are placed in an English language Instruction (ELI) course for further language study.
- Non degree seeking applicants must attain at least the test score required for full admission to be accepted.
- Applicants may submit results for more than one test as long as these are submitted within the approved admission evaluation deadlines. The highest of the valid scores will be considered for admission.
- The validity of any of these English language examinations is two years from the day of the exam. The results will not be considered for graduate admission if the expiry date is before the first day of registered classes at AUC.

- The American University in Cairo reserves the right to request English proficiency test results from any applicant as deemed necessary.

### ***Computer and Library Skills***

Graduate students may be asked to demonstrate a minimum competency in use of computers and academic libraries as they relate to graduate study and research.

### ***Entrance Examination***

The program of major may require applicants to sit for a graduate entrance examination, the results of which will be considered at the time of admission.

1. Science and Engineering departments require PhD applicants to sit for a Graduate Record Examination (GRE). Also, applicants to MA programs in Economics, Economics in International Development are required to sit for the GRE exam.
2. The Department of Management requires MBA applicants to sit for the Graduate Management Admission Test (GMAT).
3. Applicants to MS in Finance are required to sit for either the GMAT or GRE tests.
4. The Teaching Arabic as a Foreign Language program may require an Arabic Language Test based on the evaluation of the application.

GRE and GMAT exams have a validity of 5 years from the test date. If GRE and GMAT results are to be considered for admission to graduate studies, then the expiry date of their validity must fall after the first day of classes of the first semester of registration in the relevant graduate program.

### ***Graduate Diploma Programs***

The university offers a number of graduate diploma programs for which a bachelor's degree with an acceptable GPA are required.

When recommended by program faculty, students may be accepted for diploma programs without commitment or expectation of future admission for a master's degree.

Diploma applicants follow the same requirements and procedures for admission as master's degree-seeking students.

### ***Admission Deferral***

Only fully admitted applicants may defer their admission if the deposit against their tuition is paid to hold a place in the program, and the deferral request must be placed before the first day of classes of the semester originally applied to. This privilege may be exercised only once, and the deferral can be for a maximum of one academic year. Full admission that is conditioned by the submission of original documents will not be considered for deferral if these requirements are not submitted within the deadlines set by the Office of Graduate Admissions.

In cases where admitted applicants' test results expire before the start of the semester to which admission is to be deferred, they must submit new satisfactory test results before the expiry date or else deferral will be deactivated.

Applicants granted provisional admission cannot defer their admission, but may reapply in a subsequent semester.

Applicants are allowed 2 weeks after the admission application deadline, to complete the credentials of the application. If during this allowance period the applicant decides that he/she cannot submit the required test results on time, then the application can be deferred, upon the applicant's request, to a subsequent semester, only if all other credentials are submitted, and all that remains pending is the test results. This type of deferral request is not permitted past the allowance period. Incomplete files cannot be deferred for processing in a following semester.

### ***Medical Examination***

A recent medical report indicating that the student is fit for conducting university studies is required from only the admitted students. Prior to registration and by the end of the first week of classes, all new graduate students are required to submit a soft copy of a recent medical report to AUC Clinic [medicalserv@aucegypt.edu](mailto:medicalserv@aucegypt.edu). International students are advised to include the results of a recent HIV test. Students with special medical requirements or those who would prefer that the Medical Center be made aware of specific medical conditions/needs, are advised to communicate these condition and establish contact with the specialists at the clinic, once on campus.

### ***Medical Insurance for Non-Egyptian Applicants***

It is recommended that non-Egyptian students have health and accident insurance which will cover them while they are in Egypt. In addition, all non-Egyptian students are required to enroll in the medical insurance service plan offered by the American University in Cairo which provides for limited care at specified hospitals in Cairo. Exemptions are made only for those non-Egyptian students who reside in Cairo with their families, or who are provided for by their companies, embassies or sponsoring agencies in Cairo. The medical service fee is announced by the Office of Student Financial Affairs and Scholarships every year. There is no fee exemption for medical services coverage. All students on campus, are covered by the service fee, which is limited to first aid and transportation to the nearest hospital, as needed. Health insurance for dependents of international students is mandatory. If at any given time, family members of international graduate students decide to reside in Egypt with the student, then they, as dependents (spouse and children) must be covered by a health insurance plan for the duration of their stay in Egypt. Dependents who are on short term visits to Egypt must be covered by a travel insurance. AUC cannot be held responsible for dependents who are not covered by a health insurance plan.

### **Categories of Admission**

Categories of admission depend upon the applicant's qualifications, status and study plan.

#### **Full Admission**

Full admission may be granted to entering students who have met the minimum criteria for graduate admission and any of the following requirements:

- A bachelor's degree with an overall grade-point average (GPA) of at least 2.75 or its equivalent, and 3.0 or its equivalent in the major.
- An overall average of gayyid giddan on a bachelor's degree from an Egyptian national university, if a GPA equivalency value is not indicated.
- A graduate degree with a minimum overall average of 3.0 GPA, if the degree is closely related to the intended major.
- An equivalency index for local and international degrees is the main reference used for equating degree grades or percentage marks on transcripts. The index is based on a GPA scale of 1 to 4, where 4 is the highest value.

Additionally, the program of the major may require satisfactory performance on an examination or interview.

Full admission is may also be attained by fulfilling the conditions specified under the provisional admission category below.

#### **Provisional Admission**

Provisional admission is granted to those entering students not qualifying for full admission, but who have additional attributes that give them a high potential for success in a given graduate program.

Under provisional admission a student may be required to take English courses, a number of specified prerequisite courses, or fulfill a condition. Students are required to achieve at least a 'B' average in these prerequisite courses or their admission at AUC will be discontinued.

In some instances, students may not be required to fulfill any prerequisites while on provisional status; however, in this case, they are considered on probation and must achieve a minimum 'B' average for a specific list of courses and over a specific time duration, or they will be dropped from the program.

### **Dual Degree Admission**

Graduate students may pursue two distinct graduate degrees (two master's degrees, or a diploma and a master's degree, or 2 graduate diploma degrees) in different majors, either simultaneously or consecutively. In any case, the student must seek admission to and be accepted by each program of concern, and then fill out a "Dual Graduate Degree" form, which is available on at the Office of the Registrar's webpage <https://www.aucegypt.edu/students/registrar/online-forms>

### **Graduate Non-degree Admission**

Applicants not seeking an AUC degree but wish to take AUC courses for academic credit may be admitted as a non-degree if they meet the minimum criteria for graduate admission. A number of places are set aside each year for non-degree seeking students, most of whom take up to a year away from their studies at another institution to study and live in Egypt. Since AUC is a U.S. accredited institution following an American system, students from U.S. universities are usually able to transfer AUC credits to their home institutions, but they are advised to check in advance. Non-degree applicants follow the same procedures for admission as degree-seeking applicants. They are however not required to submit letters of recommendation or GMAT or GRE entrance exams.

Graduate Non-Degree applicants:

1. Must attain full admission status prior to being approved for admission:  
[https://documents.aucegypt.edu/Docs/admissions\\_grad\\_req/Grad%20Language%20Requirements.pdf](https://documents.aucegypt.edu/Docs/admissions_grad_req/Grad%20Language%20Requirements.pdf)
2. Interested in graduate courses in English and Comparative Literature (ECLT) or Teaching English to Speakers of Other Languages (TESL), must achieve English test results that are required for full admission to these programs.
3. Interested in graduate courses offered by the Master of Business Administration (MBA) or Finance (FINC), can register (if admitted) for a maximum of 3 courses that could count to the degree seeking program of each.
4. Are allowed a maximum of two subsequent semesters, to complete any of the approved courses indicated in the letter of admission and starting with the semester indicated in the letter.

Upon request, the university may approve a change of status from non-degree to degree student. The student will need to apply afresh for admission consideration to the degree seeking program(s), and if a graduate non-degree student should become a degree candidate, the department of major will consider the possibility of accepting credit for courses taken under non-degree status, for up to a maximum of 3 graduate courses successfully completed, with a minimum average grade of B, within 5 years prior to the date of first registration as a degree seeking student in the program of relevance. All academic regulations applicable to degree students will apply retroactively with such change of status.

Non degree applicants must indicate in their application a list of courses of interest. International applicants must indicate no less than 6 such graduate courses, out of which registration must be for at least 3. Egyptian applicants can indicate 3 for which approval is sought and out of which at least 1 course is selected for registration. Courses can be selected from the list of graduate programs offered each semester:

<http://catalog.aucegypt.edu/content.php?catoid=29&navoid=1467>

### **Graduate Exchange or Study Abroad Admission**

Students joining AUC for a semester through an agreement with a partner university are also non degree seeking students who have been nominated by their home university for this exchange opportunity. The home university's admission criteria will be taken into account for admission consideration at AUC. Recent graduate transcripts verifying studies at the partner university are required. However, the English placement requirement for admission can be satisfied by means of taking one of the approved English tests, or by providing alternative documentation that is

specific to exchange or study abroad applicants, of having met the required English proficiency for graduate studies at AUC.

### **Other Categories**

#### **Auditing**

Those who wish to attend individual classes may apply as auditors; however, they may not sit for final examinations, nor receive academic credit or any university certificate of enrollment. Auditors do not have to meet all requirements for regular admission but must apply by the end of the first week of classes of each semester, by submitting a form with the instructor(s) approval, and then by filling out the application form. Since permission to audit is on a space-available basis, applicants are not permitted to register until after the registration of regular students has been completed. Auditors are not allowed to enroll in language courses.

Complete forms should be forwarded to [enrolauc@aucegypt.edu](mailto:enrolauc@aucegypt.edu)

Links to forms:

<https://www.aucegypt.edu/students/registrar/online-forms>

[https://documents.aucegypt.edu/Docs/students\\_Registrar/Auditor%20Registration%20form%20-%20Oct.%202017%20\(final%20updates\).pdf](https://documents.aucegypt.edu/Docs/students_Registrar/Auditor%20Registration%20form%20-%20Oct.%202017%20(final%20updates).pdf)

Non-Egyptian applicants must have a permanent resident visa or a work permit visa to be eligible to apply for auditing courses.

#### **Readmission**

AUC students who withdraw from the University in good standing and subsequently wish to return may apply for readmission. The semester to which readmission is requested must be within the study period, as specified in the section "Enrollment Status and Time Limit for a Degree Completion" of the Graduate Academic Requirements and Regulations. Application must be made before the appropriate application deadline, and the applicant must meet all the admission requirements prevailing at the time of readmission. Readmission is not guaranteed.

Dismissed students may petition for readmission taking into account the conditions specified in the section "Dismissal, Probation, Course Repeat and Retake" under Graduate Academic Requirements and Regulations, and must meet all the admission requirements prevailing at the time of readmission. Readmission is not guaranteed.

Students who are dismissed because they have not successfully completed the English language requirements in two semesters, may petition for readmission and are required to submit new valid International TOEFL with TWE, (iBT) or Academic IELTS or Cambridge Assessment English (only Advanced or Proficiency), demonstrating a level of proficiency that is higher than previously registered for: If they were students in intensive English course ELIN 0301 or ELIN 0302 then their new test results must place them in the level of Academic English Language modules or in direct admission with no English language requirements; if they were students in Academic English language modules, then their new test results must place them in direct admission with no English language requirements.

Students who withdraw from the University without having completed at least one graduate or prerequisite course required for their degree program may seek readmission so as to resume their studies no later than 4 semesters following the semester of their withdrawal. Beyond 4 semesters, these students would need to apply afresh for admission. This privilege may be exercised only once.

Conditions in the table below apply

English Level at Time of Withdrawal	Lapse of Time	iBT TOEFL /Academic IELTS Required
Completed all language requirements	Less than 24 months	No
Completed all language requirements	More than 24 months	Yes, and apply afresh for admission
Enrolled in Intensive English or Academic English	Less than 12 months	No
Enrolled in Intensive English or Academic English	More than 12 months	Yes
Enrolled in Intensive English or Academic English	More than 24 months	Yes, and apply afresh for admission

#### **Summer/ Winter Admission**

The University does not usually admit graduate degree seeking students for the summer session, but exceptional cases may be brought to the attention of the Dean of Graduate Studies for consideration.

New degree seeking students are not admitted to the winter session.

Non degree applicants for the summer or winter sessions should follow the application procedures for non-degree admission and must submit their application forms by the admission deadlines set for the following semester. For more information about the programs: <http://catalog.aucegypt.edu/content.php?catoid=20&navoid=856>

## **Graduate Academic Requirements & Regulations**

Academic requirements and regulations govern the relationship between the university and its students. Students must complete the general academic requirements described below as well as those listed under individual degree programs (described in the next section) in order to obtain an academic degree.

The academic regulations described in this section are effective at the time of publication. The university reserves the right to modify them, in which case changes will be announced when necessary. The student is responsible for being aware of all academic regulations. Current university regulations apply regardless of the regulations in effect at the time a student entered the university, except where current regulations specifically state the contrary.

#### **Student Responsibility**

Students are responsible for familiarizing themselves with the information presented in this catalog and for observing all policies and procedures related to their participation in the university community. In addition, AUC has adopted a set of policies and procedures concerning the statutes and regulations on the campus. Copies of these policies and procedures may be obtained at the Office of the Registrar.

Regulations will not be waived nor exceptions granted based on a student's lack of awareness of the policies and procedures of the American University in Cairo. Although a number of university personnel (e.g. advisors, faculty members, registrar, departmental staff, and student affairs staff members) assist students, the student is personally responsible for following all policies and meeting deadlines and requirements. This responsibility includes, but is not limited to, academic requirements and the rules listed under the appropriate information sections of this catalog.

### **Privacy Rights of Student Records**

Students have the right to access their own official records. The written consent of the student must be received before personally identifiable data is released from the student's records to any party other than the exceptions specified below.

While the university is authorized under the United States Family Educational Rights and Privacy Act of 1974 to release "directory information" about students, AUC does not publish a student directory. Student information is subject to release by the university unless the university has received prior written objection from the student specifying information that the student requests not to be released. Such written objection should be submitted to the Office of the Registrar.

AUC is authorized to provide access to student records to campus officials and employees who have legitimate educational interests in such access. These persons are those who have responsibilities in connection with the academic, administrative, or service functions of the university and who have reason for using student records connected with their academic or other university responsibilities. Disclosure may also be made to other persons or organizations under certain conditions (e.g. as part of an accreditation or program evaluation; in response to a court order or subpoena; in connection with financial aid; or to US institutions to which the student is transferring).

Click on any of the following links for information:

[Graduate Academic Requirements](#)  
[Graduate Academic Regulations](#)  
[Non-degree Academic Regulations](#)

### **Graduate Academic Requirements**

The university has established the following general requirements which apply to all students working toward a graduate diploma, master's degree or a Ph.D. Specific requirements for each degree program are described under the relevant "Fields of Study."

The degree programs described represent the core of the university's wide range of academic and service activities. The university also conducts significant programs in research, training, and adult education, which are briefly listed in a separate section of this catalog and in more detail in other publications. Nondegree, intensive language programs in English and Arabic are described in the "English and Arabic Language Programs" section.

### **Adviser**

Upon starting the program of major, the student will be assigned an academic adviser who will provide counsel concerning degree requirements, course offerings, preparation for the comprehensive examination, and selection of a thesis topic and thesis supervisor. When a thesis topic and supervisor are selected and approved, the thesis supervisor then also becomes the academic adviser.

### **Residence**

Residence is the period of study completed at AUC. For the master's and for the PhD degrees, two-thirds of the required credit hours, excluding research seminars and thesis credit hours, must be completed in residence. An acceptable thesis is also required. Additional courses are assigned in lieu of the thesis if it is optional.

### **Enrollment Status and Time Limit for a Degree Completion**

The normal load for a full time student is 9 credit hours per semester. Upon the recommendation of the program concerned, students may register for up to 15 credit hours per semester. In this respect, overload forms are available at the Office of University Registrar's webpage: <http://student.aucegypt.edu>.

A student taking a load of less than 9 credit hours per semester is typically considered a part-time student. A foreign student taking a course load of 9 credit hours per semester is entitled to university certification for obtaining a student visa. Foreign students carrying less than a full load are not entitled to such certification unless they are fellows or sponsored students. In case of withdrawal, the university reports to the Egyptian authorities to cancel the student residence visa that was received through the university.

Typically, the completion of these requirements takes two years of full time academic work for the master's degree, and five years for the PhD degree. Students unable to carry a full course load may be permitted to take more time to complete their degree. However, they must complete all requirements, including the thesis, where applicable, within five years of the date of first registration as a provisional or fully admitted graduate student in a master's degree program. Students enrolling in the M.B.A. program or the master in Counseling Psychology program must complete all requirements within six years of their provisional or full admission to the program. Students enrolling in the PhD program must complete all requirements within seven years of their provisional or full admission to the program. The time limit does not include semesters for which students are only enrolled in English language instruction. Any period of interrupted studies, such as an approved Planned Educational Leave of Absence, or a period of temporary withdrawal, is counted as part of the time period required for degree completion.

An academic program may grant an extension for completing the degree beyond the set limit by one semester, up to a maximum of one academic year. This requires the approvals of the dean of the degree program and the dean of Graduate Studies.

### **Comprehensive and Qualifying Examinations**

A student may sit for a required comprehensive examination after completing 24 credit hours or while taking the final 6 credit hours. Comprehensive examinations are offered usually in mid-December and mid-April. Students not registered for courses or thesis credit hours and planning to sit for the comprehensive examination in any semester must register for comprehensives in that semester and pay tuition equivalent to one graduate credit hour.

A PhD student should sit for the PhD qualifying examination the semester immediately following the completion of the required course credit hours, but no later than the fourth semester since full or provisional admission. The exam is offered twice a year: once in each of the fall and spring semesters. Dates are announced at the beginning of each academic year. A PhD student can only sit for the PhD qualifying examination while enrolled at AUC.

Comprehensive and qualifying examinations may be repeated once. A student who fails the comprehensive or qualifying examination a second time would be dismissed from the degree program after the end of the semester in which the examination was retaken.

### **Thesis Requirements**

Additional to required courses, most master's degree programs and the PhD program require a thesis. Exceptions to this requirement are noted in the descriptions of the individual programs, which may specify supplementary requirements instead of a thesis.

The student is responsible for selecting and developing a thesis topic which has program approval and for which a qualified supervisor is available. In consultation with the supervisor, the student must submit a thesis proposal, as per



the specifications of the degree program, for consideration by the program. Once the proposal is approved, the student may proceed with thesis research and writing. A copy of the proposal approval must be kept in the program of major.

At the program's discretion, and in order for a master's student to embark on his/her thesis work, the student may register for Research Guidance and Thesis credits, and pay tuition equivalent to 3 credit hours each semester until completion of the thesis. For a PhD student, he/she may register for up to 9 credit hours of Research Guidance Dissertation credits each semester. A student who does not complete the thesis requirement within the period of two semesters for master's degrees, three semesters in case of M.Sc. in Finance and within the assigned total number of dissertation credits for a PhD degree, will be charged a fee equivalent to one graduate credit hour for each additional semester of thesis registration.

The thesis must be written in English. It will be judged on content, organization, documentation, and presentation and originality. Guidelines on thesis writing and format are available at the graduate studies website.

### **Approvals from the Institutional Review Board and CAPMAS**

All research involving human subjects requires in-advance approval from AUC's Institutional Review Board (IRB). Each student's thesis supervisor is responsible for ensuring that the student has obtained IRB approval, where applicable, before embarking on thesis work. Thesis work involving human subjects and conducted without obtaining prior IRB approval cannot be used. Without proper IRB approval, the thesis cannot be accepted nor be posted on DAR, and the student is not eligible to graduate. For more information, please refer to the IRB webpage <https://www.aucegypt.edu/research/institutional-review-board>

For some research, approval from the Egyptian Central Agency for Public Mobilization and Statistics (CAPMAS) is required for data collection. Where applicable, a student must secure this approval prior to his/her data collection.

### **Submission of Thesis**

If the degree is expected at the end of the fall semester, an acceptable (supervisor -approved) thesis must be presented by November 15. If graduation is expected at the end of the spring semester, the deadline for submitting the thesis is April 1. Each student is advised to submit the thesis early to allow time for the revisions which may be required. Otherwise, awarding of the degree may be delayed.

Within three weeks of submission of the thesis, the candidate will meet with the committee appointed by the program for an examination of the thesis. The committee may include members from outside the department or outside the university.

All revisions required by the committee must be incorporated in the final copy. The originality of the final thesis text must be checked. The committee members may consider the revised thesis individually or schedule another meeting with the candidate.

The top copy of the accepted and signed thesis is submitted to the office of the dean of the degree program the third Tuesday of January (for fall, and winter graduates), by the third Tuesday of May (for spring graduates) and by the third Tuesday of July (for summer graduates). In case the university is closed on any of these days, then the submission of the thesis is due on the following day the university is open. If the thesis is submitted late, the degree will not be conferred that semester. In addition to submitting a hard copy of the thesis, students are required to submit an electronic version of the thesis directly to the AUC Digital Archive and Research Repository (AUC DAR) [dar@aucegypt.edu](mailto:dar@aucegypt.edu)

### **Graduate Academic Regulations**

#### **Registration**

Students must register during the official registration period at the times announced in the university calendar. They should plan their courses with their advisers prior to registration and follow the instructions contained in bulletins issued by the Office of the Registrar or on the Registrar's web site. Planning forms are available on the Registrar's

webpage <http://student.aucegypt.edu>. For foreign students, registration must be completed before a student visa can be issued.

Newly admitted degree-seeking students must successfully complete the online Academic Integrity Modules during their first semester at AUC. Registration in subsequent semesters shall not be possible until the successful completion of these modules.

### **Change of Courses**

With careful attention to the degree requirements and course offerings, there should be minimal need for course changes after registration has been completed. Any student who desires a change must follow the instructions contained in the bulletin issued by the Office of the Registrar. Change of courses can only take place during the start of a semester during the drop/add period determined by the Office of the Registrar .

- No other course may be substituted for a required course unless university action requires that the change be made.
- A course may not be added to the student's schedule after the registration deadline.
- Students may drop and/or add courses without penalty during the formal "Late Registration and Course Changes Period" specified in the bulletin issued by the Office of the Registrar.
- A course may not be added to the student's schedule after the end of the period of Late Registration and Course Changes.
- Students may drop a course and receive a "W" grade during the seven weeks following the conclusion of any period of Late Registration and Course Changes associated with a fall or spring semester (that is, up to eight weeks after the beginning of a semester).
- Students are not permitted to drop classes after the seventh week of the closing date of Late Registration and Drop/Add operations.
- Students will receive a grade of "F" if they stop attending classes without officially dropping the course.
- Students may petition their dean for permission to drop a class and receive a "W" grade after the seventh week of the closing date of Late Registration and Drop/Add operations. However, such petitions will be approved only in special cases, which in most extraordinary circumstances will mean documented health or family crises. Petitions will be neither accepted nor approved for the purpose of avoiding a low or failing grade.
- Fulltime international transfer students may petition for permission to drop a class and receive a "W" grade after the seventh week of the closing date of Late Registration and Drop/Add operations by seeking the approval of the concerned program director and dean. In general, such petitions will be approved only in special cases, which in most circumstances will mean documented health or family crises. Petitions will be neither accepted nor approved for the purpose of avoiding a low or failing grade.

### **Course Substitution**

A course substitution is the replacement of a required course for a degree with another course, provided that the latter meets the learning outcomes of the required course. In the unlikely event that a course substitution is needed, the concerned student must complete a course substitution form available at the Office of the Registrar's webpage: <http://student.aucegypt.edu> and secure all the necessary approvals on the form before submitting the completed form to the Office of the Registrar. Course substitution is limited to up to one-third of the credit hours of the course work required for a graduate degree.

### **Credit Hours**

Coursework is counted in credit hours. In general, a credit hour represents a one-hour class period and at least two hours of individual study each week for one semester.

### **Academic Load**

The normal load for a full-time graduate student is 9 credit hours per semester. Upon the recommendation of the program concerned, students may register for up to 15 credit hours per semester, at an extra tuition charge. In this respect, overload forms are available at the Office of University Registrar's webpage <http://student.aucegypt.edu>.

Overload shall not be allowed for students that are on any sort of academic probation or have not completed the outstanding course work related to an incomplete grade.

A student taking a load of less than 9 credit hours per semester is considered a part-time student. A foreign student taking a course load of 9 credit hours per semester is entitled to university certification for obtaining a student visa. Foreign students carrying less than a full load are not entitled to such certification unless they are fellows or sponsored students. In case of withdrawal, the university reports to the Egyptian authorities to cancel the student residence visa that was received through the university.

The academic load in the winter session is a maximum of 4 credits.

The academic load in the summer session is a maximum of 6 credits, overlapping of courses in the longer summer session with the shorter sessions is not allowed.

### **Independent study**

Independent study is a student-initiated directed study in a field of special interest not available through current course offerings and is detailed in a mutually agreed-upon contract between a faculty member and a student. Independent study can provide students with a unique opportunity to work on carefully selected projects under the direct supervision of a faculty member volunteer with a shared interest.

A graduate student in good academic standing may enroll in independent study not exceeding 3 credit hours within a single graduate degree. In case of dual degrees, whether simultaneous or sequential, up to 3 credit hours of independent study may be taken for each degree. The Independent Study form is available at the Office of the Registrar's webpage <https://www.aucegypt.edu/students/registrar>

### **Grades**

At the close of the semester students receive a final grade in each course. The grade is the course instructor's official evaluation of the student's achievement as reflected in course work. This final grade is recorded by the course instructor on Banner, and becomes part of the permanent academic record maintained by the Office of the Registrar. The grade may not be changed or removed from the record.

The following grading system is used at the American University in Cairo:

<b>Grade</b>	<b>Points</b>	<b>Description</b>
A	4.0	Excellent
A-	3.7	
B+	3.3	Very good
B	3.0	Good
B-	2.7	
C+	2.3	Conditionally passing
C	2.0	

F 0.0 Failing

**Grades not included in the Grade Point Average:**

I	Incomplete
S	Satisfactory
U	Unsatisfactory
W	Withdrew
AU	Audit
IP	In progress
NR	Deferred Grade
P	Pass

The grade point average is calculated by multiplying the grade point value by the number of credit hours the course represents. The result is listed as quality points. The total quality points are then divided by the total credit hours. The results in courses for no credit are not included in the computation of a grade point average. Grades of "I", "S", "U", "W", "AU", "IP", "NR" and "P" are not assigned grade point values and are not used in the computation of the grade point average. Decimals beyond two places are truncated, not rounded up, in computing the grade point average.

**Dual Graduate Degrees**

Graduate students may pursue two distinct graduate degrees (two master's degrees, or a diploma and a master's degree, or two graduate diploma degrees) in different majors, either simultaneously or consecutively. In any case, the student must seek admission to and be accepted by each program of concern, and then fill out a "Dual Graduate Degree" form, which is available on at the Office of the Registrar's webpage <http://student.aucegypt.edu>.

The student may have up to a maximum of 12 credit hours accepted for credit in both degree programs contingent on the approvals of the concerned programs and school deans. A maximum of 9 credit hours may be accepted for the case of dual graduate diploma degrees or the case of a dual master's and graduate diploma degrees.

In the case of sequential degrees, credit hours from the first degree can be accepted for credit in the second degree contingent on the approval of the second degree concerned program and concerned school dean. A period of five years should not be exceeded between the dates of completing these credits in the first degree and the start of the second degree.

In the case of simultaneous degrees, students who have completed all the requirements for one of the degrees and who decide to withdraw from the other degree, will receive the appropriate single degree. Students who have withdrawn from one of the degrees and later decide to complete this degree, must apply for readmission, be readmitted and then fulfill the requirements for this degree. This must be carried out within the period of the time limit for completing a degree (please refer to section of "Enrollment Status and Time Limit for a Degree Completion")

A student who withdraws from his/her master's degree, then joins another master's degree may have up to 12 credit hours completed for the former degree accepted in the latter. For the case of two graduate diploma degrees or the case of a master's and a graduate diploma degrees, up to 9 credit hours completed for the former degree may be accepted into the newly pursued degree. The above is contingent on the approvals of the concerned program and school dean. A

period of five years should not be exceeded between the dates of completing these credits for the first degree and the start of the second degree.

### **Dual Undergraduate/Graduate Programs**

A dual undergraduate/graduate degree program is an approved program in which a student pursues a graduate degree with an undergraduate degree in a related field. The total time for the two degrees could be decreased through the acceptance of up to 12 credit hours of required courses in both degrees. A student enrolled in such a program must complete all requirements for the two degrees and is awarded both degrees at the end of the program. In this regard, this student is admitted to the graduate program before he/she has earned a bachelor's degree. The student is typically able to take both undergraduate and graduate courses for the program during his/her senior year.

A student who decides to withdraw from this dual degree program, will receive his/her appropriate undergraduate degree contingent on having completed all requirements for this undergraduate degree.

### **Incomplete Work**

In rare cases, graduate students who are unable to complete a course may be permitted to continue and complete it in the following semester. In the meantime, a grade of "I" is assigned to the course. Any course instructor submitting an incomplete grade must supplement this submission with an incomplete form to the Office of the Registrar (with copies to the program director, and the student) giving the following information:

1. Reason for the incomplete.
2. The material which is lacking.
3. Action necessary for removal of the incomplete.

Incomplete forms are available at the Office of the Registrar webpage <http://student.aucegypt.edu>.

The student must make the necessary arrangements with the course instructor to complete the outstanding course work before the start of the examination period of the following semester, whether the student is enrolled at university or not. In completing the outstanding work, the student need not register again for the incomplete course. Failure to complete the course work within this time period will result in the grade to change to "F", signifying failure for the course. No extension of this time period is allowed.

Students in good academic standing, with incomplete grades, are not allowed to have a load higher than 12 credit hours, including the load of the incomplete course or courses, during the semester in which they need to complete the required coursework for clearing the incomplete grades. Students with incomplete grades and who are on probation will not be allowed to register for any credits during the semester in which they need to complete the coursework for clearing the incomplete grades.

Only the final grade, received upon completion of the outstanding work, is kept on the student's record.

### **Probation, Dismissal, Course Repeat and Retake**

If a student's grade falls below "B" either in graduate work or in prerequisite course requirements, he/she will be placed on probation for one semester, during which time he/she must regain a "B" average. In case the student's overall GPA does not meet the "B" average at the end of the given semester, the student will be dismissed from the university.

A graduate student, who receives an "F" in any course, will be dismissed from the university.

Provisionally admitted students must meet the required admission condition specified by the graduate program. In case the student fails to meet the admission condition, he/she will be dismissed from the program.

When a student does not complete all program requirements within the period specified under "Enrollment Status and Time Limit for a Degree Completion", he/she will be dismissed from the program for the expiration of the study period. A student may not seek new admission to the same program from which he/she has been dismissed for the expiration of the study period.

A student dismissed from university, may petition for repeating one course. This would be to possibly clear an "F" or to improve his/her GPA to 3.0 or above. If allowed, he/she will need to apply for a readmission. If this repeat is to clear an "F", the student is not allowed to register in any other courses until successfully repeating this course and clearing the "F" grade.

With the recommendation of the program and the approval of the school dean, a graduate student may be allowed to repeat one graduate level course, regardless of the grade achieved, except if the grade is received for breaching academic integrity (please refer to the paragraph below if the grade is because of a breach of academic integrity).

With the recommendation of the program and approval of the school dean, substitution is allowed for an elective or an infrequently offered course. Both the original grade and the new grade will appear on the transcript but only the new grade will be used in calculating the GPA. With the recommendation of the program and the approvals of the school dean and the dean of graduate studies a student may be allowed to retake a graduate level course in which the grade received was because of a breach of academic integrity, when the course is next offered, unless otherwise stipulated by the academic integrity sanctions. Both the original grade and the new grade will appear in the transcript and both will be used in calculating the GPA. This privilege of repeating and/or retaking a graduate course may be exercised only once. Repeat forms are available at the Office of the Registrar's webpage <http://student.aucegypt.edu>

### **Planned Educational Leave of Absence**

A degree-seeking student may apply for a Planned Educational Leave of Absence. A Planned Educational Leave of Absence is defined as a planned interruption of a student's regular education during which the student temporarily ceases his or her formal studies at AUC, and after which he/she resumes his/her studies without the need to apply for readmission. A student who is approved for a Planned Educational Leave will be considered as maintaining his or her status as a continuing student.

1. A student requesting a Planned Educational Leave of Absence must be in good academic standing at the time of request. The leave is conditional on the approval of the concerned program, and school dean. The leave application must be submitted to the Office of the Registrar no later than two weeks before the start of the semester by when the leave is requested. The Office of the Registrar will notify the leave applicant of the status of the request before the start of the semester when the leave is requested.

Planned Educational Leave requests should:

- Specify the purpose of the leave, which must be relevant to the student's overall educational objectives.
- Not exceed a maximum of 2 regular semesters.
- Include the student's confirmation of returning to AUC at the conclusion of the leave.

2. The Planned Educational Leave of Absence form is available at the Office of the Registrar's webpage <http://student.aucegypt.edu>

3. The student may cancel a leave of absence as late as the first day of classes of the term for which the leave has been requested and approved.

A degree-seeking student shall be considered as having withdrawn from the university if he/she discontinues active enrollment in his/her program without being granted an approved leave of absence, if he/she does not return to active study at the close of the period of approved leave absence. This student must apply for readmission and be subject to the regulations and requirements then in force.

The right to use university facilities is suspended while the approved leave of absence is in effect, with the exception of library privileges subject to the approval of the program of major and the concerned school dean.

A Planned Educational Leave of Absence is counted as part of the time period for the completion of the degree. A student returning from an approved leave remains under the requirements of the catalog that he or she was following upon his/her first registration into the program.

Any academic credits accrued during a Planned Educational Leave of Absence is accepted by AUC only if prior permission is granted by the Office of the Registrar and the department program of major.

### **Withdrawal from the University**

Degree-seeking students who wish to withdraw from the university for one semester or more due to illness or other emergency circumstances are requested to fill in a withdrawal form available at the Office of the Registrar webpage <http://student.aucegypt.edu>

A "W" grade will be recorded for each course from which the student withdrew, unless the withdrawal has taken place during the drop and add period in a semester and no academic credit is given for these courses.

Withdrawn students who wish to return after an absence of one or more semesters must apply for readmission. Readmission is not granted automatically. (See the "Admissions" section of the catalog.)

A withdrawal period is counted as part of the time period for the completion of the degree.

### **Transcripts**

Students who have graduated or who withdrew from the University can apply for official or student transcripts of their academic record. There will be a charge for this service. No transcript of academic record will be issued during the examination, registration, or graduation periods. Academic transcripts will not be issued when unsatisfied financial obligations to the university exist.

### **Non-degree Academic Regulations**

Since non-degree students are usually seeking credit for transfer to other institutions, not all of the academic regulations in this section are applicable to them. They will be primarily concerned about the academic regulations of their home institutions, where applicable, to ensure that they receive maximum possible credit for their work at AUC. Non-degree students who wish to transfer credits to their home universities should check these universities policies before coming to Cairo.

Non-degree students should note the regulations pertaining to registration, change of courses, academic load, grades, probation, incomplete work, class attendance, and transcripts in the graduate section, as appropriate.

Non-degree students who wish to transfer non-degree credits completed at AUC towards a graduate degree should first obtain admission into the intended graduate program. A maximum of three courses (9 credits) can be transferred to the graduate degree sought. A minimum "B" grade per course is required together with the approvals of the graduate program and the respective school dean. Non-degree credits to be transferred must have been completed within five years of admission to the relevant degree program.

### **Transfer of credits**

Upon the recommendation of the student's program to the school dean in consultation with the Office of the Dean of Graduate Studies and the Office of the University Registrar, a graduate student may receive a number of transfer credits equivalent to up to one-third of the credit hours of graduate course work required for his/her graduate degree. Transfer course work is applied as credit (TR) toward the degree and is not included in the calculation of the grade point average.

Graduate transfer credits will not be granted for credits earned by examination or for completing required thesis or dissertation credit hours.

A graduate degree program may establish lower limits on the number of transfer credits than those of the university. Degree programs establishing lower limits may waive their own policy, but within the university specified limit, by approval of the concerned school dean. Course work credits to be transferred, and taken prior to matriculation to a current AUC degree program, must have been completed within five years of admission to this degree program.

Types of credits allowed to transfer encompass graduate-level course work taken at another institution and meeting the following conditions:

- They have not been previously used to earn another degree or transcribed certificate.
- They are for graded graduate level course work from an accredited institution, for which the student has achieved a grade of "B" or better.
- They are of relevance to the student's program of study.
- They have been completed within a period of five years from the date of the start of the degree to which they are to be transferred.

Any request for the acceptance of transfer credit towards an AUC degree shall be carefully considered by the program concerned before submitting a recommendation to the school dean for approval.

# Programs

## Accounting (B.A.C.)

Accounting is both a primary communication channel between business entities and its stakeholders and a comprehensive information system which supports effective decision making. The role of the accounting profession is becoming more pronounced in today's business environment which is characterized by scarce resources, fierce rivalry, complex transactions and increased public scrutiny. Furthermore, auditors are considered the key deterrent to managerial malfeasance, a phenomenon which adversely affects markets and investors' confidence. Students pursuing the Bachelor of Accounting will be exposed to a comprehensive set of technical knowledge of financial accounting, cost/managerial accounting, taxation, and auditing. Ethical considerations, corporate governance and financial transparency issues are covered throughout the course offerings.

Accounting graduates are qualified to work within different professional capacities at corporate multinationals, Big 4 auditing firms, banks, consulting firms, and other types of organizations. In addition, recent graduates of the program have attained, or are currently pursuing, professional certifications such as the Certified Public Accountant (CPA), the Chartered Financial Analyst (CFA), the Certified Management Accountant (CMA), and the Association of Chartered Certified Accountants (ACCA) qualification, in addition to other postgraduate studies.

The objective of the Bachelor of Accounting degree is to provide conceptual and practical knowledge to graduates who will prepare, report and analyze economic and financial information used for making sound managerial decisions.

Students who seek to be admitted to the Bachelor of Accounting (BAC) program through the declaration process must have completed no less than 27 credit hours of study including the courses listed in (1) below. Students who have successfully completed these courses, with the minimum required grades where applicable, and who meet the minimum major weighted grade point average as determined by the department, will be accepted in the major.

Required Courses to be completed to declare Accounting as a major

ACCT 201/2001 - Financial Accounting (3 cr.) with a minimum grade of B

ACCT 202/2002 - Managerial Accounting (3 cr.) with a minimum grade of B

ECON 201/2021 - Introduction to Macroeconomics (3 cr.) OR ECON 202/2011 - Introduction to Microeconomics (3 cr.)

MACT 210/2222 - Statistics for Business (3 cr.)

### 2. Calculation of the Major Weighted Grade Point Average

The major weighted Grade Point Average = Overall GPA at time of declaration x 60% + (Average GPA in ACCT 2001 and ACCT 2002) x 40%.



### 3. The minimum major Weighted Grade Point Average

Admission to the Accounting major is competitive. Eligible students will be ranked and selected based on their major weighted grade point average.

Students must complete a minimum of 127 credit hours for the Bachelor of Accounting degree.

Students who seek the Bachelor of Accounting degree are not permitted to minor in Business Administration.

## Core Curriculum (40 credits)

### Collateral Requirements (15 credits)

All students seeking a Bachelor of Accounting degree are required to complete the following collateral requirements (15 credits):

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)
- ECON 216/2061 - Mathematics for Economists I (3 cr.)
- ECON 303/3041 - Monetary Economics (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)

### Management Requirements (9 credits)

- BADM 300/3003 - Business Environment and Ethics (3 cr.)
- MGMT 307/3201 - Management Fundamentals (3 cr.)
- MGMT 311/3301 - Business Law (Commercial & Fiscal) (3 cr.)
- BADM 000/4999 - Internship and Assessment (0 cr.)

### Marketing Requirements (3 cr.)

- MKTG 302/2101 - Principles of Marketing (3 cr.)

### Finance Requirements (12 credits)

The following 3 courses are mandatory (9 cr.):

- FINC 303/2101 - Business Finance I (3 cr.)
- FINC 404/3201 - Investment Analysis (3 cr.)
- FINC 405/3401 - Applied Banking (3 cr.)
- **One course to be selected from the following (3 cr.):**
- FINC 408/3501 - International Finance (3 cr.)
- FINC 410/4202 - Capital Markets (3 cr.)
- FINC 414/4301 - Corporate Finance (3 cr.)

### Management of Information Systems Requirements (3 credits)

- MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)

## Accounting Requirements (36 credits)

- ACCT 201/2001 - Financial Accounting (3 cr.)
- ACCT 202/2002 - Managerial Accounting (3 cr.)
- ACCT 301/3001 - Intermediate Accounting I (3 cr.)
- ACCT 302/3002 - Intermediate Accounting II (3 cr.)
- ACCT 303/3003 - Advanced Accounting (3 cr.)
- ACCT 304/3004 - Cost Accounting (3 cr.)
- ACCT 305/3005 - Auditing (3 cr.)
- ACCT 306/3006 - Principles of Taxation (3 cr.)
- ACCT 000/4000 - Automated Financial Accounting (3 cr.)
- ACCT 401/4001 - Contemporary Issues in Auditing and Forensic Accounting (3 cr.)
- ACCT 402/4002 - Special Topics in Tax Accounting (3 cr.)
- ACCT 403/4003 - Contemporary Issues in Financial Reporting (3 cr.)

## Electives (12 credits)

## Anthropology (B.A.)

The undergraduate program aims to present the main themes and trends in cultural and social anthropological thought and practice and thereby to nurture critical, intercultural, and reflexive perspectives as part of liberal education. In doing so, it seeks to foster understanding of the transformation of society and culture in Egypt and the region. The program also engages with other parts of the world, such as Africa, South Asia and Latin America. Our aim is to prepare students for graduate studies and for living and working in an increasingly complex and changing world. Upon graduation our students are well-positioned to pursue careers in teaching, research and applied anthropology, such as in international development agencies, non-governmental organizations, private sector, social service, media, and heritage preservation.

To declare a major in Anthropology:

- 1) A student must earn a B in "Introduction to Cultural Anthropology" ANTH 2101
- 2) A student must have an overall GPA at the time of the declaration of C+ (2.3 GPA)
- 3) Successful interview by unit head at the time of declaring the major

Upper-division (300-400 level) courses are normally taken during the junior and senior years. Students must take ANTH 3102 and ANTH 3104 during the junior year. Students must take ANTH 4107 in their last full academic year. Most of the other courses are offered in alternate years and so may be taken in any order. Courses at the 500-level are also open to selected advanced undergraduates.

A total of 120 credits is required for the bachelor's degree in anthropology:

## Core Curriculum (40 credits)

Students with Thanawiya'Amma art or equivalent background should take BIOL 100 (Introductory Biology); those with Thanawiya 'Amma science or equivalent must take BIOL 104 (Unity of Life).

## Concentration Requirements (42 credits)

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- ANTH 309/3102 - History of Social Theory (3 cr.)  
cross listed with SOC 3102
- ANTH 311/3104 - Contemporary Anthropological Theory (3 cr.)
- ANTH 380/3105 - Fieldwork Methods (3 cr.)
- ANTH 495/4107 - Senior Seminar (3 cr.)  
See footnote one

## One of the following people-and-culture courses:

- ANTH 312/3301 - Anthropologies of Middle East and North Africa (3 cr.)
- ANTH 382/3302 - Anthropologies of Africa (3 cr.)
- ANTH 384/3303 - Anthropologies of Latin America (3 cr.)
- ANTH 386/3304 - Anthropologies of Asia (3 cr.)
- ANTH 390/3305 - Selected People and Culture Areas (3 cr.)

## Additional Requirements

**Eight** additional anthropology courses, of which three must be at the 400 level.

Please select from the following courses:

- ANTH 199/1099 - Selected Topics for Core Curriculum (3 cr.)
- ANTH 210/2005 - Arab Society (3 cr.)
- ANTH 000/2006 - Youth Cultures (3 cr.)
- ANTH 000/2007 - Anthropology of the Occupied: Palestine/ Israel (3 cr.)
- ANTH 299/2099 - Selected Topics for Core Curriculum (3 cr.)
- ANTH 240/2201 - Introduction to Community Development (3 cr.)
- ANTH 302/3015 - Global Families: Kinship and Relatedness in Late Modernity (3 cr.)
- ANTH 303/3020 - Social Movements (3 cr.)
- ANTH 320/3040 - States, Capital and Rural Lives (3 cr.)
- ANTH 321/3045 - The Urban Experience (3 cr.)
- ANTH 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)
- ANTH 340/3202 - Participatory Action Research in Community Settings (3 cr.)
- ANTH 341/3070 - Anthropology and Film (3 cr.)
- ANTH 352/3075 - Language in Culture (3 cr.)
- ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)
- ANTH 370/3085 - Environmental Issues in Egypt (3 cr.)
- ANTH 372/3090 - Public Anthropology (3 cr.)
- ANTH 400/4099 - Selected Topics in Anthropology (3 cr.)
- ANTH 402/4405 - Independent Study (1-3 cr.)
- ANTH 407/4015 - Psychological Anthropology (3 cr.)
- ANTH 000/4020 - Anthropology of Violence (3 cr.)
- ANTH 422/4025 - Religion in a Global World (3cr.)
- ANTH 425/4030 - Women, Islam and the State (3 cr.)

- ANTH 440/4203 - Practicum in Community Development (3 cr.)
- ANTH 445/4499 - Selected Topics in Coptic Studies (3 cr.)
- ANTH 450/4050 - Critical Approaches to Development (3 cr.)
- ANTH 455/4055 - Seminar in African Studies (3 cr.)
- ANTH 460/4560 - Development Studies Seminar (3 cr.)
- ANTH 462/4065 - Culture, Economy and the Everyday (3 cr.)
- ANTH 492/4070 - Political Anthropology (3 cr.)
- ANTH 000/4075 - Migrants and Transnationals (3 cr.)

## Collateral Requirements (21 credits)

- Two 300 or 400 level courses in the social sciences

## Electives (11-23 credits)

## Total 120 Credits

## Notes:

Footnote one: Cross listed with Sociology

# Arabic Studies, with specializations in Arabic Literature, Middle Eastern History and Islamic Art and Architecture (B.A.)

The department of Arab and Islamic Civilizations provides a multi-disciplinary framework for the study of the history and culture of the Middle East since the rise of Islam. It seeks to explain the thought, movements, processes, institutions and identities of Arab-Islamic civilization. These include but are not limited to aesthetic and intellectual production, political and religious thought, cross-cultural interaction, commerce and economic relations, government, and social, political and religious loyalties. The study and appreciation of these fields forms an important part of the university's mission to give students a greater awareness and appreciation of the heritage of the Middle East.

### Bachelor of Arts

The objective of the Bachelor of Arts is to develop a broad awareness of Arab-Islamic civilization and to develop in students the ability to examine critically the different aesthetic, intellectual and cultural components of this civilization. Each student is required to fulfill Arabic language requirements and take a common core of courses from Arabic Literature, Islamic Studies, Middle Eastern History and Islamic Art and Architecture. Students should find opportunities in any line of work where knowledge of Middle Eastern culture or analytical and communication skills are important.

A total of 120 credits is required for the degree in Arabic Studies.

### Language Requirements

Students must demonstrate their proficiency in Arabic at the advanced level, either by completing ALNG 312/3502 or its equivalent, or by taking a proficiency test, or by holding the Thanawiya 'Amma. Students must reach this level of proficiency before their senior year. The department may give permission for deferral until the senior year in

exceptional cases. However, students should note that advanced-level proficiency is a prerequisite for enrollment in certain Arabic literature courses, as described below. Students who are required to take Arabic language proficiency courses may use a maximum of 15 hours of their elective credits to take language courses in Intermediate or Advanced Arabic. Elementary Arabic courses may not be taken for credit.

Students should have the Thanawiya 'Amma certificate, evidence of advanced-level proficiency or consent of instructor before enrolling in any Arabic literature course which is taught in Arabic, or in ARIC 5114 for which the readings are in Arabic.

## Core Curriculum (40 credits)

ARIC majors must fulfill their Core Curriculum Arab History and Arabic Literature requirements by taking any 300-level Arabic literature course and any Middle Eastern history course from the core curriculum list other than ARIC 3343. They should take the introductory 200-level courses required by their major before fulfilling their Core Curriculum requirements.

## Concentration requirements (39 credits)

All students must take 15 credit hours as follows:

### Arabic literature (3 credits)

- ARIC 201/2101 - Introduction to Classical Arabic Literature (3 cr.)

### Middle Eastern history (3 credits)

- ARIC 246/2346 - Survey of Arab History (3 cr.)

### Islamic Studies (6 credits)

- ARIC 335/3435 - Introduction to the Study of Islam (3 cr.)
- ARIC 435/5141 - Studies in the Qur'an (3 cr.)

### Islamic Art and Architecture (3 credits)

Any 2000-level course in Islamic Art & Architecture

## Additional Requirements

Each student must take another 24 credits of ARIC courses, chosen with the help of the advisor. These must include two additional 400-level courses.

## Specializations

Students are encouraged to specialize in one of three fields: Middle Eastern History, Arabic Literature, or Islamic Art and Architecture, as part of their BA degree in Arabic Studies.

## Specialization in Middle Eastern History

Students who wish to specialize in Middle Eastern History should take:

A minimum of five courses (15 cr.) from the following list:

- ARIC 343/3343 - Birth of Muslim Community and Rise of the Arab Caliphates (3 cr.)
- ARIC 344/3344 - Caliphs and Sultans in the Age of Crusades and Mongols (3 cr.)
- ARIC 345/3345 - Gunpowder Empires: Ottomans, Safavids and Mughols (3 cr.)
- ARIC 353/3353 - Muslim Political Thought (3 cr.)
- ARIC 319/3319 - Islamic Spain and North Africa (711-1492 A.D.) (3 cr.)
- ARIC 321/3321 - Zawiyas, Harems, Coffee shops, Everyday Life in the Pre-Modern Mideast (3 cr.)
- ARIC 323/3323 - Marriage and the Family in the Medieval and Early Modern Middle East (3 cr.)
- ARIC 324/3324 - Non-Muslim Communities in the Muslim World (3 cr.)
- ARIC 336/3336 - Studies in Ibn Khaldun (3 cr.)
- ARIC 337/3337 - Shi'i Muslims in History (3 cr.)

In addition to, a minimum of two courses (6 cr.) from the following list:

- ARIC 451/5133 - Islamic Institutions (3 cr.)
- ARIC 460/5135 - Selected Topics in Middle Eastern History, 600-1800 AD (3 cr.)
- ARIC 000/5137 - International Trade 1000 - 1700: Egypt and the Mediterranean - Red Sea Trade (3 cr.)
- ARIC 404/5113 - Sira and Hadith (3 cr.)
- ARIC 439/5142 - Islamic Law (3 cr.)

And at least one course (3 cr.) from the following list:

- HIST 355/3213 - State and Society in the Middle East, 1699-1914 (3 cr.)
- HIST 356/3214 - State and Society in the Middle East, 1906-present (3 cr.)
- HIST 454/4219 - Modern Movements in Islam (3 cr.)
- HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)
- HIST 440/4217 - Colonialism and Imperialism in the Middle East and South Asia (3 cr.)

## Specialization in Arabic Literature

Students who wish to specialize in this field must complete 24 credits in Arabic literature. At least of 18 of these 24 credits should be taken in the courses listed below. It is expected that the readings for these classes will be in Arabic. A student may take up to two classes in which translated texts are used, provided they read the texts in the original Arabic.

ARIC 417/5114 - Special Studies in Arabic Texts (3 cr.) , as appropriate.

- ARIC 305/3104 - Arabic Literature and Gender (3 cr.)
- ARIC 306/3106 - Arabic Literature and Film (3 cr.)
- ARIC 307/3107 - The Writer and the State (3 cr.)
- ARIC 308/3108 - Colloquial and Folk Literature (3 cr.)
- ARIC 309/3097 - Selected Themes and Topics in Arabic Literature (3 cr.)
- ARIC 310/3197 - Selected Themes and Topics in Arabic Literature in Translation (3 cr.)
- ARIC 314/3114 - The Arabic Novel (3 cr.)
- ARIC 315/3115 - Arabic Drama (3 cr.)
- ARIC 316/3116 - The Arabic Short Story (3 cr.)
- ARIC 401/5110 - Senior Seminar in Arabic Texts (3 cr.)
- ARIC 402/5111 - Senior Seminar in Arabic Literature in Translation (3 cr.)
- ARIC 403/5112 - Arabic Literary Criticism (3 cr.)

## Electives (32 credits)

Depending on the number of credits needed to complete the 20 credits, the student is strongly advised to use some of their electives to take a suitable minor or minors.

### Language Requirement

Student may use up to 15 credit hours of electives to satisfy the Arabic language requirements for the ARIC degree.

## Specialization in Islamic Art and Architecture

In addition to the Islamic Art and Architecture courses ( ARIC 2206 and ARIC 270/2270) stipulated in the Arabic Studies core requirements, the students must take an additional 8 courses (24 credit hours), of which two must be of the 400-level, from among the following:

- ARIC 270-271/2270-2271 - From Andalusia to Indonesia: Introduction to Islamic Art and Architecture (3 cr. per semester)

7 courses (21 credit hours) from among the following courses:

- ARIC 368/3268 - The Art of the Book in the Islamic World (3 cr.)
- ARIC 369/3269 - The Arts of Fire: Ceramics and Glass of the Islamic World (3 cr.)
- ARIC 370/3270 - The Age of Transition: Early Islamic Art and the Pre-Islamic Past (3 cr.)
- ARIC 371-372/3271-3272 - Islamic Architecture in Egypt and Syria (3 cr. per semester)
- ARIC 464/5121 - Islamic Art and Architecture in India and Pakistan (3 cr.)
- ARIC 465-466/5122-5123 - Islamic Architecture in Turkey, Persia and Central Asia (3 cr.)
- ARIC 467/5124 - Islamic Architecture in Spain and North Africa (3 cr.)
- EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
- EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)

### Notes:

In addition to the core and specialization requirements an additional 26-38 credit hours can be devoted to electives.

## Communication and Media Arts (B.A.)

Today's communication and media professionals need to have a broad background in both traditional and new media and to understand the impact of the convergence of these media on society. By combining media practice with communication theory, this degree covers a broad spectrum of critical perspectives on the media and introduces a range of contemporary media practices. Consistent with the mission of the School of Global Affairs and Public Policy, our program/s encompass a number of interdisciplinary courses.

The goal of this major is to produce well-rounded students who are knowledgeable about contemporary media theories and research issues, have developed excellent writing skills, have gained production and presentation skills, and are critical thinkers and writers.

Before declaring a CMA major, students must complete 24 credits of university coursework, complete RHET 2010 with a grade B or better, and pass an English Proficiency Test.

CMA majors are not permitted to have a major in MMJ or IMC. Students must complete a minimum of 120 credits for the Bachelor of Arts degree in CMA, of which no more than 48 credits can be in CMA and another 65 of their total credits must be Humanities and Social Sciences.

## **Core Curriculum (40 credits)**

### **JRMC Core (12 credits)**

- JRMC 200/2200 - Introduction to Mass Communication (3 cr.)
- JRMC 201/2201 - Media Writing (3 cr.)
- JRMC 202/2202 - Multimedia Writing and Production (3 cr.)
- JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

### **Communication and Media Arts Major (30 credits)**

- JRMC 230/2230 - Photography Foundations 1 (3 cr.)
- JRMC 270/2270 - Online Communication (3 cr.)
- JRMC 320/3320 - Mass Communication Research (3 cr.)
- JRMC 339/3339 - Studio Production: AUC TV (3 cr.)
- JRMC 000/3380 - Digital Storytelling (3 cr.)
- JRMC 406/4406 - Internship (3 cr.)
- JRMC 420/4420 - Media Management (3 cr.)
- JRMC 444/4444 - Media Law and Policy (3 cr.)
- JRMC 460/4460 - Audio Production (3 cr.)
- JRMC 482/4482 - Media Convergence Capstone (3 cr.)

### **Choose two of the following courses: (6 credits)**

- JRMC 250/2250 - Global Media Systems (3 cr.)
- JRMC 305/3305 - Introduction to Visual Communication (3 cr.)
- JRMC 000/3307 - Sports Media (3 cr.)
- JRMC 310/3310 - Public Opinion, Persuasion and Propaganda (3 cr.)
- JRMC 330/3330 - Photojournalism and Documentary Practices (3 cr.)
- JRMC 441/4441 - Camera and Editing Workshop (3 cr.)
- JRMC 000/2208 - Media Literacy in the Digital Age (3 cr.)
- JRMC 000/3303 - Data for Media (3 cr.)
- JRMC 000/3390 - Media Economics (3 cr.)

## **General Electives/Minor**

Depending on the number of credit hours needed to complete 120 credits required for a bachelor's degree from AUC, CMA majors are required to select elective courses leading to a minor in an area that will complement their major, including Rhetoric and Writing, Middle East Studies, Arabic Studies, History, Political Science, Sociology or the Arts. Double majors are exempt. Selections should be made in consultation with your major advisor.



## Economics (B.A.)

### Bachelor of Arts

The curriculum for the B.A. degree in Economics is designed to prepare students to be i) economists with an understanding of a wide range of economics subjects and equipped with the necessary analytical tools to do so or ii) experts in the economic development and policy making or iii) economists with a strong foundation in quantitative and financial economics. For the first group, the curriculum offers a wide range of courses pertaining to the different aspects of the economy in theory and practice. For the second group, the curriculum offers courses that specifically address the challenges of economic development and prospects of policy making in the region. For the third group, the program offers rigorous and advanced courses in econometric theory and application and in financial economics.

Students who seek a major in Economics must satisfy the following requirements prior to applying for declaration:

- Complete a minimum of 27 credit hours including ECON 2011, 2021 and ECON 2061.
- Earn an average grade of B or higher in ECON 2011 and ECON 2021 with a minimum grade of B minus in each course.
- Earn a minimum grade of B in ECON 2061 (Equivalently, earn an average grade of B or higher in MACT 1121 and MACT 1122).

\* In the case of a second attempt of courses required for major declaration, the higher of the two grades earned will be considered. The grade of a third attempt or more will not be considered for the purpose of declaring a major in Economics.

The score for declaration will be calculated as follows:

(Economics GPA\*50%) + (Overall GPA\*50%)

Economics GPA is the GPA of all economics courses completed prior to applying for declaration (except ECON 1099).

Selection to declare a major in Economics is competitive and will be based on availability of space.

### Degree Requirements

Students must complete a minimum of 120 credit hours for the Bachelor of Arts in Economics degree in the following areas:

- I. Core Curriculum (37 credits),
- II. Collateral Requirements (9 credits),
- III. Economics Core Requirements (39 credits),
- IV. Requirements for General Economics Degree (15 or 16 credits)
- V. Requirements for 'Economic Development and Policy Analysis' Concentration (15 or 16 credits),
- VI. Requirements for 'Quantitative and Financial Economics' Concentration (15 or 16 credits),
- VII. General Electives (19 or 20 credits)

### I. Core Curriculum (37 credits)

The remaining 3 credit hours required to satisfy the Core are fulfilled by completing the course ECON 308/3071 - Labor Economics (3 cr.)

### II. Collateral Requirements (9 credits)

- ACCT 201/2001 - Financial Accounting (3 cr.)
- FINC 303/2101 - Business Finance I (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)
- BADM 000/4999 - Internship and Assessment (0 cr.)

### III. Economics Core Requirements (39 credits)

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)
- ECON 216/2061 - Mathematics for Economists I (3 cr.)
- ECON 218/2081 - Statistics for Economists (3 cr.)
- ECON 301/3021 - Intermediate Macroeconomic Theory (3 cr.)
- ECON 302/3011 - Intermediate Microeconomic Theory (3 cr.)
- ECON 303/3041 - Monetary Economics (3 cr.)
- ECON 308/3071 - Labor Economics (3 cr.)
- ECON 312/3053 - Economic Development (3 cr.)
- ECON 316/3061 - Mathematics for Economists II (3 cr.)
- ECON 318/3081 - Introduction to Econometrics (3 cr.)
- ECON 403/4031 - International Trade (3 cr.)
- ECON 405/4091 - History of Economic Thought (3 cr.)

### IV. Requirements for General Economics Degree (15 or 16 credits)

Students should choose five out of the following courses:

- ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)
- ECON 000/3054 - Environmental and Natural Resource Economics (3 cr.)
- ECON 320/3055 - The Digital Economy: Information Technology, Knowledge and Intellectual Property (3 cr.)
- ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.)
- ECON 413/4012 - Feasibility Study (3 cr.)
- ECON 000/4013 - Behavioral Economics (3 cr.)
- ECON 310/4014 - Public Economics and Policy Analysis (3 cr.)
- ECON 000/4015 - Applied Econometrics (3 cr.)
- ECON 404/4041 - Financial Economics (3 cr.)
- ECON 416/4061 - Mathematical Economics (3 cr.)
- ECON 418/4081 - Econometric Methods (3 cr.) and ECON 418P/4082 - Practicum (1 cr.)
- ECON 414/4094 - Economics of Egypt (3 cr.)
- ECON 411/4099 - Seminar: Special Topics in Economics (3 cr.)

### V. Requirements for 'Economic Development and Policy Analysis' Concentration (15 or 16 credits)

Students should complete the following three courses:

- ECON 310/4014 - Public Economics and Policy Analysis (3 cr.)
- ECON 414/4094 - Economics of Egypt (3 cr.)
- ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.)

and choose two out of the following courses:

- ECON 000/3054 - Environmental and Natural Resource Economics (3 cr.)
- ECON 320/3055 - The Digital Economy: Information Technology, Knowledge and Intellectual Property (3 cr.)
- ECON 413/4012 - Feasibility Study (3 cr.)
- ECON 000/4013 - Behavioral Economics (3 cr.)

- ECON 000/4015 - Applied Econometrics (3 cr.)
- ECON 416/4061 - Mathematical Economics (3 cr.)
- ECON 418/4081 - Econometric Methods (3 cr.) and ECON 418P/4082 - Practicum (1 cr.)
- ECON 411/4099 - Seminar: Special Topics in Economics (3 cr.)
- ECON 512/5254 - Economic Growth & Development (3 cr.) or ECON 505/5231 - Advanced International Trade (3 cr.)

## VI. Requirements for 'Quantitative and Financial Economics' Concentration (15 or 16 credits)

Students should complete the following three courses:

- ECON 404/4041 - Financial Economics (3 cr.)
- ECON 416/4061 - Mathematical Economics (3 cr.)
- ECON 418/4081 - Econometric Methods (3 cr.) and ECON 418P/4082 - Practicum (1 cr.)

and choose two out of the following courses:

- ECON 413/4012 - Feasibility Study (3 cr.)
- ECON 000/4013 - Behavioral Economics (3 cr.)
- ECON 000/4015 - Applied Econometrics (3 cr.)
- ECON 414/4094 - Economics of Egypt (3 cr.)
- ECON 411/4099 - Seminar: Special Topics in Economics (3 cr.)
- ECON 504/5241 - Financial Economics (3 cr.) or ECON 520/5215 - Competitive Strategy and Game Theory (3 cr.)
- MACT 321/3311 - Introduction to Financial Mathematics (3 cr.)
- MACT 429/4233 - Applied Multivariate Analysis (3 cr.)

## VII. General Electives (19 to 20 credits)

### Egyptology (B.A.)

Egyptology is the scientific study of the history and culture of Ancient Egypt, from the earliest times to the Arab conquest, a time span covering some 4,600 years. Egyptology covers all aspects of Ancient Egyptian civilization, from language and religion to art, architecture and social structure.

#### Bachelor of Arts in Egyptology

The Program aims at preparing students for careers in Egyptology and the preservation and management of Egypt's material heritage. Research, writing, critical thinking and presentation skills are also stressed. Students will:

1. Acquire knowledge, appreciation and understanding of Ancient Egypt's cultural heritage and its legacy in the world.
2. Master the research tools upon which a career in Egyptology must depend, including Ancient Egyptian language and scripts as well as skill in excavation and site analysis.
3. Prepare properly to assume the responsibility of caring for, maintaining and preserving Ancient Egypt's unique cultural heritage.

A student in good standing with the university who wishes to declare a major in Egyptology should have passed an Egyptology course (e.g. EGPT 2020 or EGPT 2551) with a grade of B- or higher. Additionally, a writing sample showing the student's writing ability should be submitted to the Egyptology faculty, who will then arrange for a

personal interview with the student prior to declaration. The writing sample should demonstrate linguistic ability commensurate with the demands of Egyptology.

A total of 120 credits is required for the bachelor's degree in Egyptology:

## Core Curriculum (40 credits)

## Concentration Requirements (48 credits)

All Twelve of the following (36 credits):

- EGPT 343/3211 - History of Ancient Egypt I: Pre-Dynastic Through Middle Kingdom Egypt (3 cr.)
- EGPT 344/3212 - History of Ancient Egypt II: Middle Kingdom through Ptolemaic Egypt (3 cr.)
- EGPT 250/2250 - Ancient Egyptian Literature in Translation (3 cr.)
- EGPT 253/2251 - Hieroglyphics I (3 cr.)
- EGPT 254/2252 - Hieroglyphics II (3 cr.)
- EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
- EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)
- EGPT 304/5100 - Culture and Society of Ancient Egypt (3 cr.)
- EGPT 346/5130 - Societies and Culture of the Ancient Near East (3 cr.)
- or
- EGPT 348/5140 - Societies and Cultures of Ancient Nubia (3 cr.)
- EGPT 353/5151 - Hieroglyphics III (3 cr.)
- EGPT 402/5153 - Hieroglyphics IV (3 cr.) for those focussing in language OR any other EGPT upper level course, approved by the Egyptology Unit
- EGPT 440/4040 - Ancient Egyptian Religion and Ethics (3 cr.)

From among the following (12 credits):

- EGPT 202/2020 - Ancient Egypt: An Introduction (3 cr.)
- EGPT 204/2210 - Introduction to Archaeology (3 cr.)
- EGPT 301/3010 - Temples, Tombs and Hieroglyphs (3 cr.)
- EGPT 341/5110 - Egypt in the First Millennium BC (3 cr.)
- EGPT 342/5120 - History of Egypt in the Graeco-Roman Era (3 cr.)
- EGPT 348/5140 - Societies and Cultures of Ancient Nubia (3 cr.)
- EGPT 400/5150 - Introduction to Coptic (3 cr.)
- EGPT 401/5152 - Introduction to Hieratic (3 cr.)
- EGPT 403/4030 - Independent Study in Egyptology (1-3 cr.) \*
- EGPT 445/5160 - Selected Topics in Coptic Studies (3 cr.) \*
- EGPT 459/5170 - Selected Topics in Cultural Resource Management and Museology (3 cr.) \*
- EGPT 491/5191 - Field Work (3 cr.)
- EGPT 499/5199 - Selected Topics in Egyptology (3 cr.) \*

\* These courses can be repeated as the subject matter changes

Notes:

Students intending to pursue graduate studies in Egyptology at an Egyptian national university must take EGPT 5152 Introduction to Hieratic and EGPT 5150 Introduction to Coptic.

## Collateral Requirements (11-12 credits)

Courses in related disciplines, such as anthropology (e.g. Cultural Anthropology), history and art, Islamic art and archaeology, linguistics, or science (Archaeological Science), possibly to constitute a minor.

## Electives (20-21 credits)

## English and Comparative Literature (B.A.)

### Bachelor of Arts

The program in English and Comparative Literature provides the undergraduate student with an understanding of the role which literature plays in presenting men and women with images of themselves, their society, and their culture and introduces them to the different questions and answers which literature has given to the central problems of human experience.

To major in English and Comparative Literature students must have taken at least one ECLT course with not less than a C grade and be registering for the required program of the major.

A total of 120 credits is required for the bachelor's degree in English and comparative literature:

## Core Curriculum (40 credits)

## Concentration Requirements (42 credits)

- ECLT 200/2010 - Introduction to Literature (3 cr.)  
OR
- ECLT 202/2012 - Global Literature in English (3 cr.)
- 
- ECLT 201/2011 - Survey of British Literature (3 cr.)
- 
- ECLT 301/3001 - Medieval Literature (3 cr.)  
Or
- ECLT 409/4009 - Greek Classics in Translation (3 cr.)  
Or
- ECLT 410/4010 - Classics of the Ancient World (3 cr.)
- 
- ECLT 302/3002 - Literature of the Renaissance (3 cr.)

- Or
- ECLT 303/3003 - Seventeenth-Century Literature (3 cr.)
- Or
- ECLT 360/3060 - Shakespeare (3 cr.)
- 
- ECLT 304/3004 - Eighteenth-Century Literature (3 cr.)
- Or
- ECLT 305/3005 - Romanticism (3 cr.)
- Or
- ECLT 306/3006 - Nineteenth-Century European Literature (3 cr.)
- 
- ECLT 308/3008 - Modern European and American Literature (3 cr.)
- Or
- ECLT 348/3048 - Contemporary Literature (3 cr.)
- 
- ECLT 310/3010 - American Literature to 1900 (3 cr.)
- Or
- ECLT 311/3011 - Modern American Literature (3 cr.)
- 
- ECLT 411/4011 - History of Literary Criticism (3 cr.)
- ECLT 412/4012 - Modern Literary Criticism (3 cr.)

Three additional courses to be chosen from the following courses (9 credits):

- ECLT 209/2019 - Introduction to American Studies (3 cr.)  
/HIST 209
- ECLT 330/3030 - Literature and Cinema (3 cr.)
- ECLT 332/3032 - World Literature (3 cr.)
- ECLT 333/3033 - African Literature (3 cr.)
- ECLT 344/3014 - Literature and Philosophy (3 cr.)
- ECLT 345/3045 - Literature and Gender (3 cr.)
- ECLT 346/3046 - Third World Literature (3 cr.)
- ECLT 347/3099 - Selected Topics (3 cr.)
- ECLT 352/3052 - Recurrent Themes in Literature (3 cr.)
- ECLT 353/3053 - Modern Drama (3 cr.)
- ECLT 370/3070 - Creative Writing (3 cr.)

- ECLT 447/4099 - Capstone Seminar: Selected Topics (3 cr.)

Any two Additional ECLT courses (6 cr.)

Collateral Requirements (3 credits)

One course in 300- or 400-level Arabic Literature (in Arabic or in translation).

Electives (29-41 credits)

## Film (B.A.)

### Bachelor of Arts in Film

Cinema is simply one of the most dynamic and complex cultural, economic and industrial art forms in the world. Uniquely situated in the "film" city of Cairo, the AUC Film Program integrates formal film production training with the study of the historical, aesthetic and theoretical foundations of the medium. In this combined academic and professional context, the B.A. in Film provides a balanced consideration of the international, regional and local elements of cinema.

The Film curriculum emphasizes the following areas:

- The development of cinema as an art form
- The impact of cinema on society and culture
- The historical, thematic and aesthetic tendencies within Egyptian and Arab cinema
- A practical background and theoretical appreciation of the art of film making
- Basic formal techniques of film production
- The relationship between cinema and today's media-saturated global public sphere

### Declaration of the Film Major

Students interested in declaring a major in Film are required to take FILM 2120 (Introduction to Film) and FILM 2121 (Introduction to Film Production). Students with a minimum grade-point average of 'B' in these introductory FILM courses may apply to declare Film as their major. A final recommendation regarding the declaration is made following an interview with the applicant.

### Major Requirements

A total of 120 credits are required for the bachelor's degree in Film, two courses of which must be FILM courses in the 4000 level.

Core Curriculum (40 credits)

Concentration Requirements (57 credits)

- FILM 220/2120 - Introduction to Film Art (3 cr.)
- FILM 000/2121 - Introduction to Film Production (3 cr.)

- FILM 000/2122 - Introduction to Film Criticism (3 cr.)
- FILM 000/2123 - Introduction to Film Production II (3 cr.)

## 1. Film Theory & Aesthetics (18 credits)

- FILM 330/3130 - Film Theory (3 cr.)
- FILM 352/3352 - The Film Industry (3 cr.)
- Choose FOUR from the following:
- FILM 341/3041 - Anthropology and Film (3 cr.)
- FILM 370/3070 - Selected Topics in Film (3 cr.)
- FILM 310/3110 - World Cinema (3 cr.)
- FILM 000/3115 - American Cinema 1895-1945 (3 cr.)
- FILM 000/3117 - American Cinema 1945-present (3 cr.)
- FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)
- FILM 000/3125 - Topics in National Cinemas (3 cr.)
- FILM 340/3140 - Documentary Film (3 cr.)
- FILM 000/3150 - Women and Film (3 cr.)
- FILM 360/3160 - The Filmmaker (3 cr.)
- FILM 390/3190 - Film Genres (3 cr.)
- FILM 354/3354 - Film Audience and Reception (3 cr.)
- FILM 000/4350 - Philosophy and Film (3 cr.)
- FILM 470/5170 - Advanced Seminar in Film Studies and Research (3 cr.)
- FILM 402/4402 - Independent Study (1-3 cr.)

## 2. Film Production (18 credits)

- FILM 353/3253 - Digital Cinematography (3 cr.)
- FILM 344/3254 - Digital Editing (3 cr.)
- Choose FOUR from the following:
- FILM 000/2201 - Acting I (3 cr.)
- FILM 000/2211 - Acting in Arabic I (3 cr.)
- FILM 352/3252 - Screenwriting (3 cr.)
- FILM 336/3306 - Sound for Picture Production (3 cr.)
- FILM 000/3402 - Documentary Production (3 cr.)
- FILM 000/4201 - Film Directing (3 cr.)
- FILM 450/4250 - Senior Film Project (3 cr.)
- FILM 456/4356 - Experiential Learning in Film (3 cr.)
- ARTV 230/2230 - Introduction to Digital Photography (3 cr.)
- DSGN 335/3235 - Animation (3 cr.)
- MUSC 337/3307 - Music for Film (3 cr.)
- THTR 204/2401 - Introduction to Technical Theatre (3 cr.)

## Collateral Requirements (9 credits)

Choose TWO from the following or TWO remaining FILM courses above:

- ANTH 202/2101 - Cultural Anthropology (3 cr.)



- ARIC 306/3106 - Arabic Literature and Film (3 cr.)
- ARTV 204/2204 - Introduction to Time-Based Media (3 cr.)
- ECLT 330/3030 - Literature and Cinema (3 cr.)
- ECLT 411/4011 - History of Literary Criticism (3 cr.)
- JRMC 420/4420 - Media Management (3 cr.)
- MUSC 331/2301 - Music Production Using Protocols I (3 cr.)
- MUSC 334/3304 - Music Production for Visual Media (3 cr.)
- PHIL 310/3010 - Philosophy and Art (3 cr.)
- SOC 306/3030 - Sociology of Literature (3 cr.)
- THTR 203/1201 - Theatre in the Making (3 cr.)
- THTR 324/3401 - Design for the Theatre (3 cr.)

## Electives (23 credits)

## Graphic Design (B.A.)

### Bachelor of Arts in Graphic Design

The Graphic Design major prepares students for a wide range of professional options. Branding, advertising, publication, web, digital and broadcast design, exhibition and type design are all possible career paths. The major offers both theory and studio courses that will enable design students to integrate a good command of visual language with conceptual work, theory, and technology.

Classes are mostly critique based, encouraging debate, discussion, and lateral thinking, utilizing formal and practical knowledge. Most coursework is conducted in studios. Classes are taught by a group of accomplished faculty supported by visiting faculty, guest lecturers, field trips, camps, and workshops. Students create work that is uniquely theirs helping them build a portfolio from which they can build their careers.

### Declaration of the Graphic Design Major

To be eligible to declare a Graphic Design major, students must have completed two courses in the program: DSGN 200/2200 - Design Foundations (3 cr.) , DSGN 213/2113 - Introduction to Visual Cultures (3 cr.). After the completion of these two courses, students are requested to sit for a portfolio interview where a committee evaluates their work.

Based on the availability of space, a limited number of students who have successfully completed their courses and who present a promising portfolio as determined by the department will be accepted in the major.

Students who did not pass the interview can sit for another interview after they take DSGN 201/2201 - Design Principles & Practices (3 cr.) and DSGN 215/2115 - History of Graphic Design (3 cr.). The second interview is the final one.

If a student is rejected after the second interview, then they cannot declare graphic design as a major, but they are eligible to register for any of the DSGN minors. Please note that the required GPA for the four DSGN course to declare the major or the minor should be 3.0.

### Major Requirements

A total of 120 credits are required for the bachelor's degree in Graphic Design.

## Core Curriculum (40 credits)

## Concentration Requirements (30 Credits)

- DSGN 200/2200 - Design Foundations (3 cr.)
- DSGN 201/2201 - Design Principles & Practices (3 cr.)
- DSGN 210/2210 - Typography I (3 cr.)
- DSGN 320/3220 - Typography II (3 cr.)
- DSGN 213/2113 - Introduction to Visual Cultures (3 cr.)
- DSGN 215/2115 - History of Graphic Design (3 cr.)
- DSGN 250/2250 - Digital Practice I (3 cr.)
- DSGN 420/4220 - Production for Designers (3 cr.)
- DSGN 469/4269 - Senior Project Thesis (3 cr.)
- DSGN 470/4270 - Senior Project Practice (3 cr.)

## Additional requirements (30 credits)

### 1. Professional Practice, Choose five

- DSGN 202/2202 - Logo and Visual Identity Design (3 cr.)
- DSGN 303/3203 - Publication Design (3 cr.)
- DSGN 304/3204 - Packaging Design (3 cr.)
- DSGN 305/3205 - Retail Design (3 cr.)
- DSGN 313/3213 - Interactive Design (3 cr.)
- DSGN 330/3230 - Type Design (3 cr.)
- DSGN 365/3265 - Advertising and Branding (3 cr.)
- DSGN 000/3270 - Selected Topics in Design (3 cr.)

### 2) Technical Practice, Choose THREE:

- DSGN 240/2240 - Color (3 cr.)
- DSGN 245/2245 - Illustration (3 cr.)
- DSGN 335/3235 - Animation (3 cr.)
- DSGN 350/3250 - Digital Practices II (3 cr.)
- DSGN 360/3260 - Photography for Designers (3 cr.)
- DSGN 400/4200 - Design field practices (3 cr.)
- DSGN 410/4210 - Portfolio (3 cr.)
- ARTV 201/2201 - Introduction to Drawing (3 cr.)
- ARTV 204/2204 - Introduction to Time-Based Media (3 cr.)

### 3. History and Theory, choose TWO:

- DSGN 317/3117 - History of Advertising in the Arab World (3 cr.)
- DSGN 318/3118 - History of Arabic Calligraphy (3 cr.)
- DSGN 315/5115 - History of Graphic Design in the Arab world (3 cr.)
- ARIC 368/3268 - The Art of the Book in the Islamic World (3 cr.)

## Electives (20 credits)

### History (B.A.)

#### Bachelor of Arts

AUC's history major covers a range of European, American and Middle Eastern topics, and allows students the flexibility to develop and pursue their own interests. All courses develop in students an appreciation of the richness, complexity, and diversity of past civilizations, allowing them to examine the human experience in its fullest dimensions. The program as a whole gives students appropriate historical, academic and personal competencies, develops their intellectual sophistication, and provides a solid foundation for their future lives, preparing them for a wide variety of subsequent careers, from law or diplomacy to journalism or business.

Students interested in declaring History as their major must take at least two courses in History the year they join the major and pass an interview to be conducted by the Department Academic Adviser.

A total of 120 credits is required for a bachelor's degree in History.

## Core Curriculum (40 credits)

### Concentration Requirements (36 credits)

- HIST 420/4801 - Historical Theory and Methodology (3 cr.)  
"Major Capstone"

### Eleven additional history courses,

1. of which at least eight must be above the 2000 level
2. and four in subjects other than the history of the Middle East

Students must consult with their advisors to ensure that their courses provide an appropriate coverage of different historical periods.

### Electives:

38-50 credits, to be selected in consultation with a history faculty advisor.

### Honors Program in History (B.A.)

A total of 120 credits is required for a bachelor's degree in Honors Program in History.

## Core Curriculum (40 credits)

### Concentration Requirements (39 credits)

HIST 4801 : Historical Theory and Methodology. To be taken by all History majors (including Honors students) in their junior year.

HIST 4802 : Preparation for Thesis Writing. Limited to Honors students, to be taken in the first semester of the senior year.

HIST 4000 : Honors Thesis. To be taken in the second semester of the senior year.

**Ten additional history courses**

1. Of which at least seven must be above the 200 level
2. and 3 in subjects other than the history of the Middle East
3. Include one course at the 5000 level (3 credits)

## Electives (41 credits)

## Honors Program in Political Science (B.A.)

Students may apply for admission to the Honors program following completion of 24 credit hours in Political Science or more with a minimum major GPA of 3.4 and must maintain this GPA to continue in the honors program.

Requirements: 45-48 credits in Political Science as follows:

- A. Concentration requirements: 30 - 33 cr.
- B. Political Science Specialization: 9-12 cr.
- C. Honors Requirements: 9 cr.

### A. Concentration Requirements: (30 or 33 cr.)

- POLS 203/2003 - Introduction to Political Science II (3 cr.)  
This course must be taken if, and only if, POLS 1001 was not taken during the Freshman year.
- POLS 204/2104 - Introduction to Research Methods in Political Science (3 cr.)
- POLS 000/2405 - History and International Politics (3 cr.)
- POLS 301/3201 - History of Political Theory I (3 cr.)
- POLS 302/3202 - History of Political Theory II (3 cr.)
- POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)
- POLS 310/3510 - Introduction to Development (3 cr.)
- POLS 313/3401 - Introduction to Comparative Politics (3 cr.)
- POLS 320/3620 - Introduction to International Relations Theories (3 cr.)
- POLS 350/3550 - Introduction to Political Economy (3 cr.)
- POLS 471/4371 - Introduction to Public International Law (3 cr.)

### B. Political Science Specialization: 9-12 crs.

If the student does not opt for a specific specialization the, 3-6 credits will be taken as electives toward an honors general degree. Courses for each specialization is stated in the Catalog.

### C. Honors Requirements: 9 crs.

POLS 400/4000 - The Discipline and Critical Social Theory (3 cr.)

POLS 404/4104 - Political Science Methods (3 cr.)

POLS 499/4099 - Senior Year Thesis (3 cr.)

## Other Requirements:

Students must complete the general electives and the collateral courses required of all Political Science majors to make up 120 credits total.

Any students with a failing grade in any of the Honors courses (POLS 4000 , POLS 4104 , and POLS 4099) will be automatically excluded from the Honors program. Such students will graduate only with a BA in Political Science.

## Integrated Marketing Communication (B.A.)

Integrated Marketing Communication (IMC) is the integration of all marketing communication tools under one strategic communication focus. It takes all communication tools from working in isolation to complementing each other, with the objective of communicating one unified message from the organization (or the brand) to its target consumers. The objective of IMC is to manage all organizational communication in an integrated fashion and to build positive relationships between the organization on one hand and its customers and other stakeholders, such as employees, board members, the media, and society at large. Consistent with the mission of the School of Global Affairs and Public Policy our program/s encompass a number of interdisciplinary courses.

Students majoring in IMC gain skills and experience in all aspects of the marketing communication process through both theoretical learning and hands-on-experience. Components of the program include exposure to the fundamentals of strategic planning, media research, budgeting, creative strategy, creative development, media planning, production, modern corporate image, branding, social responsibility, event marketing, sales promotions, direct marketing, and public relations.

Before declaring an IMC major, students must complete 24 units of university coursework, complete RHET 2010 and JRMC 2200 with a grade of B or better, and pass an English Proficiency Test.

IMC majors are not permitted to have a major in CMA or MMJ. Students must complete a minimum of 120 credits for the Bachelor of Arts degree in IMC of which no more than 48 credits can be in IMC and another 65 of their total credits must be in Humanities and Social Sciences.

### Core Curriculum (40 credits)

#### JRMC Core (12 credits)

- JRMC 200/2200 - Introduction to Mass Communication (3 cr.)
- JRMC 201/2201 - Media Writing (3 cr.)
- JRMC 202/2202 - Multimedia Writing and Production (3 cr.)
- JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

#### Integrated Marketing Communication Major (30 credits)

- JRMC 305/3305 - Introduction to Visual Communication (3 cr.)
- JRMC 315/3315 - Introduction to Advertising (3 cr.)
- JRMC 320/3320 - Mass Communication Research (3 cr.)
- JRMC 355/3355 - Creative Strategy and Advertising Copywriting (3 cr.)
- JRMC 000/3366 - Online Behavior and Web Analytics (3 cr.)
- JRMC 000/3390 - Media Economics (3 cr.)

- JRMC 415/4415 - Public Relations Theory and Techniques (3 cr.)
- JRMC 425/4425 - Integrated Marketing Communication Campaigns Capstone (3 cr.)
- MKTG 302/2101 - Principles of Marketing (3 cr.)
- MKTG 410/3202 - Consumer-Buyer Behaviour (3 cr.)

### Choose two of the following courses: (6 credits)

- JRMC 230/2230 - Photography Foundations 1 (3 cr.)
- JRMC 406/4406 - Internship (3 cr.)
- JRMC 420/4420 - Media Management (3 cr.)
- JRMC 000/4430 - Advertising Agency Operations (3 cr.)
- JRMC 444/4444 - Media Law and Policy (3 cr.)
- ENTR 000/4503 - Digital Strategy (3 cr.)
- DSGN 365/3265 - Advertising and Branding (3 cr.)
- DSGN 420/4220 - Production for Designers (3 cr.)
- DSGN 317/3117 - History of Advertising in the Arab World (3 cr.)
- JRMC 000/2208 - Media Literacy in the Digital Age (3 cr.)
- JRMC 000/3303 - Data for Media (3 cr.)

### General Electives/Minor

Depending on the number of credit hour needed to complete 120 credits required for bachelor's degree from AUC, IMC majors are required to select elective courses leading to a minor in an area that will complement their major, including Rhetoric and Writing, Middle East Studies, Arabic Studies, History, Political Science, Sociology or the Arts. Double majors are exempt. Selections should be made in consultation with your major advisor.

## Middle East Studies (B.A.)

Middle East Studies is an interdisciplinary program. Middle East Studies courses are taught by faculty members from Anthropology, Arabic Studies, Economics, History, Management, Political Science, and Sociology. Through intensive study of the region's history, culture, and current issues, students gain a comprehensive understanding of the modern Middle East. See faculty listings under departmental descriptions.

### Bachelor of Arts

A minimum GPA of 2.7 is required in order to declare and maintain a major in the Middle East Studies program.

A total of 120 credits is required for the bachelor's degree in Middle East Studies:

### Core Curriculum (40 credits)

Non-Arabic speaking students must take six hours of colloquial or literary Arabic.

### Concentration Requirements (45 credits)

Apart from the Core requirements, students must take two courses from the 200 and 300-level courses in each of the following six field fields: Anthropology, Arab Studies, Economics, History, Political Science and Sociology. In addition, the student must take a total of three, 400-level courses selected from the above fields. The rest of the courses

beyond the Core and Middle East Studies major must be advanced level courses, unless they are part of the requirements of a Minor.

In the case of ARIC and HIST courses, if the student takes one of the courses listed below as part of the Core requirements, the student must take another course from the Core courses listed under these fields.

## 200 and 300-level course requirements (36 credits)

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- ANTH 312/3301 - Anthropologies of Middle East and North Africa (3 cr.)
- ARIC 246/2346 - Survey of Arab History (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)
- HIST 355/3213 - State and Society in the Middle East, 1699-1914 (3 cr.)
- HIST 356/3214 - State and Society in the Middle East, 1906-present (3 cr.)
- POLS 203/2003 - Introduction to Political Science II (3 cr.)
- POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)
- SOC 303/3303 - Social Movements (3 cr.)
- SOC 370/3085 - Environmental Issues in Egypt (3 cr.)

## Choose one of the following

- ARIC 343/3343 - Birth of Muslim Community and Rise of the Arab Caliphates (3 cr.)
- ARIC 321/3321 - Zawiyas, Harems, Coffee shops, Everyday Life in the Pre-Modern Mideast (3 cr.)
- ARIC 353/3353 - Muslim Political Thought (3 cr.)

## 400-level course requirements (9 credits)

In addition to the above courses, students are required to take three 400-level courses from the following list:

- ANTH 425/4030 - Women, Islam and the State (3 cr.)
- ANTH 450/4050 - Critical Approaches to Development (3 cr.)  
OR ANTH 460/4560 - Development Studies Seminar (3 cr.)
- ARIC 439/5142 - Islamic Law (3 cr.)
- ARIC 451/5133 - Islamic Institutions (3 cr.)
- ARIC 454/5134 - Modern Movements in Islam (3 cr.)
- ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.)
- HIST 412/4290 - Selected Topics in Modern Egyptian History (3 cr.)  
OR HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)
- HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)
- MEST 430/4301 - Special Topics in Middle East Studies (3 cr.)
- POLS 420/4420 - Issues in Middle East Politics (3 cr.)
- POLS 423/4523 - The Political Economy of Poverty and Inequality (3 cr.)
- POLS 442/4542 - Environmental Politics (3 cr.)
- SOC 450/4106 - Critical Approaches to Development (3 cr.)  
OR
- SOC 460/4560 - Development Studies Seminar (3 cr.)

## Electives (29 -41 credits)

Depending on the number of credit hours needed to complete the 120 stated above.

## Multimedia Journalism (B.A.)

The Multimedia Journalism major converges the disciplines of traditional and new media into a single stream which exposes students to and trains them to print, broadcast, digital and citizen journalism.

The major stresses basic news gathering, reporting and writing skills for multi-platform delivery, with a particular emphasis on the instantaneous dissemination advantages of social media.

The major is structured as a building process that moves students from the initial broad exposure to mass communication. The focus is on the essentials of media ethics and responsibilities and creating media professionals who will compete in any terrain around the world.

Before declaring a MMJ major, students must complete 24 credits of university coursework, complete RHET 2010 with a grade B or better, and an English Proficiency Test.

MMJ majors are not permitted to have a major in CMA or IMC. Students must complete a minimum of 120 credits for the Bachelor of Arts degree in MMJ, of which no more than 48 credits can be in MMJ and another 65 of their total credit hours must be in Humanities and Social Sciences.

## Core Curriculum (40 credits)

### JRMC Core (12 credits)

- JRMC 200/2200 - Introduction to Mass Communication (3 cr.)
- JRMC 201/2201 - Media Writing (3 cr.)
- JRMC 202/2202 - Multimedia Writing and Production (3 cr.)
- JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

### Multimedia Journalism Major (33 credits)

- JRMC 000/2208 - Media Literacy in the Digital Age (3 cr.)
- JRMC 230/2230 - Photography Foundations 1 (3 cr.)
- JRMC 312/3312 - Multimedia Journalism Lab: The Caravan (3 cr.)
- JRMC 000/3303 - Data for Media (3 cr.)
- JRMC 333/3333 - Research for Journalists (3 cr.)
- JRMC 337/3337 - TV Scriptwriting and Production (3 cr.)
- JRMC 339/3339 - Studio Production: AUC TV (3 cr.)
- JRMC 000/3380 - Digital Storytelling (3 cr.)
- JRMC 444/4444 - Media Law and Policy (3 cr.)
- JRMC 460/4460 - Audio Production (3 cr.)
- JRMC 480/4480 - Multimedia Reporting Capstone (3 cr.)



## Choose One of the following Electives in the Major (3 credits)

- JRMC 301/3301 - Journalism Editing and Design (3 cr.)
- JRMC 305/3305 - Introduction to Visual Communication (3 cr.)
- JRMC 310/3310 - Public Opinion, Persuasion and Propaganda (3 cr.)
- JRMC 330/3330 - Photojournalism and Documentary Practices (3 cr.)
- JRMC 402/4402 - Reporting and Writing in Arabic (3 cr.)
- JRMC 403/4403 - Feature and Magazine Writing (3 cr.)
- JRMC 406/4406 - Internship (3 cr.)
- JRMC 412/4412 - Newsroom Editing and Management (3 cr.)
- JRMC 441/4441 - Camera and Editing Workshop (3 cr.)
- JRMC 471/4471 - Online Journalism (3 cr.)
- JRMC 000/3390 - Media Economics (3 cr.)

## General Electives/Minor

Depending on the number of credit hours needed to complete 120 credits required for bachelor's degree from AUC, MMJ majors are required to select elective courses leading to a minor in an area that will complement their major, including Rhetoric and Writing, Middle, Middle East Studies, Arabic Studies, History, Political Science, Sociology or the Arts. Double Majors are exempt. Selections should be made in consultation with your major advisor.

## Music Technology (B.A.)

The mission of the Music Program is to teach the theory, literature, and performance of music, and the theory and practice of music technology, to the highest attainable standard in the context of a liberal arts environment, with an orientation towards performance and study in both Western and Arab music.

The program lays a special emphasis on two aspects of what musicians do which are of particular value to students, whether they aspire to a career in music, or only seek to broaden their understanding of the world by enrolling in one or two courses. First, all students who take private instruction in voice or an instrument will learn to sight-read musical notation fluently, and to comprehend what they hear. Second, in the classroom and studio, lessons, rehearsals, and performances, all students in the program are expected to conform to professional standards: to be punctual and prepared, and to treat their colleagues, and the material to be studied or performed, with the respect that is their due.

Students who major in music may pursue either a Bachelor of Arts degree in music technology, or a Bachelor of Musical Arts (B.M.A) degree in performance. The Bachelor of Arts in music technology is a liberal arts degree which prepares students for a career in sound engineering, ie. Music recording, editing, production, and broadcasting, or for graduate study in the field.

**The Institute for Music Technology** offers a sequence of courses in music recording, editing, and production, music for video and film, and electronic music. Such training is crucial not only for students interested in a career in these professions, but also to performers and teachers who need to create and edit demos and audition tracks, to use music files in web sites and other internet applications, or to prepare and market recordings of their own performances and compositions. The Institute for Music Technology is responsible for the recording studio, which is used both as a teaching space and for professional recording.

**The Cairo Choral Society** is a community chorus dedicated to the study, promotion, and performance of the great choral works in the Western musical tradition. It presents performances with a professional orchestra (the Cairo Festival Orchestra) and soloists at various venues in Cairo. The membership is voluntary, multinational, and cross-generational. The Cairo Choral Society was founded in 1983; in the fall choral ensembles in Egypt, it is both a

community-based organization and a for-credit course at AUC. Students may also participate in the chorus on a not-for-credit basis.

## **Bachelor of Arts**

### **Requirements for the Concentration in Music Technology**

In order to complete the Bachelor of Art in music with a concentration in music technology, a student will:

- Learn to read music, and acquire intermediate listening and sight-reading skills.
- Learn fundamental principles of music theory, both Western and Arab.
- Demonstrate the ability to play the piano at an intermediate level or better, and to use the key board as a tool for music data entry; more advanced students may also present part of a solo recital, in piano, some other instrument, or voice, with the permission of their teacher.
- Acquire a basic ability to compose and arrange using MIDI ("musical instrument digital interface," the protocol for the transmission of music data between electronic musical instruments).
- Learn advanced techniques of recording, editing, mixing, and mastering with Protocol and other editing software (Protocols software is the industry standard for recording, composing, arranging, editing, and mixing digital music).
- Acquire an advanced understanding of the use of music events (i.e. MIDI and related technologies) using synthesizers and samplers.

### **Declaration of the Major in Music Technology**

To be eligible to declare a major in Music Technology, students must take three courses:

- MUSC 220/2200 - Introduction to Music (3 cr.)
- MUSC 330/2300 - Introduction to Music Technology (3 cr.)
- MUSC 331/2301 - Music Production Using Protocols I (3 cr.)

Final recommendation is made by the Director of the Institute for Music Technology after an interview with members of the music technology faculty.

A total of 120 credits are required for the bachelor's degree in music with a concentration in music technology.

## **Core Curriculum (40 credits)**

### **Concentration Requirements (56 credits):**

#### **Theory, Literature and Performance (26 credits):**

- MUSC 220/2200 - Introduction to Music (3 cr.)
- MUSC 240/2400 - Western Music Theory I (3 cr.)
- MUSC 241/2401 - Sight-Singing and Aural Skills I (1 cr.)
- MUSC 245/2450 - Arab Music Theory I (3 cr.)
- MUSC 246/2451 - Maqam I (Arab Music Sight-Singing and Aural Skills) (1 cr.)
- MUSC 340/3400 - Western Music Theory II (3 cr.)
- MUSC 341/3401 - Sight-Singing and Aural Skills II (1 cr.)
- MUSC 345/3450 - Arab Music Theory II (3 cr.)

- MUSC 346/3451 - Maqam II (Arab Music Sight-Singing and Aural Skills) (1 cr.)  
And MUSC 2850, 2851 Private Instruction for Piano Proficiency (1 cr. each = 2 cr.)

One of the following:

- MUSC 342/3250 - Music in the Arab Tradition (3 cr.)
- MUSC 360/3200 - Music in the Western Tradition (3 cr.)

Two semesters of ensemble, chosen from among the following:

- MUSC 2620/2621 Arab Music Ensemble (1 cr.)
- MUSC 2630/2631 Guitar Ensemble (1 cr.)
- MUSC 2640/2641 Chamber Music Ensembles (1 cr.)
- MUSC 2650/2651 Rehearsal/Performance Practicum (1 cr.)
- MUSC 2660/2661 Chamber Singers (1 cr.)
- MUSC 2670/2671 Cairo Choral Society (1 cr.)

Music Technology (30 credits):

- MUSC 232-332-432/2302-3302-4302 - Digital Audio / MIDI Lab (1 cr. each)
- MUSC 330/2300 - Introduction to Music Technology (3 cr.)
- MUSC 331/2301 - Music Production Using Protocols I (3 cr.)
- MUSC 333/2303 - Microphone Techniques (3 cr.)
- MUSC 334/3304 - Music Production for Visual Media (3 cr.)
- MUSC 336/3306 - Sound for Picture Production (3 cr.)
- MUSC 439/4309 - Digital Mixing Techniques (3 cr.)
- MUSC 490/4900 - Advanced Seminar (3 cr.)

Two additional courses, to be chosen from among the following:

- MUSC 371/3150 - Western and Arab Musical Instruments (3 cr.)
- MUSC 335/3305 - Electronic Music (3 cr.)
- MUSC 337/3307 - Music for Film (3 cr.)
- MUSC 000/3308 - Live Sound Reinforcement (3 cr.)
- MUSC 438/4308 - Music Production Using Protocols II (3 cr.)

Electives (24 credits)

## Philosophy (B.A.)

### Bachelor of Arts

The philosophy major stresses a firm grounding in both the history and the disciplines of philosophy. Thirty-six credit hours of philosophy course-work are required for the major in philosophy. A total of 120 credit hours are required for the bachelor's degree in philosophy. Declared majors must enroll in a minimum of 6 credit hours of philosophy every semester. Exception to the 6 credit per semester minimum requires written permission from the department. It is

strongly recommended that students majoring in philosophy minor in another discipline and explore other areas of study offered by the university. To major in Philosophy students must have taken at least one PHIL course with not less than a C grade and be registering for the required program of the major.

## Core Curriculum (40 credits)

### Required Courses (9 credits)

- PHIL 221/2010 - Truth, Lies, and Logical Reasoning (3 cr.)
- PHIL 000/3101 - Classical Philosophy (3 cr.)
- PHIL 314/3102 - Modern Philosophy (3 cr.)

### Area Electives (9 credits)

Two of the following:

- PHIL 226/2112 - Philosophy of Religion (3 cr.)
- PHIL 230/2113 - Introduction to Ethics (3 cr.)
- PHIL 258/2117 - Political Philosophy (3 cr.)
- PHIL 310/3010 - Philosophy and Art (3 cr.)
- PHIL 000/3104 - Metaphysics and Epistemology (3 cr.)
- PHIL 382/3017 - Philosophy of Science and Technology (3 cr.)
- PHIL 360/5117 - Philosophy of Language (3 cr.)
- PHIL 000/5121 - Philosophical Logic (3 cr.)

One of the following:

- PHIL 500/5101 - Advanced Seminar in Classical Philosophy (3 cr.)
- PHIL 501/5122 - Advanced Seminar in Islamic Philosophy (3 cr.)
- PHIL 504/5123 - Kant and Idealism (3 cr.)
- PHIL 505/5124 - Advanced Seminar in Phenomenology (3 cr.)

### Electives in Philosophy (18 credits)

Any six courses in philosophy excluding 1000-level courses, PHIL 220/2100 - Philosophical Thinking (core curriculum requirement) (3 cr.) (core curriculum requirement) and PHIL 299/2099 - Selected Topics for Core Curriculum (3 cr.) .

### General Electives (44 credits)

## **Political Science, with specializations in General Political Science, International Relations, Middle East Politics, Political Economy and Public and International Law (B.A.)**

**Bachelor of Arts**

Political Science at AUC is taught as a humanistic discipline with the overall objectives of fostering understanding of the contemporary world and developing knowledge about, and an appreciation of, the complex mechanisms, authoritative structures, and the allocation of values, which characterize contemporary human communities. Political Science at AUC requires students to develop abilities of comprehension and analysis, and skills for oral and written presentations. The graduate of Political Science is thus well equipped for life in the modern world, and to follow those professions and lines of work that require independence of thought, initiative, creativity in solving problems, and continuing self development. AUC graduates of Political Science are presently found in business, journalism, research, analytic writing, and public contact work. They occupy positions in public, private, development agencies, the diplomatic service, governmental ministries and agencies, and university teaching. A significant number of past graduates have subsequently completed M.A. and Ph.D. degrees.

For students to declare a major in Political Science, they should have a minimum of 2.5 GPA, and must take either POLS 1001 or POLS 2003. POLS 1001 fulfills the Social Science requirement at the primary level of the Core Curriculum and is not counted as part of the 45-48 credits required for the Political Science major. If POLS 1001 is not taken in the Freshman year, POLS 2003 must be taken after the Freshman Year by those wishing to major in Political Science. Students wishing to transfer from another major after their sophomore year will be considered on a case by case basis. Junior-year (3000-level) courses are required in four subfields and are prerequisites to the more advanced courses and seminars (4000-level). Each semester, a selection of 3000 and 4000 level courses and seminars is offered from which students may choose courses to complete the requirements of the major.

A total of 120 credits is required for the bachelor's degree in Political Science:

*Core Curriculum (40 credits)*

*Political Science Requirements (45 - 48 credits) to be taken as follows:*

1. if POLS 1001 has already been taken in the Freshman Year:  
30 credits (10 courses) in the concentration plus 18 credits (6 courses) as electives.
2. if POLS 1001 has not been taken in the Freshman Year:  
33 credits (11 courses) in the concentration plus 12-15 credits (4-5 courses) as electives.

*Collateral requirements: (6 credits)*

*General Electives: (26-29 credits)*

### **All Political Science major and minor students must abide by the following regulations:**

ENGL 0210 is a prerequisite to POLS 1001 and POLS 2003

RHET 1010 is a prerequisite to POLS 2104 and all 3000 level POLS courses

RHET 1020 is a prerequisite to all 4000 level POLS courses

### **For all Political Science students:**

#### **Political Science concentration requirements (30-33 credits)**

- POLS 203/2003 - Introduction to Political Science II (3 cr.)  
This course must be taken if, and only if, POLS 1001 was not taken during the Freshman year.
- POLS 204/2104 - Introduction to Research Methods in Political Science (3 cr.)
- POLS 000/2405 - History and International Politics (3 cr.)
- POLS 301/3201 - History of Political Theory I (3 cr.)
- POLS 302/3202 - History of Political Theory II (3 cr.)
- POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)

- POLS 310/3510 - Introduction to Development (3 cr.)  
ECON 3053 can substitute for POLS 3510 for students double majoring in Political Science and Economics.  
ECON 3053 will fulfill the requirement in both majors
- POLS 313/3401 - Introduction to Comparative Politics (3 cr.)
- POLS 320/3620 - Introduction to International Relations Theories (3 cr.)
- POLS 350/3550 - Introduction to Political Economy (3 cr.)
- POLS 471/4371 - Introduction to Public International Law (3 cr.)

## Collateral requirements

- HIST - One Modern History course (3 cr.)  
(not to be taken as an independent study) in addition to:
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

## General Electives

Students may use 15 hours of elective credit to minor in a discipline of their choice. Minorng is optional. Courses taken as collateral requirements may count towards the minor.

Students have the choice to use the 15 elective credits in Political Science (or 12-15 elective credits if they had to take POLS 2003 to fulfill their concentration requirements) to obtain a BA in Political Science in:

1. General field in Political Science
2. Specialization in International Relations
3. Specialization in Middle East Politics
4. Specialization in Political Economy
5. Specialization in Public and International Law

Students opting for a double specialization are encouraged to take a combination of courses from the two specializations rather than limiting themselves to History courses required for one of the specializations.

## 1. Requirements for the General Political Science field:

Students must take four or five Political Science courses, one of which must be a major capstone.

*Collateral Requirements (6 credits)*

*General Electives (29 credits)*

## 2. Requirements for the Specialization in International Relations

To specialize in International Relations, Political Science majors must, as a minimum, take the following courses:

### Requirements:

- POLS 409/4609 - Seminar: International Organization (3 cr.)
- POLS 410/4610 - Global Security (3 cr.)
- POLS 411/4611 - Contemporary Foreign Policies (3 cr.)
- POLS 000/4608 - Critical Approaches to International Relations and the Global South (3 cr.)

### Options:

To further their understanding in this specialization, students have the option to take a number of recommended courses including:

- POLS 405/4605 - International Politics of the Middle East (3 cr.)
- POLS 414/4614 - Egyptian Foreign Policy (3 cr.)
- POLS 415/4615 - U.S. Foreign Policy (3 cr.)
- POLS 440/4640 - Seminar: Special Topics in International Relations for Undergraduates (3 cr.)

**Collateral Requirements (6 credits)**

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

**One additional history course chosen from among the following:**

- HIST 202/2502 - History of Modern American Civilization (3 cr.)
- HIST 308/3406 - Europe in the Age of Reason (3 cr.)
- HIST 356/3214 - State and Society in the Middle East, 1906-present (3 cr.)
- HIST 401/4588 - Selected Topics in the History of the United States (3 cr.)
- (when approved by POLS department)
- HIST 402/4488 - Selected Topics in European History (3 cr.)
- (when approved by POLS department)
- HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)

HIST 247/2204 - The Making of the Modern Arab World (3 cr.)

HIST 250/2301 - Colonial and Postcolonial Africa

HIST 333/3208 - Zionism and Modern Judaism (3 cr.)

HIST 357/3288 - Selected topics in Middle East History (3 cr.) (when approved by POLS Dept.)

HIST 331/3207 - History of Palestine/Israel (3 cr.)

HIST 350/3302 - Violence, War, and Conflict in Modern Africa (3 cr.)

POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)

HIST 412/4290 - Selected Topics in Modern Egyptian History (3 cr.) (when approved by the Pols Dept.)

HIST 430/4107 - The Environment in World History (3 cr.)

HIST 435/4216 - Social and Political History of Modern Cairo (3 cr.)

HIST 440/4217 - Colonialism and Imperialism in the Middle East and South Asia (3 cr.)

HIST 454/4219 - Modern Movements in Islam (3 cr.)

HIST 405/4188 - Selected Topics in World History (3 cr.) (when approved by POLS Dept.)

HIST 000/4224 - Egypt in the Modern World Market (3 cr.)

HIST 450/4303 - Global Capitalism and Africa: An Economic History (3 cr.)

**Electives (26-29 credits)**

### 3. Requirements for the Specialization in Middle East Politics

To specialize in Middle East Politics, Political Science majors must, as a minimum, take the following three courses:

**Requirements:**

- POLS 354/3454 - Political and Social Thought in the Modern Arab World (3 cr.)
- POLS 420/4420 - Issues in Middle East Politics (3 cr.)
- POLS 422/4422 - Contemporary Egypt (3 cr.)

## Options:

To further their understanding in this specialization, students have the option to take a number of *recommended* courses including:

- ARIC 439/5142 - Islamic Law (3 cr.)
- POLS 325/3425 - Government and Politics of Egypt (3 cr.)
- POLS 405/4605 - International Politics of the Middle East (3 cr.)
- POLS 414/4614 - Egyptian Foreign Policy (3 cr.)
- POLS 424/4524 - Political Economy of the Middle East and North Africa (3 cr.)
- POLS 430/4030 - Seminar: Special Topics in Political Science for Undergraduates (3 cr.)  
(If topic is applicable to the ME)
- POLS 440/5140 - Seminar: Special Topics in International Relations for both Undergraduates and Graduates (3 cr.) (when approved by the department)
- POLS 472/4372 - International Law in the Middle East (3 cr.)
- POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.)
- POLS 477/4377 - Law and Development (3 cr.)

## Collateral Requirements (6 credits)

- One Modern Middle East History course at the 3000 or 4000 level. (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

## General Electives (29 credits)

## 4. Requirements for the Specialization in Political Economy

To specialize in Political Economy, Political Science majors must, as a minimum, take the following courses:

### Requirements:

- POLS 000/4551 - Theories of Political Economy (3 cr.)
- POLS 425/4525 - Global Political Economy (3 cr.)
- POLS 000/4526 - Political Economy of the Global South (3 cr.)

### Options:

To further their understanding in this specialization, students have the option to take a number of recommended courses including:

- POLS 413/4513 - International Financial Institutions (3 cr.)
- POLS 423/4523 - The Political Economy of Poverty and Inequality (3 cr.)
- POLS 442/4542 - Environmental Politics (3 cr.)
- POLS 402/4502 - Political Economy of Egypt and the Middle East (3 cr.)

## Collateral Requirements (6 credits)



- One Modern History course (not to be taken as an independent study) in addition to:
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

## General Electives (29 credits)

## 5. Requirements for the Specialization in Public & International Law

To specialize in Public and International Law, Political Science majors must, as a minimum, take the following three courses:

Requirements:

POLS 472/4372 - International Law in the Middle East (3 cr.)

POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.)

POLS 478/4378 - Introduction to International Human Rights Law (3 cr.)

### Options:

To further their understanding in this specialization, students have the option to take a number of elective courses in public and international law that may be offered by the political science department or the law department.

Note: Registration in graduate courses offered by the law department may require the approval of the department and/or the instructor.

## Dual Degree Option in Political Science (B.A.) and International Human Rights Law (M.A.)

The Dual Degree option combines a BA in Political Science and an MA in International Human Rights Law. It is a dual degree, creating a synergy between the existing BA in Political Science and the existing MA in International Human Rights Law.

The dual degree option enables good students to prepare for a postgraduate degree while completing the requirements for the BA in Political Science. Non-law students who achieve a MA Degree under the auspices of the Law Department at AUC qualify for better jobs in Egypt or abroad, or pursue a legal education at prestigious law schools in the United States and elsewhere. The MA degree also provides students with the necessary expertise in international human rights law and with the intellectual, analytical and communication tools needed to intervene critically and effectively in the global policy debates confronting their societies as policy makers, academics, activists and international civil servants.

By the end of the sixth semester of the political science BA at AUC, and after successfully completing POLS 4371, the student has to declare her/his intention to pursue the Dual Degree by submitting a graduate admission application. The student should follow the application procedures for graduate studies. Admission decisions will be made by the Law Department's Admission Committee. Successful applicants will be admitted pending the fulfillment of two conditions: i) finishing the requirements of their undergraduate degrees with at least B (GPA 3); and ii) obtaining an average of at least a B+ (GPA of at least 3.3) across the three cross-listed 'Dual Degree' Law courses. Places are limited.

Students enrolled in the dual degree will receive a political science BA degree certificate upon the completion of their undergraduate course requirements. Many students feel the need to work in parallel to the pursuit of an MA degree. We believe that students who fulfill the pols BA requirement should not be denied the opportunity to do so.

Under this structure, dual-degree students will be required to take three 400-level courses that are cross-listed under LAW and POLS. These three "Dual Degree" cross-listed courses (see below) will count for credit towards both the BA in Political Science and under the MA in International Human Rights Law.

The three 'Dual Degree' Law courses to be offered to undergraduates in the Political Science Department are the following: (a) POLS 471/4371 - Introduction to Public International Law (3 cr.) (b) POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) and (c) POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) The curriculum for the MA IHRL requires the completion of nine courses and a thesis, as indicated in the tentative plan below: 3 POLS/LAW undergraduate courses, 2 graduate regional human rights courses, 3 graduate elective courses, LAW 5227, and the thesis.

### **Tentative Plan for Full-time Students**

#### **SEMESTER VI (POLS undergraduate program)**

LAW/POLS 471/4371 - Introduction to Public International Law (3 cr.) (counts towards both concentrations in POLS for all students) (and MA IHRL credits)

[4 POLS courses or other courses as required to complete POLS BA degree]

#### **SEMESTER VII (POLS undergraduate program)**

LAW/POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) (counts towards both BA POLS and MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

#### **SEMESTER VIII (POLS undergraduate program)**

LAW/POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) (counts towards both BA POLS and MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

#### **SEMESTER IX (MA IHRL program)**

LAW 511/5211 - International Humanitarian Law (3 cr.) \* (1 out of 3 starred courses required)

LAW 514/5214 - Human Rights in the Middle East (3 cr.) \* (1 out of 3 starred courses required)

LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.) \* (1 out of 3 starred courses required)

LAW Electives\*\*

#### **SEMESTER X (MA IHRL program)**

LAW 000/5221 - Law and Patriarchy (3 cr.)

LAW Electives\*\*

LAW 527/5227 - Graduate Law Seminar (3 cr.)

#### **SEMESTER XI (MA IHRL program)**

LAW 599/5299 - Research Guidance/Thesis (no cr., pass/fail)

*\*\* Lists of LAW elective courses will be provided to students in the program prior to registration for each semester.*

## **Psychology (B.A.)**

Psychology is the multifaceted scientific study of human behavior and mental processes. The program at AUC emphasizes physical, cognitive, emotional, personal, and social development from conception to death.

Biopsychosocial development is studied against a background of major theoretical and applied domains of psychology, concentrating on important influences of individual, group, and multicultural dynamics.

### **Bachelor of Arts**

The mission of the Bachelor of Arts is to provide undergraduate students with a solid grounding in the theory, methodology, and core content areas of contemporary psychology by involving them in experiential learning, community engagement, and scientific research. This foundation of knowledge is enriched by incorporation of cultural diversity, local context, and interdisciplinary perspectives. The program will prepare students wishing to continue further studies leading to a professional career in psychology.

Students who intend to seek the Psychology degree must have taken PSYC 1000 and have obtained a grade of "B" or higher. In addition, students must have successfully taken or be currently enrolled in PSYC 2000. Admission is competitive. A combination of discipline-relevant factors, including performance in PSYC 1000 and PSYC 2000, GPA and evidence of commitment to the field of psychology will be used to determine eligibility.

A total of 120 credit hours is required for the bachelor's degree in psychology:

## **Core Curriculum (40 credits)**

Students must take one of the following for the science requirement:

- BIOL 103/1010 - Introduction to Life Sciences (3 cr. + 1 cr. lab)
- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)

## **Concentration Requirements (49 credits)**

- PSYC 201/1000 - Introduction to Psychology (3 cr.)
- PSYC 207/2000 - Introduction to Psychological Statistics (3 cr.)
- PSYC 208/2100 - Research Methods for Psychology (3 cr. + 1 cr. lab)
- PSYC 301/3010 - Social Psychology (3 cr.)
- PSYC 304/3040 - Lifespan Development (3 cr.)
- PSYC 308/3080 - Cognitive Psychology (3 cr.)
- PSYC 313/3130 - Learning and Behavioral Psychology (3 cr.)
- PSYC 315/3150 - Psychological Testing and Assessment (3 cr.)
- PSYC 327/3270 - Theories of Personality (3 cr.)
- PSYC 342/3420 - Abnormal Psychology (3 cr.)
- PSYC 380/3800 - Biopsychology (3 cr.)
- PSYC 403/4030 - History and Systems of Psychology (3 cr.)

## **Additional Requirements**

- **One** additional 300-level psychology course
- **Three** additional 400-level psychology courses (not including PSYC 4001 or PSYC 4002 )

## **Collateral Requirements (24 credits)**

**Six** courses to be approved by the adviser in addition to:

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- SOC 201/2101 - Introduction to Sociology (3 cr.)

## Electives (7 credits)

## Community Based Learning Requirement

Students must complete at least one designated community-based learning course (in psychology or from another department). Semester abroad experience can also meet this requirement.

## Sociology (B.A.)

Sociology is the systematic study of society with special attention to social interaction and the social making of humans. It investigates the forces that hold society together and that threaten to pull it apart through the analysis of interaction at every level from micro-group interaction to competition of nation states. Having as its goal a holistic understanding of human society, human beings and their lives, sociology is relevant to a wide range of other disciplines and everyday life issues. As a result, sociology has a broad scope that includes culture, family, gender, crime, religion, politics, development, population, and urbanization, among others. Besides their coursework, sociology majors are given the opportunity to carry out supervised field research as a part of their undergraduate program.

### Bachelor of Arts

In addition to the possibility of pursuing advanced graduate work in sociology or related fields, majors are trained for employment in international development agencies, government, non-governmental organizations or the private sector in social and community services or research and managerial positions.

In order to declare the major in sociology, students must pass SOC 2101 with at least a "B". Continuation within the major is dependent on maintaining at least 2.5 GPA within their concentration requirements. Students must take SOC 4107 in their last full academic year. Courses at the 500-level are also open to selected advanced undergraduates.

Students need to fill out the application for declaration form. Upon review and approval of the application, students may be asked to sit for a short interview.

A total of 120 credits is required for the bachelor's degree in sociology:

## Core Curriculum (40 credits)

## Concentration Requirements (42 credits)

- SOC 201/2101 - Introduction to Sociology (3 cr.)
- SOC 204/3103 - Social Statistics (3 cr.)
- SOC 309/3102 - History of Social Theory (3 cr.)  
See footnote one.
- SOC 310/3104 - Contemporary Sociological Theory (3 cr.)
- SOC 381/3105 - Doing Survey Research in the Social Sciences (3 cr.)
- SOC 450/4106 - Critical Approaches to Development (3 cr.)  
See footnote one.
- SOC 495/4107 - Senior Seminar (3 cr.)  
See footnote one.

## One of either

- SOC 203/2301 - Social Problems of the Middle East (3 cr.)
- SOC 206/2302 - Arab Family Structure and Dynamics (3 cr.)

## One of either

- SOC 303/3303 - Social Movements (3 cr.)
- SOC 307/3304 - Social Class and Inequality (3 cr.)

## Additional Requirements

**Two additional 3000 level courses in sociology from among the following:**

- SOC 000/3305 - Selected Topics in Sociology (3 cr.)
- SOC 301/3010 - Social Psychology (3 cr.)
- SOC 304/3025 - Development Agencies (3 cr.)
- SOC 306/3030 - Sociology of Literature (3 cr.)
- SOC 321/3045 - The Urban Experience (3 cr.)
- SOC 322/3050 - Rural Sociology (3 cr.)
- SOC 323/3055 - Fundamentals of Population Studies (3 cr.)
- SOC 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)
- SOC 340/3202 - Participatory Action Research in Community Settings (3 cr.)
- SOC 370/3085 - Environmental Issues in Egypt (3 cr.)

Three additional 4000 level courses in sociology from among the following:

- SOC 400/4099 - Selected Topics in Sociology (3 cr.)
- SOC 402/4405 - Independent Study (3 cr.)
- SOC 405/4005 - Sociology of Work (3 cr.)
- SOC 406/4010 - Educational Sociology (3 cr.)
- SOC 408/4020 - Criminology (3 cr.)
- SOC 422/4025 - Religion in a Global World (3 cr.)
- SOC 431/4035 - Political Sociology (3 cr.)
- SOC 435/4040 - Gender and Power in Development (3 cr.)
- SOC 440/4203 - Practicum in Community Development (3 cr.)
- SOC 445/4499 - Selected Topics in Coptic Studies (3 cr.)
- SOC 455/4055 - Seminar in African Studies (3 cr.)
- SOC 460/4560 - Development Studies Seminar (3 cr.)

Certain courses listed with other disciplines can be substituted with the approval of the adviser and unit head to our 3000 level and 4000 level requirement.

## Collateral Requirements (24 credits)

**Three** of the following courses:

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- ANTH 380/3105 - Fieldwork Methods (3 cr.)
- CSCE 102/1000 - Introduction to Computers and their Applications (3 cr.)

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- JPMC 200/2200 - Introduction to Mass Communication (3 cr.)
- POLS 101/1001 - Introduction to Political Science (3 cr.)
- PSYC 201/1000 - Introduction to Psychology (3 cr.)

## Additional Requirements

Five additional courses from any social science or humanities discipline, or relevant substitutes, to be approved by the advisor, at least three of which must be at the 300 or 400 level.

## Electives (14 credits)

## Notes

Footnote 1: Cross-listed with Anthropology

## Theatre (B.A.)

The Department of the Arts offers both a bachelor's degree and a minor in theatre. The curriculum balances solid fundamental study of the literature, history, and theory of theatre with practical theatre experience in performance, directing, design, and technical theatre. The program offers a liberal arts approach to theatre study, an approach that aims at enriching the students' awareness of the role of theatre arts within society.

### Performances

The department produces a season of fully-realized plays, sponsors student-directed plays, and hosts visiting productions in its three theatres, the Malak Gabr Theatre, Gerhart Theatre, and Black Box Theatre. The department offers students the opportunity to interact with international renowned guest artists who are brought to AUC to serve as directors, designers, and performers. Students who participate are eligible to receive course credit depending on the extent of their involvement.

The Theatre Program's productions are an integral component of its curriculum and an essential part of the learning and training process. Auditions are open to all registered AUC students. Casting in a play is dependent upon the ability of the student to comply with the rigorous requirements of a given rehearsal schedule.

### Bachelor of Arts

Theatre majors follow a program of courses in dramatic literature, theory, and history; a program of studio courses (acting, directing, and design), and play and active role in the department's productions. A total of 120 credits is required for the bachelor's degree in theatre.

\*The Theatre program will not authorize substitution in the case of courses the student has failed.

## Core Curriculum (40 credits)

## Concentration Requirements (51 credits)

- THTR 203/1201 - Theatre in the Making (3 cr.)

- THTR 204/2401 - Introduction to Technical Theatre (3 cr.)
  - THTR 225/2201 - Acting I (3 cr.)
  - THTR 230/2301 - Play Analysis (3 cr.)
  - THTR 324/3401 - Design for the Theatre (3 cr.)
  - THTR 328/3301 - Directing I (3 cr.)
  - THTR 340/3601 - Advanced Theatre Practicum (3 cr.)
  - THTR 461/4103 - Dramatic Theory and Criticism (3 cr.)
  - THTR 490/4703 - Senior Thesis (3 cr.)
- Six credits to be chosen from among the following:
- THTR 000/3103 - Drama in Context I: Greeks to English Renaissance (3 cr.)
  - THTR 000/3104 - Drama in Context II: Italian Renaissance to Modern (3 cr.)
  - THTR 000/3105 - Drama in Context III: Modern and Contemporary (3 cr.)

## Additional Requirements (15 credits)

**Three** credits from the following:

- THTR 240/2601 - Production Practicum (1 cr. per production)
- THTR 242/2603 - Rehearsal and Performance Practicum (1 cr.)

**Five** courses in the department to be chosen among the following:

- THTR 226/2211 - Acting in Arabic I (3 cr.)
- THTR 000/3103 - Drama in Context I: Greeks to English Renaissance (3 cr.)
- THTR 000/3104 - Drama in Context II: Italian Renaissance to Modern (3 cr.)
- THTR 000/3105 - Drama in Context III: Modern and Contemporary (3 cr.)
- THTR 227/3201 - Acting II (3 cr.)
- THTR 327/3203 - Special Topics in Acting (3 cr.)
- THTR 000/3207 - Movement for the Stage (3 cr.)
- THTR 326/3211 - Acting in Arabic II (3 cr.)
- THTR 000/3403 - Make Up for the Theatre (3 cr.)
- THTR 360/3501 - Playwriting I (3 cr.)
- THTR 361/3503 - Playwriting II (3 cr.)
- THTR 344/3603 - Design Practicum (3 cr.)
- THTR 428/4301 - Directing II (3 cr.)
- THTR 000/4405 - Stage Lighting (3 cr.)
- THTR 000/4406 - Costume Design for Theatre and Film (3 cr.)
- THTR 495/4705 - Senior Honors Project (3 cr.)

## Collateral Requirements (3 credits):

**One** course chosen from the following:

- ARIC 315/3115 - Arabic Drama (3 cr.)
- ECLT 360/3060 - Shakespeare (3 cr.)
- MUSC 252/1011 - Vocal Methods (3 cr.)

## Electives (11 credits):

The program will actively encourage its majors to work towards minors in fields such as anthropology, sociology, literature, music, art, political science, or business administration. Elective credits will be used for the minor.

## Visual Arts (B.A.)

### Bachelor of Arts in Visual Arts

The Visual Arts major provides students with an opportunity to develop their independent vision and creative practice as artists in an educational environment emphasizing conceptual research and expression across media. The curriculum balances studio-based coursework with historical and theoretical. Students intending to major in Visual Arts begin with foundations classes in visual research and analysis and then progress to intermediate studio courses in specific media and techniques (drawing, painting, sculpture and installation, photography, time-based media, alternative and new media practices, experimental animation, and others). All majors also complete a four-semester sequence of studio courses (Art Studio I, II, III, and IV) designed to foster independent work at an advanced level, followed by a year-long Senior project in the final year, which culminates in a public exhibition at the annual degree show in the Sharjah Art Gallery.

### Declaration of the Visual Arts Major

To be eligible to declare, students must have completed four courses in the program: ARTV 200/2200 - Analogue and Digital Practices (3 cr.) , ARTV 213/2113 - Introduction to Visual Cultures (3 cr.) , and two more Visual Arts studio courses. Final recommendation is made by the Visual Arts faculty after an interview and portfolio review.

### Major Requirements

A total of 120 credits are required for the bachelor's degree in Visual Arts:

### Core Curriculum (40 credits)

### Concentration requirements (33 credits)

- ARTV 200/2200 - Analogue and Digital Practices (3 cr.)
- ARTV 213/2113 - Introduction to Visual Cultures (3 cr.)
- ARTV 000/2214 - History of Art Practices I (3 cr.)
- ARTV 000/3311 - Advanced Painting and Drawing (3 cr.)
- ARTV 000/3312 - Advanced Studio I (3 cr.)
- ARTV 315/3115 - Art Theory (3 cr.)
- ARTV 000/3316 - History of Art Practices II (3 cr.)
- ARTV 000/4311 - Advanced Studio II (3 cr.)
- ARTV 000/4312 - Advanced Studio III (3 cr.)
- ARTV 469/4269 - Senior Project (A) (3 cr.)
- ARTV 470/4270 - Senior Project (B) (3 cr.)
- ARTV 000/2208 - Internship Practice (0 cr.)  
parallel to ARTV 000/4312 - Advanced Studio III (3 cr.)
- ARTV 000/2209 - Studio Professional Practice (0 cr.)  
starts from declaration time to senior project final exhibition.



- ARTV 000/2210 - Experimental Workshop Practices (0 cr.)  
starts from declaration time to senior project final exhibition.

## Additional Requirements (21 credits)

Choose SEVEN:

- ARTV 201/2201 - Introduction to Drawing (3 cr.)
- ARTV 202/2202 - Introduction to Painting (3 cr.)
- ARTV 203/2203 - Introduction to sculpture/Installation (3 cr.)
- ARTV 204/2204 - Introduction to Time-Based Media (3 cr.)
- ARTV 000/2207 - Introduction to Ceramics (3 cr.)
- ARTV 000/2206 - Experimental Animation Art (3 cr.)
- ARTV 000/2211 - Introduction to Experimental Comic Strips (3 cr.)
- ARTV 230/2230 - Introduction to Digital Photography (3 cr.)
- ARTV 370/3270 - Selected Topics in Art (3 cr.)
- ARTV 410/5110 - Contemporary issues in Arab Art (3 cr.)
- DSGN 250/2250 - Digital Practice I (3 cr.)

## Elective (26 credits)

# **Business Administration, with concentrations in Marketing, Finance, Management of Information Technology, Entrepreneurship and International Business (B.B.A.)**

### **Bachelor of Business Administration (B.B.A.)**

A successful economic future for Egypt and the Middle East is highly concerned with a basic understanding of the principles and practices of business as they apply to firms in a dynamic environment. The business administration curriculum provides students with a foundation in the liberal arts and sciences while enabling them to develop expertise in business management and practices. Major emphasis is placed on the role of business in Egypt and the Middle East.

### **Declaration Policy**

The number of students accepted in the Bachelor of Business Administration program is limited and is filled through the declaration of major process.

Students who seek to be admitted to the Bachelor of Business Administration program should apply in their third semester. Students seeking to declare the BBA program must have completed not less than 27 credit hours of study including the four courses listed below.

ACCT 201/2001 - Financial Accounting (3 cr.)

ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

OR ECON 202/2011 - Introduction to Microeconomics (3 cr.)

MACT 210/2222 - Statistics for Business (3 cr.)

BADM 203/2001 - Introduction to Business (3 cr.)

Based on the available space, a limited number of students who have successfully completed these courses and who meet the declaration requirements as determined by the department will be accepted in the major. The selection of students into the Business Major is competitive and will depend on the calculation of an equal weighted score between:

### **I. Overall GPA**

The Overall GPA will be calculated using the following criteria:

A minimum of 27 credit hours must be completed.

All courses a student has completed will be included in the calculation, excluding, in certain cases, the course with the lowest grade\*.

\* A student could be eligible to have his/her lowest grade excluded from the calculation of the Overall GPA if he/she has completed 30 or more credit hours

### **II. Major GPA**

The Major GPA based will be calculated using the following criteria:

A minimum of 12 credit hours of courses related to the Business Major must be completed.

All Business Major courses, including collateral courses, that the student has completed will be included in the calculation, excluding, in certain cases, the course with the lowest grade\*.

\* A student could be eligible to have his/her lowest grade excluded from calculating the Management Related GPA if he/she has completed 15 or more credit hours

Admission to the Business Administration major is competitive. Eligible students will be ranked and selected based on their weighted grade point average.

### **Degree Requirements**

Students must complete a minimum of 127 credit hours for the Bachelor of Business Administration degree in the following areas: I. Core Curriculum (37 credits), II. Collateral Requirements (18 credits), III. Business Core Requirements (45 credits), IV. Concentration (15 credits), V. General Electives (12 credits)

Students who seek the Bachelor of Business Administration degree are not permitted to the minor in accounting or entrepreneurship.

## **I. Core Curriculum (37 credits)**

The remaining 3 credit hours required to satisfy the Core are fulfilled by completing the course BADM 480/4001 - Business Planning and Strategy (3 cr.)

## **II. Collateral Requirements (18 credits)**

All students seeking a Bachelor of Business Administration degree must complete the following collateral requirements:

- ACCT 201/2001 - Financial Accounting (3 cr.)
- ACCT 202/2002 - Managerial Accounting (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)
- ECON 216/2061 - Mathematics for Economists I (3 cr.)

- MACT 210/2222 - Statistics for Business (3 cr.)

### III. Business Core Requirements (45 credits)

#### A. Business Core Required Courses (33 credits)

- BADM 203/2001 - Introduction to Business (3 cr.)
- BADM 301/3002 - International Business (3 cr.)
- BADM 300/3003 - Business Environment and Ethics (3 cr.)
- BADM 480/4001 - Business Planning and Strategy (3 cr.)
- BADM 000/4999 - Internship and Assessment (0 cr.)
- ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)
- FINC 303/2101 - Business Finance I (3 cr.)
- MGMT 311/3301 - Business Law (Commercial & Fiscal) (3 cr.)
- MGMT 404/4202 - Managing the Human Capital (3 cr.)
- MKTG 302/2101 - Principles of Marketing (3 cr.)
- MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)
- OPMG 310/3201 - Operations for Competitive Advantage (3 cr.)

#### B. Business Core Elective Courses (12 credits)

1-Choose any three (3) courses from the following list, one of which must be a course from your area of concentration if you are intending a concentration in FINC, MKTG or MOIS:

- FINC 404/3201 - Investment Analysis (3 cr.)
- MKTG 405/3201 - Marketing Research (3 cr.)
- MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)
- OPMG 401/4301 - Supply Chain Management (3 cr.)

2-Choose one (1) course from:

any 3000 or 4000 level course OUTSIDE your concentration within the School of Business.

### IV. Concentration Requirements (15 credits)

Students seeking a BBA degree must select only one of the following five options (Concentrations will only be offered provided that a sufficient number of students are enrolled):

1. BBA with a marketing concentration
2. BBA with a finance concentration
3. BBA with a management of information technology concentration
4. BBA with an Entrepreneurship concentration
5. BBA with an International Business concentration

#### 1. Marketing Concentration (15 credits)

Acceptance in the Marketing concentration is competitive. Marketing Concentration has limited capacity and is offered given a sufficient number of enrolled students. Eligible students are accepted in the concentration if they meet the

Marketing concentration's minimum weighed GPA determined periodically by the department. Students seeking a concentration in marketing are required to take the following courses:

- MKTG 410/3202 - Consumer-Buyer Behaviour (3 cr.)
- MKTG 408/3301 - Marketing Communications Management (3 cr.)
- MKTG 480/4602 - Marketing Strategy (3 cr.)

In addition, choose two of the following marketing elective courses:

- MKTG 411/4401 - Professional Selling (3 cr.)
  - MKTG 412/4601 - International Marketing (3 cr.)
  - MKTG 414/4501 - Services Marketing (3 cr.)
  - MKTG 416/4302 - E-Marketing (3 cr.)
  - MKTG 418/4303 - Principles of Public Relations (3 cr.)
  - MKTG 420/4203 - Advanced Marketing Research (3 cr.)
  - MKTG 470/4970 - Special topics in Marketing (3 cr.) \*
- (\*)Different topics can be counted as different electives

## 2. Finance Concentration (15 credits)

Acceptance in the Finance concentration is competitive. Finance Concentration has limited capacity and is offered given a sufficient number of enrolled students. Eligible students are accepted in the Finance concentration if they meet the Finance concentration's minimum weighed GPA determined periodically by the department. In order to be eligible to apply for a concentration in finance, students need:

An average B+ in FINC 2101 and FINC 3201 . BBA students who do not score this average should not be allowed to register for other Finance courses in the concentration

In the special event, where a student has FINC 2101 or FINC 3201 transferred from another university, then, a minimum of B+ in either FINC 2101 or FINC 3201 has to be obtained to addition to an average of B in any two additional Finance courses.

For avoidance of doubt, to declare the Finance concentration, a student must take at AUC either FINC 2101 or FINC 3201. In the case where both FINC 2101 and FINC 3201 are transferred, the student will have to repeat FINC 3201 at AUC.

Students seeking a concentration in finance are required to take the following courses:

- FINC 405/3401 - Applied Banking (3 cr.)
- FINC 414/4301 - Corporate Finance (3 cr.)

In addition, choose three of the following finance elective courses:

- FINC 408/3501 - International Finance (3 cr.)
- FINC 410/4202 - Capital Markets (3 cr.)
- FINC 412/4203 - Options and Derivatives (3 cr.)
- FINC 415/4204 - Portfolio Theory and its Applications (3 cr.)
- FINC 000/4302 - Introduction to Private Equity and Direct Investments (3 cr.)
- FINC 470/4970 - Special Topics in Financial Management (3 cr.) \*

(\*)Different topics can be counted as different electives

### 3. Management of Information Technology Concentration (15 credits)

Acceptance in MOIS concentration is competitive. MOIS Concentration has limited capacity and is offered given a sufficient number of enrolled students. Eligible students are accepted in the concentration if they meet the MOIS concentration's minimum weighed GPA determined periodically by the department. Students seeking a concentration in Management of Information Technology (MOIS) are required to take the following courses:

- MOIS 430/4202 - Business Information Systems Analysis and Development (3 cr.)
- MOIS 435/3301 - Entrepreneurial IT and Electronic Business (3 cr.)
- MOIS 499/4999 - Internship and Graduation Project (3 cr.)

One course from:

- MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)
- MOIS 477/4704 - Big Data and Predictive Analysis (3 cr.)

One course to be selected from the MOIS area:

- MOIS 466/3401 - Human Computer Interaction (HCI) (3 cr.)
- MOIS 423/3501 - Geographic Information Systems (GIS) (3 cr.)
- MOIS 433/3701 - Marketing Information Systems (3 cr.)
- MOIS 434/3702 - Financial Information Systems (3 cr.)
- MOIS 444/3703 - Accounting Information Systems (3 cr.)
- MOIS 450/3801 - Strategic Information Systems (3 cr.)
- MOIS 470/4970 - Special Topics in Management of Information Systems (3 cr.) \*

(\*)Different topics can be counted as different electives

### 4. Entrepreneurship (15 credits)

Acceptance in Entrepreneurship concentration is competitive. Entrepreneurship Concentration has limited capacity and is offered given a sufficient number of enrolled students. Eligible students are accepted in the concentration if they meet the Entrepreneurship concentration's minimum weighed GPA determined periodically by the department. Students seeking a concentration in Entrepreneurship are required to take the following courses:

ENTR 417/4301 - Entrepreneurship Lab: Developing and Launching a New Venture (3 cr.)

ENTR 419/4303 - Social Entrepreneurship (3 cr.)

In addition, choose three courses from:

- ENTR 418/4302 - Corporate Entrepreneurship (3 cr.)
- ENTR 420/4501 - Family Business (3 cr.)
- ENTR 421/4502 - Innovation and Technology (3 cr.)
- ENTR 000/4503 - Digital Strategy (3 cr.)
- ENTR 470/4970 - Special Topics in Entrepreneurship (3 cr.) \*

(\*)Different topics can be counted as different electives

## 5. International Business (15 credits)

Acceptance in the International Business concentration is competitive. International Business Concentration has limited capacity and is offered given a sufficient number of enrolled students. Eligible students are accepted in the concentration if they meet the International Business concentration's minimum weighed GPA determined periodically by the department. Students seeking to pursue a concentration in International Business are required to take TWO of the following courses:

- ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)
- ECON 312/3053 - Economic Development (3 cr.)
- ECON 414/4094 - Economics of Egypt (3 cr.)
- ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.)

In addition, choose THREE of the following courses:

- MKTG 412/4601 - International Marketing (3 cr.)
- FINC 408/3501 - International Finance (3 cr.)
- ECON 403/4031 - International Trade (3 cr.)
- MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)
- MGMT 470/4970 - Special Topics in Management (3 cr.) \*

(\*) upon departmental approval of exchange program requirements

Students intending to complete this concentration through the cohort exchange program with University of South Carolina (USA), should follow the cohort requirements upon consultation and approval with the exchange program advisor.

## V. General Electives (12 credits)

### Management of Information and Communication Technology (B.B.A.)

#### **Bachelor of Business Administration in Management of Information and Communication Technology (MICT)**

The study of Management of Information and Communication Technology (MICT) is designed with a particular focus to adapt its content in a local context congruent with the needs of Egyptian organizations and capable of addressing IT challenges that arise in such organizations. The MICT curriculum provides students with a foundation in the liberal arts and sciences while enabling them to develop expertise in business management and information technology. This program is a joint degree between the School of Business (BUS) and the School of Sciences and Engineering (SSE).

Students who select a major in MICT should be able to function as a user advocate and select, create, apply, integrate and administer computing technologies to meet the needs of users within a societal and organizational context. Equipped with this knowledge, the students enrolled in the major will be able to analyze, design and manage information and communication technology infrastructure.

All MICT declaration-of-major applicants must have completed not less than 27 credit hours of study including the three courses listed below (with an average of B+ or more).

ACCT 2001 , CSCE 1001 , MACT 2222

Admission to the major is competitive. Eligible students will be ranked and selected based on the cumulative GPA requirement (weight of 75%) as well as the average GPA in the three courses required (weight of 25%).

Overall GPA of 100%

= Cumulative GPA is 75%

+

[average GPA in ( ACCT 2001 , CSCE 1001 , MACT 2222)]\* 25%

Students who seek the MICT degree are not permitted to have a major or a minor in accounting.

Students must complete a minimum of 131 credit hours for the MICT degree with no more than 63 hours of courses in the business area.

### Course Requirements

(Total Credit = 131 with no more than 63 hours of courses in the business area)

Course No.	Cr.
RHET 101/1000 - Approaches to Critical Writing (3 cr.) * (P)	3
RHET 102/1100 - Effective Argument (3 cr.) * (P)	3
RHET 201/2010 - Research Writing (3 cr.) * (P)	3
SCI 120/1020 - Scientific Thinking (3 cr.) (P)	3
PHIL 220/2100 - Philosophical Thinking (core curriculum requirement) (3 cr.) (P)	3
LALT 101 (P)	0
Natural Sc + Lab (P)	4
Humanity (P/S)	3
Social Sc. (P/S)	3
Arab World Studies (S) Θ	3
Arab World Studies (S) Θ	3
International World Studies (S)	3
Core Capstone Course (C)	3
Core Capstone Course (C)	3
<b>Total</b>	<b>37</b>

### General Electives / Minor

Course No.Cr.

ALING √ 3

ALING ✓ 3

**Total 6**

(P) Primary level courses taken during first 3 Semesters.

(S) Secondary level courses taken by students' 6th Semester.

(C) Capstone level courses taken during students' last 2 Semesters.

\* Students exempted from RHET 1000 or RHET 1100 or RHET 2010 must take any RHET 300 or 400 course.

✓ Non-Thanaweya Amma arabic language holders may be required to take 0-6 credits depending on Arabic placement test score.

⊖ Thanaweya Amma arabic language students may not take Arabic Literature in Translation

### **Before declaration:**

- Students must have completed 27 cr. hrs.

The following courses must be taken with an average of B+:

- ACCT 2001
- CSCE 1001
- MACT 2222

### **Business Core Requirements (33 credits)**

BADM 203/2001 - Introduction to Business (3 cr.)

BADM 300/3003 - Business Environment and Ethics (3 cr.)

ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)

FINC 303/2101 - Business Finance I (3 cr.)

MGMT 311/3301 - Business Law (Commercial & Fiscal) (3 cr.)

MKTG 302/2101 - Principles of Marketing (3 cr.)

MKTG 405/3201 - Marketing Research (3 cr.)

MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)

MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)

OPMG 310/3201 - Operations for Competitive Advantage (3 cr.)

OPMG 401/4301 - Supply Chain Management (3 cr.)

### **Collateral Requirements (18 credits)**

ACCT 201/2001 - Financial Accounting (3 cr.)

ACCT 202/2002 - Managerial Accounting (3 cr.)



ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

ECON 202/2011 - Introduction to Microeconomics (3 cr.)

ECON 216/2061 - Mathematics for Economists I (3 cr.) Ψ

MACT 210/2222 - Statistics for Business (3 cr.)

Ψ ECON 2061 can be replaced by MACT 1121 / MACT 1122 (for BADM & ACCT majors only)

### **MOIS Concentration Requirements (15 credits)**

MOIS 430/4202 - Business Information Systems Analysis and Development (3 cr.)

MOIS 435/3301 - Entrepreneurial IT and Electronic Business (3 cr.)

MOIS 499/4999 - Internship and Graduation Project (3 cr.) (double counted with Core Capstone)

#### **One course to be selected from the MOIS area:**

MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)

MOIS 477/4704 - Big Data and Predictive Analysis (3 cr.)

#### **One course to be selected from the MOIS area:**

MOIS 466/3401 - Human Computer Interaction (HCI) (3 cr.)

MOIS 423/3501 - Geographic Information Systems (GIS) (3 cr.)

MOIS 433/3701 - Marketing Information Systems (3 cr.)

MOIS 434/3702 - Financial Information Systems (3 cr.)

MOIS 444/3703 - Accounting Information Systems (3 cr.)

MOIS 450/3801 - Strategic Information Systems (3 cr.)

MOIS 470/4970 - Special Topics in Management of Information Systems (3 cr.)

### **Computer Science Requirements (22 credits)**

CSCE 106/1001 - Fundamentals of Computing I (3 cr.)

CSCE 110/1101 - Fundamentals of Computing II (3 cr.)

CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)

CSCE 346/3422 - Introduction to Information Security (3 cr.)

CSCE 342/3421 - Fundamentals of Computing and Communication Systems (3 cr.)

**Three courses to be selected from the CSCE area:**

CSCE 315/3101 - Programming Language (1-3 cr.)

CSCE 316/3102 - Programming in Java (3 cr.)

CSCE 325/3104 - Concepts of Programming Languages (3 cr.)

CSCE 341/3701 - Software Engineering (3 cr.)

CSCE 453/4501 - Database Systems (3 cr.)

CSCE 456/4502 - Design of Web-based Systems (3 cr.)

CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)

## Performance (B.M.A.)

The mission of the Music Program is to teach the theory, literature, and performance of music, and the theory and practice of music technology, to the highest attainable standard in the context of a liberal arts environment, with an orientation towards performance and study in both Western and Arab music.

The program lays a special emphasis on two aspects of what musicians do which are of particular value to students, whether they aspire to a career in music, or only seek to broaden their understanding of the world by enrolling in one or two courses. First, all students who take private instruction in voice or an instrument will learn to sight-read musical notation fluently, and to comprehend what they hear. Second, in the classroom and studio, lessons, rehearsals, and performances, all students in the program are expected to conform to a professional standard: to be punctual and prepared, and to treat their colleagues, and the material to be studied or performed, with the respect that is their due.

Students who major in music may pursue either a Bachelor of Arts degree in music technology, or a Bachelor of Musical Arts (B.M.A.) degree in Performance. The Bachelor of Musical Arts in Performance is a professional degree built on a liberal arts core which prepares students for a career in teaching or performance in voice or an instrument, or for graduate study in performance.

**The Institute for Music Technology** offers a sequence of courses in music recording, editing, and production, music for video and film, and electronic music. Such training is crucial not only to students interested in a career in these professions, but also to performers and teachers who need to create and edit demos and audition tracks, to use music files in web sites and other internet applications, or to prepare and market recordings of their own performances and compositions. The Institute for Music Technology is responsible for the recording studio, which is used both as a teaching space and for professional recording.

**The Cairo Choral Society** is a community chorus dedicated to the study, promotion, and performance of the great choral works in the Western musical tradition. It presents performances with a professional orchestra (the Cairo Festival Orchestra) and soloists at various venues in Cairo. The membership is voluntary, multinational, and cross-generational. The Cairo Choral Society was founded in 1983; in the fall of 2009 it became an ensemble-in-residence within the Department of the Arts. One of the leading large choral ensembles in Egypt, it is both a community-based organization and a for-credit course at AUC. Students may also participate in the chorus on a not-for-credit basis.

### **Bachelor of Musical Arts (B.M.A.)**

## Requirements for the Concentration in Performance

In order to complete the Bachelor of Musical Arts with a concentration in performance, a student will:

- Learn to read music fluently, and demonstrate advanced listening and sight-reading skills.
- Demonstrate the ability to play the piano at an intermediate level or better.
- Develop a significant understanding of Western and Arab music theory.
- Study representative great works of Western and Arab music literature and the composers who produced them.
- Demonstrate the ability to sing or play an instrument at or near a professional level; as a final project the student would present a solo recital.
- Sing in choir, and/or play in an instrumental ensemble.

Students who enter the concentration in performance must choose a primary instrument or voice, in which they must complete at least five semesters of private applied instruction, plus MUSC 4980, the Capstone Solo Recital. In order to be accepted into the major, all students will be required to audition before the faculty in their primary instrument or voice, normally by the end of the freshman year.

All students entering the Bachelor of Musical Arts program must either pass the music literacy placement exam or take MUSC 1805, How to Read Music, concurrently with MUSC 1800, the first semester of Private Applied Instruction. Students who choose a primary instrument other than piano will also be required to pass a piano proficiency exam by the end of the sophomore year in order to graduate; those who fail to pass this exam are required to take three semesters of MUSC 2850, Private Applied Instruction for Piano Proficiency.

A total of 120 credits are required for the Bachelor of Musical Arts degree. Students who wish to add a second major in another subject can do so by completing 140-145 credits.

## Core Curriculum (40 credits)

## Concentration Requirements (51 - 63 credits)

### Literature (9 credits)

- MUSC 220/2200 - Introduction to Music (3 cr.)
- MUSC 342/3250 - Music in the Arab Tradition (3 cr.)
- MUSC 360/3200 - Music in the Western Tradition (3 cr.)

### Theory (20 credits)

- MUSC 240/2400 - Western Music Theory I (3 cr.)
- MUSC 241/2401 - Sight-Singing and Aural Skills I (1 cr.)
- MUSC 245/2450 - Arab Music Theory I (3 cr.)
- MUSC 246/2451 - Maqam I (Arab Music Sight-Singing and Aural Skills) (1 cr.)
- MUSC 340/3400 - Western Music Theory II (3 cr.)
- MUSC 341/3401 - Sight-Singing and Aural Skills II (1 cr.)

- MUSC 345/3450 - Arab Music Theory II (3 cr.)
- MUSC 346/3451 - Maqam II (Arab Music Sight-Singing and Aural Skills) (1 cr.)
- MUSC 440/4400 - Western Music Theory III (3 cr.)
- MUSC 441/4401 - Sight-Singing and Aural Skills III (1 cr.)

## Performance (22 - 31 cr.)

- MUSC 280/1800 - Private Lessons in Voice or an Instrument (1 cr.)
  - MUSC 480/4800 - Advanced Private Lessons in Voice or an Instrument (3 cr.)
  - MUSC 492/4980 - Capstone Final Recital (3 cr.)
- Performance majors must complete eight sections of Private Lessons. Double majors, and students in exceptional circumstances, may use as many as two sections of MUSC 1800 in place of MUSC 4800 , with the prior permission of the Music Program.

## Eight semesters of ensemble, chosen from among the following:

- MUSC 262/2620 - Arab Music Ensemble (1 cr.)
- MUSC 263/2630 - Guitar Ensemble (1 cr.)
- MUSC 264/2640 - Chamber Music Ensembles (1 cr.)
- MUSC 265/2650 - Rehearsal/Performance Practicum (1 cr.)
- MUSC 266/2660 - Chamber Singers (1 cr.)
- MUSC 267/2670 - Cairo Choral Society (1 cr.)

Students entering the B.M.A. must either pass a music literacy placement exam or achieve a passing grade in the following:

MUSC 180/1805 - How to Read Music (3 cr.)

All students with a primary instrument other than piano must take the piano proficiency exam. Those who do not achieve a passing grade are required to take the following:

MUSC 284/2850 - Private Instruction for Piano Proficiency (1 cr.)

## Specialization Requirements (0 - 3 credits)

Students specialized in Voice will take the following course:

- MUSC 372/3110 - Diction for Singers in the Western Tradition (3 cr.)
- Students specialized in Guitar will take the following course:
- MUSC 311/3520 - Guitar Pedagogy (3 cr.)

## Electives (9 - 29 credits)

Students who choose to add a second major will in most cases need to complete an additional fifteen to twenty credits.

Students with interest in opera are encouraged to add a minor in Theater.

## Actuarial Science (B.S.)

### Bachelor of Science in Actuarial Science

The life of nearly every one is impacted by the work of actuarial experts. Actuarial experts apply mathematical models to improve financial decision-making by evaluating the financial implications of uncertain future events. See the Actuarial Science's web

site: <http://www.aucegypt.edu/sse/math/majmin/Pages/BachelorofScienceinActuarialScience.aspx> for a more detailed description of the work of actuarial experts. The number of certified actuarial experts in Egypt is notoriously low, whereas the demand for actuarial experts is very high. One objective of the program leading to the Bachelor of Science degree is to reduce the huge gap between supply and demand for actuarial experts in Egypt.

To be able to solve the problems of evaluating and measuring risk, an actuarial expert has to be trained in the disciplines of mathematics, probability, statistics, economics, finance, business law, accounting, and marketing. Consequently, the Actuarial Science Program cuts across the School of Science and Engineering and the School of Business.

*What a major in Actuarial Science offers:*

To summarize, there are many reasons why a student might choose to pursue the B.Sc. program in Actuarial Science. The program prepares students for:

- many positions within Egypt, where the demand for actuarial experts in insurance companies, actuarial consulting firms, banks and other financial institutions, as well as government agencies like the Egyptian Financial Supervisory Authority (EFSA), greatly exceed their supply.
- a wide variety of jobs in Egypt, in multi-national companies, and international institutions abroad, where training in mathematics, probability, statistics, economics, finance, business law, accounting, and marketing are essential.
- completing the first five certification examinations jointly offered by the Society of Actuaries and Casualty Actuarial Society, an important step toward actuarial certification and toward obtaining the actuarial license from the Egyptian Financial Supervisory Authority (EFSA).

A total of 130 credits is required for the bachelor's degree in actuarial science. Students may be exempted from the MACT 131/1121 - Calculus I (3cr.) requirement based on high school certificate and score in mathematics or by passing a placement examination. See the Actuarial

Science's website <http://www.aucegypt.edu/sse/math/majmin/Pages/BachelorofScienceinActuarialScience.aspx> for a sample schedule for completing the requirements for the B.Sc. degree in Actuarial Science.

The undergraduate actuarial science program is accredited by the Applied and Natural Science Accreditation Commission of ABET

### Core Curriculum (34 credits)

The remaining 6 credit hours required to satisfy the core are fulfilled by the concentration Science (3 crs) and the MACT 495/4980 - Senior Thesis (3 cr.) or MACT 497/4950 - Practical Internship (3 cr.)

Actuarial Science students must take 1 credit hour of Natural Science lab.

### Concentration Requirements (60 credits)

- MACT 131/1121 - Calculus I (3cr.)

- MACT 132/1122 - Calculus II (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- MACT 306/3211 - Applied Probability (3 cr.)
- MACT 307/3223 - Statistical Inference (3 cr.)
- MACT 321/3311 - Introduction to Financial Mathematics (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 407/4331 - Short Term Actuarial Mathematics I (3cr.)
- MACT 408/4332 - Short Term Actuarial Mathematics II (3 cr.)
- MACT 421/4312 - Mathematics of Derivatives Pricing I (3 cr.)
- MACT 422/4313 - Mathematics of Derivatives Pricing II (3 cr.)
- MACT 000/4314 - Financial Modeling (3 cr.)
- MACT 423/4321 - Long-Term Actuarial Mathematics I (3 cr.)
- MACT 424/4322 - Long-Term Actuarial Mathematics II (3 cr.)
- MACT 427/4231 - Applied Regression Methods (3 cr.)
- MACT 428/4232 - Analysis of Time Series Data (3 cr.)
- MACT 429/4233 - Applied Multivariate Analysis (3 cr.)

## Collateral Requirements (24 credits)

- ACCT 201/2001 - Financial Accounting (3 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)
- ECON 301/3021 - Intermediate Macroeconomic Theory (3 cr.)
- ECON 302/3011 - Intermediate Microeconomic Theory (3 cr.)
- FINC 303/2101 - Business Finance I (3 cr.)
- FINC 404/3201 - Investment Analysis (3 cr.)

## Culminating Project/Experience (3 cr.)

MACT 497/4950 - Practical Internship (3 cr.)

or

MACT 495/4980 - Senior Thesis (3 cr.)

## Actuarial Science Electives (9 credits)

Students choose courses from the following list in consultation with their adviser:

- ACCT 202/2002 - Managerial Accounting (3 cr.)
- BADM 203/2001 - Introduction to Business (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)

- CSCE 453/4501 - Database Systems (3 cr.)
  - ECON 303/3041 - Monetary Economics (3 cr.)
  - ECON 318/3081 - Introduction to Econometrics (3 cr.)
  - ECON 403/4031 - International Trade (3 cr.)
  - FINC 405/3401 - Applied Banking (3 cr.) \*
  - FINC 408/3501 - International Finance (3 cr.)
  - FINC 414/4301 - Corporate Finance (3 cr.) \*
  - FINC 415/4204 - Portfolio Theory and its Applications (3 cr.)
  - MACT 304/3143 - Numerical Methods (3 cr.)
  - MACT 410/4910 - Guided Studies in Mathematics (1-3 cr.)
  - MACT 409/4930 - Selected Topics in Mathematics (3 cr.)
  - MACT 411/4931 - Selected Topics in Actuarial Science (3 cr.)
  - MACT 497/4950 - Practical Internship (3 cr.)
  - MACT 495/4980 - Senior Thesis (3 cr.)
  - MACT 000/4990 - Enterprise Risk Management (3 cr.)
  - MGMT 307/3201 - Management Fundamentals (3 cr.)
  - MGMT 404/4202 - Managing the Human Capital (3 cr.)
  - MKTG 302/2101 - Principles of Marketing (3 cr.)
  - MKTG 405/3201 - Marketing Research (3 cr.)
  - MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)
  - MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)
  - MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)
- \* Courses highly recommended as electives for students who wish to pursue a career in banking (commercial or investment)

## Architectural Engineering (B.S.)

### Bachelor of Science in Architectural Engineering

Architecture is at a "cross roads" between human/cultural values and the technical capabilities of construction. Moreover, digital technology is rapidly growing, changing our ways of communication, expression, perception, thought and interaction.

The goal of the Bachelor of Science in Architectural Engineering Program is to graduate architects who can lead the architectural profession in Egypt and the Middle-East into the digital age with an understanding of context as means of respecting local heritage. The program promotes the implementation of the latest advances in Information and Communication Technology (ICT), stresses the rich local and historical context, and incorporates construction engineering and professional contents which respond to the needs of the industry. It also embraces the liberal arts approach to education through its multidisciplinary nature. Thus, the program will contribute positively to the well needed human development efforts in Egypt.

It is the aim to form an architect with a comprehensive vision, capable of integrating all the aspects dealing with the built environment and how it is planned, designed, used, furnished, landscaped, maintained, and appreciated by the society. This is emphasized through a curriculum that maintains a reasonable balance between utilization of the emerging digital design methods and pedagogies, meeting the professional demands, and creating contextual-humanistic and sustainable awareness.

The specific objective of the Architectural Engineering Program is to educate students in the fundamentals of the science and design of architecture with particular emphasis on developing skills of innovation, creativity and critical thinking in the design of the built environment. This is accomplished through research-based studio pedagogy, digital aided design, history, arts and the realization of users requirements within the constraints of the society. In the process,

students learn to effectively work independently and collaboratively, develop analytical skills, and consider the impact of architectural solutions on both Egyptian society and the evolving global community.

Graduates of the Architectural Engineering Program will be well equipped to work in the international-level segment of the construction industry. They will become excellent candidates for the local and international architectural design firms. They can effectively work for construction contractors in aspects related to architecture and building integration. Graduates of the program will be qualified for professional licensing in architecture in Egypt and the USA. Furthermore, they will be prepared to pursue graduate studies in architecture and related fields in Egypt and abroad.

The architectural engineering program acquired the UNESCO-UIA Validation from the International Union of Architects (UIA). It is the label of excellence in architectural education of the UIA, which encompasses key professional organizations of architects in countries and territories all over the world. Graduates of UNESCO-UIA validated architectural programs are eligible to register as professional architects in many countries around the world, after passing the required licensure process. The degree of Bachelor of Science in Architectural Engineering at AUC is also acknowledged by the Egyptian Supreme Council of Universities as equivalent to Egyptian Architectural Engineering degrees. Accordingly, graduates of the program are entitled to professional licensure by the Egyptian Syndicate of Engineers, the sole authority for licensing the practice of architecture in Egypt.

Students are admitted to the Architectural Engineering Major either upon admission to AUC (at the gate), or from within AUC through an internal declaration process. All students admitted to the Major must have a mathematics/science background. Students applying at the gate are accepted depending on their High School grades, their performance in an Architecture Aptitude Assessment, and available quota in the Major. Students who get admitted to AUC as undeclared students as well as students transferring from other majors are considered for declaration of the Major upon successful completion of specific criteria courses and achieving minimum grades in these courses. These students are accepted based on a minimum GPA required by the Department, their grades in specific required courses in the Program, number of credit hours earned at AUC, and available quota in their cohort.

Applications submitted by students minoring in Architectural Design will not be considered for declaration of the Major, except if there was an available quota at their entry level cohort.

Students who are admitted to the program have to demonstrate their visualization, graphic communication and creative potential. They must achieve a minimum grade of B in each of the four courses listed below before taking any other courses in the major.

- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ARCH 273/1521 - Digital Representation Tools for Architects (2 cr.)
- ARCH 250/2512 - Foundations of 3-Dimensional Design (3 cr.)
- ARCH 221/1511 - Free-hand Representation for Architects (3 cr.)

Students should consult the course listings and their faculty advisor on a regular basis to ensure that prerequisites for engineering core, concentration and elective courses are met. A model course plan for the major is provided in the office of the Department of Architecture.

A total of 162 credits is required for the bachelor of science degree in Architectural Engineering.

The Bachelor of Science Degree in Architectural Engineering program is structured so that students would concentrate on an area of study in the last two years of their program. After completing design studio 3, students are required to choose one of three streams of courses as their area of study choice. Students must successfully pass an elective course and 3 design studios as well as an architectural theories and dissertation course in their selected stream. These culminate to a senior project in the same stream. Students are not allowed to register for more than 15 credit hours at the semester of their Senior Project.

## Core Curriculum (33 credits)



The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 credits) and part of the capstone Senior Project ARCH 491/4981 - Senior Project (5 cr.)

## Engineering Core Requirements (22 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)

## Concentration Requirements (102 credits)

### Visual Communication and Basic Design:

- ARCH 221/1511 - Free-hand Representation for Architects (3 cr.)
- ARCH 273/1521 - Digital Representation Tools for Architects (2 cr.)
- ARCH 250/2512 - Foundations of 3-Dimensional Design (3 cr.)
- ARCH 251/2551 - Introduction to Architectural Design (3 cr.)

### Architecture, Urban Planning and Interior Design:

- ARCH 268/2411 - Surveying for Architects (1 cr.)
- ARCH 351/2552 - Architectural Design Studio I (4 cr.)
- ARCH 352/3553 - Architectural Design Studio II (4 cr.)
- ARCH 368/3531 - Housing Design and Geographic Information Systems (3 cr.)
- ARCH 420/4541 - Design of Interior Spaces I (3 cr.)
- ARCH 453/3554 - Architectural Design Studio III (4 cr.)
- ARCH 000/4561 - Vertical Design Studio A (5 cr.)
- ARCH 000/4562 - Vertical Design Studio B (5 cr.)
- ARCH 000/4570 - Senior Design Studio (5 cr.)
- ARCH 468/4532 - Urban Design and Landscape Architecture (3 cr.)
- ARCH 473/3522 - Digital Design Studio and Workshop (3 cr.)
- ARCH 491/4981 - Senior Project (5 cr.)

### History and Humanities and Allied Design Courses:

- ARCH 234/2221 - Human Aspects in Architectural Design (3 cr.)
- ARIC 205/2205 - The World of Islamic Architecture, from the Beginnings to the Present Day (3 cr.)
- EGPT 203/2030 - Introduction to Egyptian Architecture (3 cr.)
- ARCH 314/2211 - History and Philosophy of Modern and Contemporary Architecture (3 cr.)
- ARCH 326/2231 - Environmental Control Systems and Sustainable Design (3 cr.)

- ARCH 428/3311 - Detail Design and Finishes in Buildings (3 cr.)
- ARCH 429/4312 - Design Development and Construction Documents (3 cr.)
- ARCH 441/4421 - Professional Practice, Design Management and Codes (2 cr.)

## Construction Engineering and Management:

- ARCH 426/3321 - Building Service Systems and Building Systems Integration (3 cr.)
- ARCH 323/3331 - Construction Materials and Quality Control (4 cr.)
- ARCH 496/3950 - Internship in Construction Projects (0 cr.)
- ARCH 497/4951 - Internship in Technical Drawing and Design (1 cr.)
- CENG 302/3112 - Structural Analysis and Design Principles for Architects (3 cr.)
- CENG 305/3151 - Structural Design for Architects I (3 cr.)
- CENG 306/3152 - Structural Design for Architects II (3 cr.)
- CENG 423/4252 - Methods and Equipment for Construction I (3 cr.)
- CENG 441/4410 - Introduction to Construction Management and Cost Estimating (3 cr.)

## Concentration Elective Streams (5 credits)

Students should follow one the following streams of courses according to their selected area of study. In addition, students must carry out their design projects in the Vertical Design Studios (A and B), Senior Design Studio and Senior Project in their selected area of study.

## Building Design: Human and Environmental Studies Stream:

Students should successfully complete the following course:

- ARCH 000/4801 - Human and Environmental Studies Theory and Dissertation (2 cr.)  
In addition, students should successfully complete one of the following courses:
- ARCH 000/4936 - Design of Interior spaces II 3 credits (1 hr lecture and 3 hours studio)
- ARCH 000/4932 - Sustainable Landscape architecture in Hot an Arid Environments (3 cr.)
- ARCH 000/4971 - Selected Topics in Human and Environmental Studies of Architectural Engineering (3 cr.)
- CENG 442/4420 - Construction Project Specifications, Bids, and Contracts (3 cr.)
- CENG 446/4440 - Techniques of Planning, Scheduling and Control (3 cr.)

## Tectonics and Computational Design Stream:

Students should successfully complete the following course:

- ARCH 000/4802 - Tectonics and Computational Design Theory and Dissertation (2 cr.)  
In addition, students should successfully complete one of the following courses:
- ARCH 000/4937 - Seminar on Contemporary Architecture Discourse (3 cr.)
- ARCH 000/4939 - Advanced Architectural Computing (3 cr.)
- ARCH 000/4972 - Selected Topics in Tectonics and Computational Design of Architectural Engineering (3 cr.)
- CENG 428/4157 - Tall Buildings and Large Span Structures (3 cr.)
- CENG 452/4158 - Structural Systems and Advanced Design (3 cr.)

- PHIL 310/3010 - Philosophy and Art (3 cr.)

## Architecture and Urban Heritage Design Stream:

Students should successfully complete the following course:

- ARCH 000/4803 - Architecture and Urban Heritage Theory and Dissertation (2 cr.)  
In addition, students should successfully complete one of the following courses:
- ARCH 000/4931 - Introduction to Urban and Architecture Conservation (3 cr.)
- ARCH 000/4933 - Vernacular Architecture (3 cr.)
- ARCH 000/4934 - Cairo in the Curriculum, The Urban Laboratory: Mapping Cairo's Complexities (3 cr.)
- ARCH 000/4935 - Coptic Art and Architecture (3 cr.)
- ARCH 000/4938 - Urban Dialogues on Heritage and Space (3 cr.)
- ARCH 000/4973 - Selected Topics in Architecture and Urban Heritage Design (3 cr.)
- ARIC 371-372/3271-3272 - Islamic Architecture in Egypt and Syria (3 cr. per semester)
- ARIC 467/5124 - Islamic Architecture in Spain and North Africa (3 cr.)
- EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)

## General Electives (0-6 credits):

Students may take elective courses of their selection to satisfy total program requirement of 162 credit hours.

## Biology (B.Sc.) with concentrations in Marine Biology or Molecular and Cell Biology

### Bachelor of Science in Biology

The undergraduate program at AUC offers interested students a liberal education in biological sciences, leading to a Bachelor of Science degree. The program provides graduates the broad background necessary in today's job market and prepares them for graduate and professional schools.

Students with a B.Sc. degree in biology are securing positions in the growing fields in industry and in academia. The recent advances in biology have created important new industries in genetic engineering, biomedicine, biotechnology, and pharmacology. Students with ambitions beyond the bachelor level are entering graduate schools and professional schools (medicine, dentistry, veterinary medicine).

Students wishing to receive a Bachelor of Science degree in biology will be required to take a total of 132 credits. Out of the 132 credits 33 credits are allocated for 'Core Curriculum', 46 credits for 'Concentration Requirements', 16 credits for 'Biology Electives', 28 credits for 'Collateral Requirements', and 9 credits for 'General Electives'. Students can be granted a Concentration in Molecular and Cell Biology or Marine Biology concentration after completion of 16 credits from the required respective courses.

The undergraduate biology program is accredited by the Applied and Natural Science Accreditation Commission of ABET

## Core Curriculum (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 cr.) and the capstone projects BIOL 495/4980 - Senior Research Thesis (1 cr.) and BIOL 496/4981 - Seminar in Biology (2 cr.)

## Biology Requirements (62 credits)

### a. Concentration Requirements (46 credits)

- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)
- BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab)
- BIOL 211/2230 - Molecular and Cell Biology (3 cr. + 1 cr. lab)
- BIOL 214/2340 - General Botany (3 cr. + 1 cr. lab)
- BIOL 221/2150 - Genetics (3 cr. + 1 cr. lab)
- BIOL 241/2090 - Quantitative Biology (3 cr. + 1 cr. lab)
- BIOL 307/3310 - Microbiology (3 cr. + 1 cr. lab)
- BIOL 310/3130 - Molecular Evolution and Population Genetics (3 cr. + 1 cr. lab)
- BIOL 312/3326 - Vertebrate Anatomy and Physiology (3 cr. + 1 cr. lab)
- BIOL 315/3280 - Biochemistry (3 cr.)
- BIOL 341/3510 - Ecology (3 cr. + 1 cr. lab)
- BIOL 495/4980 - Senior Research Thesis (1 cr.)
- BIOL 496/4981 - Seminar in Biology (2 cr.)

### b. Biology Electives (16 credits)

Sixteen additional credits from 3000- and 4000- level from the courses listed below:

- BIOL 302/3040 - Environmental Biology for Engineers (2 cr. + 1 cr. lab)
- BIOL 313/3340 - Invertebrate Zoology (3 cr. + 1 cr. lab)
- BIOL 320/3341 - Animal Behavior (3 cr. + 1 cr. lab)
- BIOL 301/3360 - Animal Physiology (3 cr. + 1 cr. lab)
- BIOL 303/3370 - Developmental Biology (3 cr. + 1 cr. lab)
- BIOL 305/3540 - Environmental Biology (3 cr. + 1 cr. lab)
- BIOL 306/3541 - Environmental Biology of the Red Sea (3 cr. + 1 cr. lab)
- BIOL 345/3542 - GIS For Biologists (4 cr.)
- BIOL 360/3600 - Introduction to Bioinformatics (3 cr.)
- BIOL 399/3910 - Guided Studies in Environmental Sciences (3 cr.)
- BIOL 411/4150 - Molecular Biology of the Gene (3 cr. + 1 cr. lab)
- BIOL 415/4230 - Immunology (3 cr. + 1 cr. lab)
- BIOL 430/4330 - Tumor Biology (3 cr. + 1 cr. lab)
- BIOL 440/4540 - Marine Ecology (3 cr. + 1 cr. lab)
- BIOL 445/4541 - Desert Ecology (3 cr. + 1 cr. lab)
- BIOL 408/4930 - Selected Topics in Biology (1-4 cr.)

## Collateral Requirements (28 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)
- CHEM 203/2003 - Organic Chemistry I (3 cr.)

- CHEM 306/3006 - Organic Chemistry II (3 cr.)
- CHEM 310L/3010 - Organic Chemistry I Laboratory (1 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- MACT 112/1221 - Statistical Reasoning (3 cr.)
- MACT 131/1121 - Calculus I (3cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)

## General electives (9 credits)

## Concentration in Marine Biology

The Department of Biology offers a concentration in Marine Biology to provide students the opportunity to thoroughly study the marine resources and habitats of our planet, in particular those of Egypt (Red Sea and Mediterranean).

The Concentration in Marine Biology requires that students complete 16 credits from the following list of courses, as outline below.

### Four credits required:

- BIOL 411/4150 - Molecular Biology of the Gene (3 cr. + 1 cr. lab)

### Eight credits to be selected from:

- BIOL 306/3541 - Environmental Biology of the Red Sea (3 cr. + 1 cr. lab)
- BIOL 399/3910 - Guided Studies in Environmental Sciences (3 cr.) <sup>1</sup>
- BIOL 440/4540 - Marine Ecology (3 cr. + 1 cr. lab)
- BIOL 408/4930 - Selected Topics in Biology (1-4 cr.) <sup>1</sup>

<sup>1</sup> Only marine biology selected topics and guided studies courses will be counted towards the concentration. Requires advisor and chairs' approvals.

### Four credits to be selected from:

- BIOL 313/3340 - Invertebrate Zoology (3 cr. + 1 cr. lab)
- BIOL 320/3341 - Animal Behavior (3 cr. + 1 cr. lab)
- BIOL 345/3542 - GIS For Biologists (4 cr.)

## Concentration in Molecular and Cell Biology

The Concentration in Molecular and Cell Biology require that students complete 16 credits from the following list of courses below. Students can only chose one 500 level course.

BIOL 303/3370 - Developmental Biology (3 cr. + 1 cr. lab)  
 BIOL 411/4150 - Molecular Biology of the Gene (3 cr. + 1 cr. lab)  
 BIOL 415/4230 - Immunology (3 cr. + 1 cr. lab)  
 BIOL 430/4330 - Tumor Biology (3 cr. + 1 cr. lab)  
 BIOL 408/4930 - Selected Topics in Biology (1-4 cr.) <sup>1</sup>

BIOL 410/4910 - Guided Studies in Biology (1-4 cr.) \*

BIOT 502/5202 - Cell and Molecular Biology (3 cr.)

BIOT 504/5204 - Experimental Biotechnology (3 cr.)

*<sup>1</sup>Only Molecular and Cell Biology selected topics and guided studies courses will be counted towards the concentration and requires advisor and chairs approval.*

Students completing the requirements of Molecular and Cell Biology or Marine Biology Concentration will receive an official certificate endorsing successful completion of the B.Sc. in Biology- Molecular and Cell Biology or Marine Biology Concentration.

## **Chemistry, with specializations in Petrochemical Industry, Clinical Chemistry, and Food Chemistry (B.S.)**

The chemistry program covers the five main branches of chemistry, namely organic, biochemistry, inorganic, physical and analytical. In addition students may specialize in clinical analysis, industrial chemistry, or food chemistry. In all cases theoretical and applied knowledge are both reinforced and supplemented by a diverse selection of experimental work, a necessary facet of chemistry.

### **Bachelor of Science**

The objective of the Bachelor of Science in chemistry is to train students in both theory and practice of the major branches of chemistry. It prepares students for careers in diverse fields such as industries (chemical, food and beverages, pharmaceuticals, metal and metal finishing, cement, petrochemicals, textiles, paints); environmental monitoring and protection; quality control and quality assurance; clinical analysis; diagnostics; marketing and sales for chemicals and specialty chemicals; education; academic and industrial research. The Bachelor of Science in chemistry also prepares students for medical school.

A student who intends to major in chemistry must complete CHEM 1005 and CHEM 1015 with a minimum of a B average, or if declaring the major before the completion of these two courses, should have obtained a minimum of 80% in Thanawia Amma science or equivalent in other certificates.

The Bachelor of Science in Chemistry degree is accredited by both the Canadian Society for Chemistry (CSC) and the Supreme Council of Egyptian Universities.

A total of 131 credits is required for the bachelor's degree in chemistry:

### **Core Curriculum (33 credits)**

The remaining 7 credit hours required to satisfy the Core are fulfilled by the concentration Science/lab (4 crs) and the capstone project courses CHEM 4980 and CHEM 4981 (total 3 crs).

### **Concentration Requirements (60 credits)**

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)
- CHEM 203/2003 - Organic Chemistry I (3 cr.)

- CHEM 206/2006 - Analytical Chemistry I (2 cr.)
- CHEM 216L/2016 - Volumetric and Gravimetric Analysis (2 cr.)
- CHEM 301/3940 - Seminar in Science and Technology (1 cr.)
- CHEM 303/3003 - Thermodynamics (3 cr.)
- CHEM 304/3004 - Physical Chemistry I (3 cr.)
- CHEM 000/3005 - Principles of Chemical Modeling (3 cr.)
- CHEM 306/3006 - Organic Chemistry II (3 cr.)
- CHEM 309/3009 - Inorganic Chemistry I (3 cr.)
- CHEM 310L/3010 - Organic Chemistry I Laboratory (1 cr.)
- CHEM 311/3011 - Analytical Chemistry II (3 cr.)
- CHEM 313L/3013 - Thermodynamics Laboratory (1 cr.)
- CHEM 314L/3014 - Physical Chemistry I Laboratory (1 cr.)
- CHEM 315/3015 - Biochemistry (3 cr.)
- CHEM 316L/3016 - Organic Chemistry II Laboratory (1 cr.)
- CHEM 318L/3018 - Inorganic Chemistry Laboratory (1 cr.)
- CHEM 402/4003 - Physical Chemistry II (3 cr.)
- CHEM 403/4004 - Physical Chemistry III (3 cr.)
- CHEM 406/4006 - Organic Chemistry III (3 cr.)
- CHEM 408/4008 - Inorganic Chemistry II (3 cr.)
- CHEM 412L/4013 - Physical Chemistry II Laboratory (1 cr.)
- CHEM 416L/4016 - Organic Syntheses (2 cr.)
- CHEM 495/4980 - Senior Thesis I (1 cr.)
- CHEM 496/4981 - Senior Thesis II (2 cr.)

### Specialization in Petrochemical Industry (12 credits)

- CHEM 307/3522 - Production Basics for Chemical Industries (3 cr.)
- CHEM 000/3523 - Chemistry of Petrochemical Processes
- CHEM 000/4524 - Polymer Chemistry and Technology (3 cr.)
- PENG 422/4525 - Petrochemical Technology (3 cr.)
- CHEM 000/4900 - Industrial Internship (0 credits)

### Specialization in Clinical Chemistry (9 credits)

- CHEM 325/3025 - Clinical Chemistry I (3 cr.)
- CHEM 414/4930 - Selected Topics in Chemistry (1-3 cr.)
- CHEM 425/4025 - Clinical Chemistry II (3 cr.)

### Specialization in Food Chemistry (9 credits)

- CHEM 220/2020 - Introduction to Food Science and Technology (3 cr.)
- CHEM 320/3020 - Food Chemistry (3 cr.)
- CHEM 407/4007 - Food Processing and Preservation (3 cr.)

### Collateral Requirements (26 credits)

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- MACT 131/1121 - Calculus I (3cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- PHYS 214/2221 - Waves and Optics (3 cr.)

## Electives (12 credits)

# Computer Engineering (B.S)

## Bachelor of Science in Computer Engineering

Computer engineering is defined as the discipline that embodies the science and technology of design, construction, implementation, and maintenance of software and hardware components of modern computing systems and computer-controlled equipment. It is solidly grounded in the theories and principles of computing, mathematics, science, and engineering and it applies these theories and principles to solve technical problems through the design of computing hardware, software, networks, and processes. Computer engineers are involved in the design of computer-based systems which includes (in addition to systems for portable, desktop and client/server environments and communications devices) distributed computing environments and embedded systems just to name a few. The convergence of several established technologies (such as television, telecommunications and networking infrastructures) resulted in the creation of massive challenges and opportunities for computer engineers.

The undergraduate program in computer engineering is to produce graduates with a broad perspective in both software and hardware topics relevant to computer systems engineering. It provides the foundation and areas of specialization necessary to analyze, design and evaluate systems software, middleware and software/hardware architectures and interfaces. The specific objectives of the program are to: educate students with breadth of knowledge in computer engineering that would allow them to contribute to computing projects individually or as members of multidisciplinary teams with emphasis on the creative applications of scientific knowledge in the analysis, design, and implementation of economical computer software and hardware systems; introduce students to a broad spectrum of computer engineering topics, with concentration in one or more computing areas of their choice; prepare students to cope with, and improve on, the ever-evolving discipline of computer engineering and state-of-the-art technologies in the industry of software and hardware systems. This is achieved through enabling students to integrate various analysis and design methodologies, models, techniques, and tools to develop software/hardware systems and their interfaces at the edge of technology; train students to communicate effectively, think critically, and recognize and consider the impact of computing solutions in a global and societal context with ability to understand and be sensitive to other cultures; motivate students to engage in life-long learning, develop their ability to pursue graduate studies in computer science, computer engineering, or other related areas, and develop students who are creative, possess qualities of leadership, and committed to professional and ethical conduct.

The undergraduate program in computer engineering is accredited by the Engineering Accreditation Commission of ABET

## Program Objectives

The computer engineering program at AUC graduates a computer engineer who, within few years of graduation, fulfills societal needs, with consideration to ethical and environmental issues, in one or more of the following roles:



- 1- A professional team member in a multidisciplinary environment, local or global.
- 2- A distinguished member of computer engineering field through promotion, or professional development.
- 3- A successful member of an advanced academic or research organization.
- 4- A successful entrepreneur.

### **Program Learning Outcomes**

The program enables students to achieve the following outcomes, by the time of graduation:

- (a) An ability to apply knowledge of mathematics, science, and engineering
- (b) An ability to design and conduct experiments, as well as to analyze and interpret data.
- (c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) An ability to function on multidisciplinary teams
- (e) An ability to identify, formulate, and solve engineering problems
- (f) An understanding of professional and ethical responsibility
- (g) An ability to communicate effectively
- (h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) A recognition of the need for, and an ability to engage in life-long learning
- (j) A knowledge of contemporary issues
- (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

A total of 162 credits is required for the bachelor of science degree in computer engineering:

## **Core Curriculum Requirements (33 credits)**

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 crs) and the capstone projects CSCE 4980 CSCE 4981 (3 crs).

## **Engineering Core Requirements (52 credits)**

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 214/2104 - Engineering Mechanics II (Dynamics) (3 cr.)
- ENGR 313/3202 - Engineering Analysis and Computation I (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- ENGR 364/3322 - Fundamentals of Thermofluids (3 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 200/2131 - Discrete Mathematics (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)

- MACT 317/3224 - Probability and Statistics (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- PHYS 215/2211 - Introduction to Electronics (3 cr.)
- PHYS 222L/2213 - Electronics lab for Computer Scientists & Computer Engineers (1 cr.)

## Concentration Requirements (59 credits)

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- CSCE 321/2202 - Analysis and Design of Algorithms (3 cr.)
- CSCE 000/2203 - Analysis and Design of Algorithms Lab (1 cr.)
- CSCE 230/2301 - Digital Design I (3 cr.)
- CSCE 231/2303 - Computer Organization and Assembly Language Programming (3 cr.)
- CSCE 239L/2302 - Digital Design I Lab (1 cr.)
- CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
- CSCE 330/3301 - Computer Architecture (3 cr.)
- CSCE 332/3303 - Fundamental Microelectronics (3 cr.)
- CSCE 337/3304 - Digital Design II (3 cr.)
- CSCE 339L/3302 - Computer Architecture Lab (1 cr.)
- CSCE 341/3701 - Software Engineering (3 cr.)
- CSCE 345/3401 - Operating Systems (3 cr.)
- CSCE 000/3402 - Operating Systems Lab (1 cr.)
- CSCE 363/3611 - Digital Signal Processing (3 cr.)
- CSCE 432/4301 - Embedded Systems (3 cr.)
- CSCE 435/3312 - Computer Networks (3 cr.)
- CSCE 438L/4302 - Embedded Systems Lab (1 cr.)
- CSCE 439L/3313 - Computer Networks Lab (1 cr.)
- CSCE 445/4411 - Fundamentals of Distributed Systems (3 cr.)
- CSCE 490/4950 - Industrial Training (1 cr.)
- CSCE 491/4980 - Senior Project I (1 cr.)
- CSCE 492/4981 - Senior Project II (2 cr.)
- MGMT 307/3201 - Management Fundamentals (3 cr.)

## Concentration Electives (15 credits)

- CSCE 315/3101 - Programming Language (1-3 cr.)
- CSCE 316/3102 - Programming in Java (3 cr.)
- CSCE 317/3103 - Object Oriented Programming (3 cr.)
- CSCE 325/3104 - Concepts of Programming Languages (3 cr.)
- CSCE 333/3311 - Data and Computer Communications (3 cr.)
- CSCE 422/4201 - Theory of Computing (3 cr.)
- CSCE 427/4602 - Introduction to Artificial Neural Networks (3 cr.)
- CSCE 436L/4314 - Local Area Networks Lab (1 cr.)

- CSCE 437/4313 - Local and Metropolitan Area Networks (3 cr.)
- CSCE 441/4701 - Object-Oriented Analysis and Design (3 cr.)
- CSCE 446/4421 - Computer Security (3 cr.)
- CSCE 447/4101 - Compiler Design (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)
- CSCE 455/4621 - Computer Graphics (3 cr.)
- CSCE 456/4502 - Design of Web-based Systems (3 cr.)
- CSCE 000/4603 - Fundamentals of Computer Vision (3 cr.)
- CSCE 465/3601 - Artificial Intelligence (3 cr.)
- CSCE 448/4702 - Secure Systems Engineering (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)
- CSCE 495/4910 - Guided Studies in Computer Science and Engineering (1-3 cr.)
- ECNG 413/4103 - Testing of Digital Circuits (3 cr.)
- ECNG 494/4930 - Selected Topics in Electronics and Communications Engineering (3 cr.)
- MACT 304/3143 - Numerical Methods (3 cr.)
- MACT 310/3145 - Operations Research (3 cr.)
- MACT 362/3133 - Formal and Mathematical Logic (3 cr.)
- MACT 403/4134 - Modern Algebra (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 440/4135 - Graph Theory (3 cr.)

## General Electives (3 credits)

## Computer Science (B.S)

### Bachelor of Science in Computer Science

The undergraduate computer science program is accredited by the Computing Accreditation Commission of ABET

### Program Objectives

The computer science program at AUC graduates a computer scientist who, within few years of graduation, fulfills societal needs, with consideration to ethical and environmental issues, in one or more of the following roles:

- 1- A professional team member in a multidisciplinary environment, local or global.
- 2- A distinguished member of computing field through promotion, or professional development.
- 3- A successful member of an advanced academic or research organization.
- 4- A successful entrepreneur.

### Program Learning Outcomes

The program enables students to achieve the following outcomes, by the time of graduation:

- (a) An ability to apply knowledge of computing and mathematics appropriate to the discipline;
- (b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;
- (c) An ability to design, implement and evaluate a computer-based system, process, component, or program to meet

desired needs;

- (d) An ability to function effectively on teams to accomplish a common goal;
- (e) An understanding of professional, ethical, legal, security, and social issues and responsibilities;
- (f) An ability to communicate effectively with a range of audiences;
- (g) An ability to analyze the local and global impact of computing on individuals, organizations, and society;
- (h) Recognition of the need for, and an ability to engage in continuing professional development;
- (i) An ability to use current techniques, skills, and tools necessary for computing practices;
- (j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;
- (k) An ability to apply design and development principles in the construction of software systems of varying complexity.

The course of study offers a broad-based intellectual engagement with computing both in theory and practice as well as logic and capabilities. The theoretical ground, abstraction, design as well as the professional practice levels (technical competence, team work, problem solving and communication skills), social and ethical contexts of the discipline of computing are well integrated into the curriculum that the department offers.

The study program is designed to prepare students for a wide variety of careers. The most profound positions that our graduates are well prepared to occupy (or have already been engaged in) may be classified into the following professional disciplines: Software Engineering, Systems Design and Programming, Applications design and programming and Information-Systems design and analysis. The program also prepares students for further studies and research in the computing field.

A total of 132 credits is required for a bachelor's degree in computer science:

## Core Curriculum (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 crs) and the capstone projects CSCE 4980 CSCE 4981 (3 crs).

## Computer Science Requirements (60 credits):

### a.) Concentration Requirements (42 credits)

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- CSCE 321/2202 - Analysis and Design of Algorithms (3 cr.)
- CSCE 000/2203 - Analysis and Design of Algorithms Lab (1 cr.)
- CSCE 230/2301 - Digital Design I (3 cr.)
- CSCE 231/2303 - Computer Organization and Assembly Language Programming (3 cr.)
- CSCE 239L/2302 - Digital Design I Lab (1 cr.)
- CSCE 325/3104 - Concepts of Programming Languages (3 cr.)
- CSCE 330/3301 - Computer Architecture (3 cr.)
- CSCE 339L/3302 - Computer Architecture Lab (1 cr.)
- CSCE 341/3701 - Software Engineering (3 cr.)
- CSCE 345/3401 - Operating Systems (3 cr.)

- CSCE 000/3402 - Operating Systems Lab (1 cr.)
- CSCE 422/4201 - Theory of Computing (3 cr.)
- CSCE 447/4101 - Compiler Design (3 cr.)
- CSCE 490/4950 - Industrial Training (1 cr.)
- CSCE 491/4980 - Senior Project I (1 cr.)
- CSCE 492/4981 - Senior Project II (2 cr.)

## b.) Computer Science electives (18 credits)

*To be chosen in consultation with the student's advisor from the following (no more than 9 credits can be chosen among the MACT courses):*

- CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
- CSCE 315/3101 - Programming Language (1-3 cr.)
- CSCE 316/3102 - Programming in Java (3 cr.)
- CSCE 317/3103 - Object Oriented Programming (3 cr.)
- CSCE 333/3311 - Data and Computer Communications (3 cr.)
- CSCE 427/4602 - Introduction to Artificial Neural Networks (3 cr.)
- CSCE 432/4301 - Embedded Systems (3 cr.)
- CSCE 332/3303 - Fundamental Microelectronics (3 cr.)
- CSCE 337/3304 - Digital Design II (3 cr.)
- CSCE 435/3312 - Computer Networks (3 cr.)
- CSCE 363/3611 - Digital Signal Processing (3 cr.)
- CSCE 436L/4314 - Local Area Networks Lab (1 cr.)
- CSCE 437/4313 - Local and Metropolitan Area Networks (3 cr.)
- CSCE 438L/4302 - Embedded Systems Lab (1 cr.)
- CSCE 439L/3313 - Computer Networks Lab (1 cr.)
- CSCE 441/4701 - Object-Oriented Analysis and Design (3 cr.)
- CSCE 445/4411 - Fundamentals of Distributed Systems (3 cr.)
- CSCE 446/4421 - Computer Security (3 cr.)
- CSCE 448/4702 - Secure Systems Engineering (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)
- CSCE 455/4621 - Computer Graphics (3 cr.)
- CSCE 456/4502 - Design of Web-based Systems (3 cr.)
- CSCE 465/3601 - Artificial Intelligence (3 cr.)
- CSCE 000/4603 - Fundamentals of Computer Vision (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)
- CSCE 495/4910 - Guided Studies in Computer Science and Engineering (1-3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 304/3143 - Numerical Methods (3 cr.)
- MACT 310/3145 - Operations Research (3 cr.)
- MACT 362/3133 - Formal and Mathematical Logic (3 cr.)
- MACT 403/4134 - Modern Algebra (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 440/4135 - Graph Theory (3 cr.)
- CSCE 000/4604 - Practical Machine Deep Learning (3 cr.)

## Collateral Requirements (30 credits)

- MACT 132/1122 - Calculus II (3 cr.)
- MACT 200/2131 - Discrete Mathematics (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- MACT 306/3211 - Applied Probability (3 cr.)
- MACT 307/3223 - Statistical Inference (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- PHYS 215/2211 - Introduction to Electronics (3 cr.)
- PHYS 222L/2213 - Electronics lab for Computer Scientists & Computer Engineers (1 cr.)

## General Electives (9 credits)

# Construction Engineering, with concentrations in Construction Materials and Structures, Construction Management and Technology, and Infrastructure (B.S.)

### Bachelor of Science in Construction Engineering

The construction industry is the largest industry in Egypt and much of the world. Construction engineering is a relatively new field that is designed to foster technological advances in the industry, to utilize modern design techniques, and to develop means to improve production, products, components and subsystems, and distribution and utilization of equipment. Construction engineering covers the basic civil engineering components such as structures, geotechnical, water resources, transportation, and environmental engineering. In addition, it covers, in detail, methods for the modeling of construction projects, numerical simulations, the evaluation of various construction strategies, and construction quality control. It deals with organizational planning, financial and human resources management, productivity measurement, accounting, information systems, strategy and policy formation, contracting, and construction law.

The specific objectives of the Construction Engineering Program are to: educate students in fundamentals of science and engineering with emphasis on construction engineering applications; introduce students to a broad spectrum of construction engineering topics, with concentration in an area of their choice, to plan for construction operations and to fit in construction organizations; prepare students to cope with and improve on the ever evolving technologies in production, products, and components of the construction industry; train students to communicate effectively, work independently and in teams, and fit in a multi-discipline environment; inspire students to recognize and consider the impact of engineering solutions in a global and societal context with the ability to understand and be sensitive to other cultures; motivate students to engage in life-long learning and develop their ability to pursue graduate studies; develop students who are creative, possess qualities of leadership, and are committed to professional and ethical conduct.

Students have the choice of one of three concentration areas within construction engineering. These are: 1) Construction Materials and Structures; 2) Construction Management and Technology; and 3) Infrastructure. The Construction Materials and Structures concentration provides students with the ability to integrate advances in construction materials with advanced knowledge in structural design and mechanics. The Construction Management and Technology concentration provides students with the tools that would enable them to become effective

construction managers, through gaining a deeper appreciation of the technology and management aspects involved, and a greater exposure to the various facets of the industry. The Infrastructure concentration better equips students for involvement in civil infrastructure projects, and enables them to contribute to consulting practice in highway engineering, environmental and water resources engineering. The concentration shall be indicated in the students' Diploma.

The undergraduate program in construction engineering is accredited by the Engineering Accreditation Commission of ABET

The program is also accredited by the Supreme Council of Egyptian Universities.

Students are admitted to the Construction Engineering Program either upon admission to AUC or after successful completion of criteria courses. High school students with mathematics/science background are accepted depending on their High School grades and the available quota in the Construction Engineering Program. Undeclared and transfer students are admitted to the program upon completing criteria courses in sciences. Students are accepted based on their GPA and on available quota in the department.

Students should consult the course listings and their faculty advisor on a regular basis to ensure that prerequisites for engineering core, concentration and elective courses are met. A model course plan for the major is provided in the office of the Department of Construction Engineering.

A total of 162 credits is required for the Bachelor of Science Degree in Construction Engineering:

## Core Curriculum (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 credits), and the capstone Senior Projects I and II (CENG 4980 and CENG 4981) (3 credits).

## Engineering Core Requirements (49 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 214/2104 - Engineering Mechanics II (Dynamics) (3 cr.)
- ENGR 229/2112 - Strength and Testing of Materials (4 cr.)
- ENGR 261/2122 - Fundamentals of Fluid Mechanics (3 cr.)
- ENGR 313/3202 - Engineering Analysis and Computation I (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 317/3224 - Probability and Statistics (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)

## Concentration Requirements (65 credits)

- ARCH 321/3562 - Introduction to Architectural Engineering (3 cr.)
- CENG 215/2251 - Drawing for Construction Engineering and Architecture (1 cr.)
- CENG 280/2311 - Construction Surveying (3 cr.)
- CENG 301/3111 - Structural Analysis (4 cr.)
- CENG 307/3153 - Structural Design (4 cr.)
- CENG 311/3511 - Fundamentals of Hydraulic Engineering (3 cr.)
- CENG 323/3211 - Construction Materials and Quality Control I (4 cr.)
- CENG 331/3312 - Geology for Engineers (2 cr.)
- CENG 000/3011 - Electrical and Mechanical Systems for Construction Engineering (4 cr.)
- CENG 411/4313 - Soil Mechanics (4 cr.)
- CENG 423/4252 - Methods and Equipment for Construction I (3 cr.)
- CENG 424/4253 - Methods and Equipment for Construction II (2 cr.)
- CENG 431/4351 - Transportation Engineering (3 cr.)
- CENG 441/4410 - Introduction to Construction Management and Cost Estimating (3 cr.)
- CENG 442/4420 - Construction Project Specifications, Bids, and Contracts (3 cr.)
- CENG 446/4440 - Techniques of Planning, Scheduling and Control (3 cr.)
- CENG 448/4460 - Financial Management and Accounting for Construction (3 cr.)
- CENG 452/4158 - Structural Systems and Advanced Design (3 cr.)
- CENG 461/4314 - Design and Construction of Foundations and Retaining Structures (3 cr.)
- CENG 471/4551 - Environmental and Sanitary Engineering (3 cr.)
- CENG 490/4980 - Senior Project I (1 cr.)
- CENG 491/4981 - Senior Project II (2 cr.)
- CENG 497/4951 - Practical Training (1 cr.)

## Concentration Electives (12 credits):

To complete the requirements of any of the three concentrations, students must complete a set of four courses as indicated in each concentration.

Student should also carry out the Senior Graduation Project in their selected concentration subfield.

### Construction Materials and Structures

In this concentration, student have to complete 4 courses (12 credit hours) as follow:

1. Two courses (6 credit hours) of Group A,
2. One course (3 credit hours) from Group B, and
3. One course (3 credit hours) from any other concentration, including Group B courses.

## Construction Materials and Structures

### Group A:

CENG 453/4212 - Construction Materials and Quality Control II (3 cr.)

CENG 454/4113 - Structural Mechanics (3 cr.)

### Group B:

CENG 000/4154 - Advanced Design of Reinforced and Prestressed Concrete Structures (3 cr.)



CENG 426/4155 - Steel and Concrete Bridges (3 cr.)

CENG 428/4157 - Tall Buildings and Large Span Structures (3 cr.)

CENG 462/4315 - Applications in Geotechnical Engineering (3 cr.)

CENG 494/4911 - Selected Topics in Construction Engineering (3 cr.)

## Construction Management and Technology

In this concentration, Students have to complete the following two courses

- CENG 444/4430 - Risk Management and Bidding Strategies (3 cr.)
- CENG 447/4450 - Design, Modeling and Simulation of Construction Systems (3 cr.)

In addition to any two courses from the Infrastructure or the Construction Materials and Structures Concentrations

## Infrastructure

In this concentration, student have to complete 4 courses (12 credit hours) as follows:

1. Two courses (6 credit hours) from Group A courses.
2. One course (3 credit hours) from Group B courses.
3. One course (3 credit hours) from any concentration including Group B courses of the "Infrastructure" concentration

### Group A:

CENG 481/4352 - Highway Facilities (3 cr.)

CENG 000/4556 - Design of water and wastewater treatment plants (3 cr.)

### Group B:

CENG 472/4552 - Design of Water Resources Systems (3 cr.)

CENG 473/4553 - Unit Operations in Environmental Engineering (3 cr.)

CENG 474/4554 - Computer-aided design and construction of environmental and sanitary systems (3 cr.)

CENG 475/4555 - Solid and Hazardous Wastes Engineering (3 cr.)

CENG 000/4557 - Functional design and construction of tunnels and bridges (3 cr.)

CENG 462/4315 - Applications in Geotechnical Engineering (3 cr.)

CENG 494/4911 - Selected Topics in Construction Engineering (3 cr.)

## Science Elective (3 credits)

Students should take a science elective course of total 3 credits selected from a set of courses accepted by the department

## General Electives (0-6 credits):

Students may take courses of their selection to satisfy program requirement of 162 credit hours.

## Dual Degree Option BSc/CENG-MPA

Students enrolled in the School of Science and Engineering may apply to complete the MPA on an accelerated basis in conjunction with completion of the BSc. in Construction Engineering. At present, this option is open only to students completing the BSc. in Construction Engineering. Students interested in this option should consult with their advisors during the Fall of their fourth year for potential admission to the program in their fifth year. The program is jointly administered by the Department of Public Policy and Administration in the School of Public Affairs and the School of Sciences and Engineering. Admission is based on the recommendation of the student's SSE advisor and review by the PPAD department. Students who wish to be admitted to this dual degree should have a minimum GPA of 3.2. The program prepares students for careers in public service with the highest ethical standards, strong competencies in environmental analysis and management as well as public governance, excellent leadership and communication skills, a sound understanding of the use of evidence and analysis in public service settings, and a commitment to building a better future for the people of Egypt and the region. Students pursue careers in government, nonprofit organizations, international development agencies, academia, and the private sector.

Students electing the dual degree option begin taking graduate courses in their ninth semester and receive both the BSc. and the MPA upon the completion of their coursework and master's thesis, normally at the end of their 6th year. The following course sequence has been developed for this option, but students should consult their advisor in CENG to ensure that all SSE requirements are met:

Students who seek to register in this dual degree should complete four 400-level courses that are related to business or public administration, public policy, economics, political science or global affairs. Courses will need to be approved by the department prior to registration

Additionally, students must take the seven PPAD graduate courses listed below and two thesis registration.

#### **SEMESTER X**

PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)

PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)

PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.)

#### **SEMESTER XI**

PPAD 501/5221 - Strategic Management for Government and Nonprofit Organizations (3 cr.)

PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)

PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)

PPAD 000/5174 - Internship in Public and Non-Profit Organizations (3 cr.)

#### **SEMESTER XII**

- PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.) (MPA Credit)
- PPAD 516/5132 - Social and Environmental Policy (3 cr.) (MPA Credit)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.) (MPA Credit)
- PPAD 599/5299 - Research Guidance (0 cr.) (MPA Credit)

### **Thesis**

Students are required to write a thesis on some aspect of public administration relevant to their area of study. The preparation of the thesis and the thesis itself must comply with Departmental and AUC guidelines with regard to content, format, dates, and the review and supervision process. Students are responsible for familiarizing themselves

with these guidelines and meeting formal deadlines. Students preparing the thesis normally develop a preliminary thesis proposal during PPAD 5201, a required core course, but may prepare an alternative thesis proposal if desired. Once the proposal is approved, students should enroll in PPAD 5298, the thesis research seminar, in the first semester in which they are working on the research component and write-up of their thesis. Thereafter, if additional work is required to complete the thesis, students can enroll each semester in PPAD 5299. Students must pay 3 credits of tuition for the first enrollment in PPAD 5298 and PPAD 5299 and thereafter pay 1 credit of tuition each semester, until the thesis is successfully defended and approved by the Dean.

## Data Science (B.Sc.)

The advances in communication and information technologies have given rise to the availability of huge datasets (Big Data). The datasets contain a wealth of knowledge. Data Science is the study of generalizable extraction of knowledge from data. Being a data scientist requires an integrated skill set spanning mathematics, statistics, machine learning, databases and programming languages as well as a good understanding of real-world problem formulation and effective solutions.

Data Science is a new interdisciplinary/multidisciplinary field. It is experiencing very rapid growth due to the availability of huge and complex real-world data. The demand for data science education has been increasing at very large rates. Accordingly, we need to move away from the traditional way of teaching statistics to meet the needs of the modern world for data scientist who can use modern analytic techniques and tools for analyzing data, especially big data.

Data scientists need to be able to deal with the problems associated with the current and future types and amounts of data and to solve the kind of problems associated with them. Data scientists need to know how to use modern computer languages and/or packages such as R and Python.

The Data Science Program introduces students to this rapidly growing field and equip them with its basic principles and tools with the main objective of solving real-world problems. Students will learn concepts, techniques and tools they need to deal with various facets of data science practice, including data collection and integration, data editing, exploratory data analysis, predictive modeling, descriptive modeling, data product creation, evaluation, and effective communication. Working with data requires the mastery of a variety of skills and concepts, including many traditionally associated with the fields of probability, statistics, mathematics, and computational science.

The Data Science Program prepares students for positions within Egypt, where the demand for Data Scientists (for example, in banks, other financial institutions, and communication companies) greatly exceed their supply. Also there is a wide variety of jobs in Egypt, in multi-national companies, and international institutions abroad, where training in Data Science (mathematics, probability, statistics, computing science) is essential.

A total of 130 credits is required for the bachelor's degree in Data Science. Students may be exempted from the MACT 131/1121 - Calculus I (3cr.) requirement based on high school certificate and score in mathematics or by passing a placement examination.

## Core Curriculum Requirements (34 credits)

The remaining 6 credit hours required to satisfy the core are fulfilled by the concentration Science (3 crs) and the DSCI 000/4416 - Capstone I (Data Science Senior Project I) (1 cr.) and DSCI 000/4417 - Capstone II (Data Science Project II) (2 cr.). Data Science students must take 1 credit hour of Natural Science lab.

## Concentration Requirements (33 cr.)

- DSCI 000/1411 - Fundamentals of Data Science I (3 cr.)

- DSCI 000/1412 - Fundamentals of Data Science II (3 cr.)
- DSCI 000/3411 - Monte Carlo Simulation (3 cr.)
- DSCI 000/3412 - Machine Learning (3 cr.)
- DSCI 000/3413 - Biostatistics (3 cr.)
- DSCI 000/4411 - Fundamentals of Data Mining (3 cr.)
- DSCI 000/4412 - Introduction to Big Data Technologies (3 cr.)
- DSCI 000/4413 - Analysis of Categorical Data (3 cr.)
- DSCI 000/4414 - Data Visualization (3 cr.)
- DSCI 000/4415 - Machine Deep Learning (3 cr.)
- DSCI 000/4416 - Capstone I (Data Science Senior Project I) (1 cr.)
- DSCI 000/4417 - Capstone I (Data Science Project II) (2 cr.)

## Collateral Requirements (42 credits)

- MACT 131/1121 - Calculus I (3cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 200/2131 - Discrete Mathematics (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 306/3211 - Applied Probability (3 cr.)
- MACT 307/3223 - Statistical Inference (3 cr.)
- MACT 440/4135 - Graph Theory (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 427/4231 - Applied Regression Methods (3 cr.)
- MACT 428/4232 - Analysis of Time Series Data (3 cr.)
- MACT 429/4233 - Applied Multivariate Analysis (3 cr.)
- MACT 497/4950 - Practical Internship (3 cr.)

## Data Science Electives (21 credits)

The 21 elective credits are courses chosen from the following list or by the permission of the Department Chair or the Director of the Data Science Program:

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
- CSCE 321/2202 - Analysis and Design of Algorithms (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)
- CSCE 465/3601 - Artificial Intelligence (3 cr.)
- CSCE 000/4603 - Fundamentals of Computer Vision (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)
- MACT 304/3143 - Numerical Methods (3 cr.)
- MACT 412/4213 - Mathematical Modeling with Applications (3 cr.)
- MACT 495/4980 - Senior Thesis (3 cr.)
- MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)
- MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)

- MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)
  - Applications in different domains or taking courses from other disciplines such as business, computer science, mathematics, sciences (biology, physics, chemistry) and engineering.

## Electronics and Communications Engineering (B.S)

### Bachelor of Science

To achieve the mission of Electronics and Communications Engineering requires a solid core of foundation courses in physics, mathematics, computer science and general engineering, which is also essential for life-long learning. Concentration courses in Electronics and Communications Engineering (that integrate theory and laboratory wherever possible) cover electromagnetics, circuits, electronics, digital design and communications. Courses in electric machinery, classical control, computer systems, the capstone senior thesis and industrial internship are also required. State-of-the-art electronics engineering elective courses provide seniors and advanced undergraduates the opportunity to develop a thrust in advanced electronics, communication systems and computers.

Electronics and Communications Engineering accepts high school students with science/mathematics background. Undeclared students may also be accepted to the program when they finish criteria courses set by the department. Admission to the program is supervised by the department and depends on available places and student's performance record.

The undergraduate program in electronics engineering is accredited by the Engineering Accreditation Commission of ABET

A total of 162 credits are required for the bachelor's degree in Electronics and Communications Engineering:

### Core Curriculum Requirements (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 crs) and the capstone projects ECNG 4980 and ECNG 4981 (3 crs)

### Engineering Core Requirements (57 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 214/2104 - Engineering Mechanics II (Dynamics) (3 cr.)
- ENGR 313/3202 - Engineering Analysis and Computation I (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- ENGR 364/3322 - Fundamentals of Thermofluids (3 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 232/2124 - Calculus IV (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 317/3224 - Probability and Statistics (3 cr.)

- MGMT 307/3201 - Management Fundamentals (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- PHYS 214/2221 - Waves and Optics (3 cr.)

## Concentration Requirements (54 credits)

(ECNG 4980 and ECNG 4981 are counted within the university core)

- ECNG 210/2101 - Digital Logic Design (3 cr.)
  - ECNG 215/2105 - Circuit Analysis I (3 cr.)
  - ECNG 216/2106 - Circuit Analysis II (3 cr.)
  - ECNG 218L/2108L - Digital Logic Design Lab (1 cr.)
  - ECNG 219L/2109L - Circuit Analysis Lab (1 cr.)
  - ECNG 315/3105 - Electronics I: Basic Electronic Devices & Circuits (3 cr.)
  - ECNG 316/3106 - Electronics II: Analog Circuits (3 cr.)
  - ECNG 318/3108 - VLSI Design (3 cr.)
  - ECNG 319L/3109L - Electronics Lab (1 cr.)
  - ECNG 320/3201 - Signals and Systems (3 cr.)
  - ECNG 321/3202 - Automatic Control Systems (3 cr.)
  - ECNG 341/3401 - Electromagnetic Theory (3 cr.)
  - ECNG 352/3502 - Computer Organization and Assembly Language Programming (3 cr.)
  - ECNG 360/3601 - Power and Machines (3 cr.)
  - ECNG 420/4301 - Fundamentals of Communications I (3 cr.)
  - ECNG 421/4302 - Fundamentals of Communications II (3 cr.)
  - ECNG 432/4306 - Computer Communication Networks (3 cr.)
  - ECNG 439L/4314L - Communications Lab (1 cr.)
  - ECNG 442/4402 - Electromagnetic Waves (3 cr.)
  - ECNG 453/4503 - Microcontroller system design (3 cr.)
  - ECNG 459L/4509L - Microcontroller system design lab (1 cr.)
  - ECNG 490/4980 - Senior Project I (1 cr.)
  - ECNG 491/4981 - Senior Project II (2 cr.)
- The credit hours in ECNG 490/491 are not counted among the concentration credit hour requirements as they are counted in the core curriculum credit hour requirements
- ECNG 497/4950 - Industrial Internship (1 cr.)

## Concentration Electives (12 credits)

- ECNG 404L/4304L - Photonics and Optical Communication Laboratory (1 cr.)
- ECNG 410/4101 - Solid-State Devices (3 cr.)
- ECNG 413/4103 - Testing of Digital Circuits (3 cr.)
- ECNG 414/4104 - High Level Digital ASIC Design Using CAD (3 cr.)
- ECNG 415/4105 - Integrated Circuit Fabrication: Materials and Processes (3 cr.)
- ECNG 433/4308 - Telecommunications Systems (3 cr.)
- ECNG 434/4310 - Optical Communication Systems (3 cr.)

- ECNG 436/4312 - Mobile Communication Systems (3 cr.)
- ECNG 447/4407 - Microwave Systems (3 cr.)
- ECNG 455/4505 - Computer Architecture (3 cr.)
- ECNG 456/4506 - Industrial control systems (3 cr.)
- ECNG 458L/4508L - Computer Architecture Lab (1 cr.)
- ECNG 480/4920 - Special Problems in Electronics and Communications Engineering (1-3 cr.)
- ECNG 494/4930 - Selected Topics in Electronics and Communications Engineering (3 cr.)

## General Electives (0-9 credits)

## Mathematics, with an option in Statistics & Data Analysis (B.S.)

### Bachelor of Science in Mathematics

The Bachelor of Science degree in Mathematics develops a level of skill that will enable the student to apply his/her knowledge in industry or teaching and prepares the student for advanced study of mathematics and other fields.

More information on Mathematics as a professional activity and on career opportunities is available on the department webpage:

<http://www.aucegypt.edu/sse/math/alumni/Pages/default.aspx>

A total of 130 credits is required for the bachelor's degree in mathematics. Students may be exempted from the MACT 1121 requirement based on high school certificate and score in mathematics or by passing a placement examination.

Appropriate substitutions allow students from most other majors in the School of Science and Engineering to complete the Mathematics major requirements with 15 to 25 additional credits. See the page [http://www.aucegypt.edu/sse/math/Pages/Double\\_Major.aspx](http://www.aucegypt.edu/sse/math/Pages/Double_Major.aspx) for more details.

## Core Curriculum (36 credits)

The science requirements of the core curriculum electives are satisfied by the collateral requirements of the major.

## Concentration Requirements (42 credits)

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- MACT 131/1121 - Calculus I (3cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 232/2124 - Calculus IV (3 cr.)
- MACT 200/2131 - Discrete Mathematics (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 304/3143 - Numerical Methods (3 cr.)
- MACT 306/3211 - Applied Probability (3 cr.)
- MACT 307/3223 - Statistical Inference (3 cr.)
- MACT 401/4125 - Complex-Function Theory (3 cr.)

- MACT 431/4126 - Real Analysis I (3 cr.)
- MACT 403/4134 - Modern Algebra (3 cr.)

## Concentration Electives (21 credits)

To be chosen from the upper level MACT courses in consultation with the advisor. Students majoring in another Science or Engineering program may transfer up to 12 approved credits from their program toward the completion of these 21 credits if double majoring in Mathematics. For more details, see the department's page at: [www.aucegypt.edu/sse/math/Pages/Double\\_Major.aspx](http://www.aucegypt.edu/sse/math/Pages/Double_Major.aspx)

## Collateral Requirements (14 to 16 Credits)

To be chosen among the following:

- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)
- BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab)
- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)

## Electives (15-17 credits)

Courses to be chosen in consultation with the adviser, excluding MACT 1111, MACT 1112 .

## Statistics and Data Analysis Option

Within the bachelor degree in Mathematics, students may choose the Statistics and Data Analysis Option by taking the following courses:

The 21 credits of concentration electives must include:

- MACT 427/4231 - Applied Regression Methods (3 cr.)
- MACT 429/4233 - Applied Multivariate Analysis (3 cr.)

**and a minimum of 9 credits selected from the following:**

- MACT 308/3144 - Linear Programming (3 cr.)
- MACT 310/3145 - Operations Research (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)



- MACT 409/4930 - Selected Topics in Mathematics (3 cr.)
- MACT 410/4910 - Guided Studies in Mathematics (1-3 cr.)
- MACT 412/4213 - Mathematical Modeling with Applications (3 cr.)

## **Mechanical Engineering, with concentrations in Design, Industrial, Materials and Manufacturing, Mechatronics, and Power (B.S.)**

### **Bachelor of Science**

The educational objectives of the mechanical engineering program are to graduate mechanical engineers who can: practice professionally as team members or leaders in both local and global, multidisciplinary environments; advance their careers in mechanical engineering or other fields through promotions, positions of increasing responsibilities or professional certification; contribute to the welfare of the society, and respond to its needs with consideration of ethical and environmental issues; engage in advanced academic and research careers; and pursue entrepreneurial endeavors.

Students are offered mechanical engineering electives concentrated in five areas: The Design concentration integrates elements of the mechanical engineering program and utilizes modern computer methods to enable the engineer to model, analyze and design mechanical components and systems. The power concentration provides the engineering background for optimum use of energy resources; calculation of energy loads; design, selection and integration of conventional and non-conventional energy systems and components. The Industrial concentration enables the engineer to analyze, design, integrate, automate and manage industrial systems. The Materials and Manufacturing concentration focuses on ways of controlling material composition, treatment, and manufacturing in order to meet design requirements, and achieve desired levels of performance. The Mechatronics concentration focuses on computer programming, automatic control, sensor technology and microprocessor as well as manufacturing techniques.

The undergraduate program in mechanical engineering is accredited by the Engineering Accreditation Commission of ABET

The program is also accredited by the Supreme Council of Egyptian Universities.

Students should consult the course listings and their faculty advisor on a regular basis to ensure that prerequisites for engineering core, concentration and elective courses are met. A model course plan for the Major is provided by the Department.

A student who intends to major in Mechanical Engineering must submit a Major declaration form upon completion of 45 credit hours. A student should declare his/her concentration (s) after completing 80 credit hours and before completing 120 credit hours.

A total of 162 credits is required for the bachelor's degree in mechanical engineering:

### **Core Curriculum (33 credits)**

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 cr.) and the capstone projects MENG 4980 and MENG 4981 (3 cr.)

### **Engineering Core Requirements (52 credits)**

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 214/2104 - Engineering Mechanics II (Dynamics) (3 cr.)
- ENGR 229/2112 - Strength and Testing of Materials (4 cr.)
- ENGR 261/2122 - Fundamentals of Fluid Mechanics (3 cr.)
- ENGR 313/3202 - Engineering Analysis and Computation I (3 cr.)
- ENGR 318/3212 - General Electrical Engineering (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 317/3224 - Probability and Statistics (3 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)

## Concentration Requirements (53 credits)

- MENG 215/2505 - Mechanical Engineering Drawing (1 cr.)
- MENG 327/3207 - Engineering Materials (3 cr.)
- MENG 339/3209 - Fundamentals of Manufacturing Processes (3 cr.)
- MENG 342/3402 - Quality and Process Control (3 cr.)
- MENG 346/3446 - Engineering and Project Management (3 cr.)
- MENG 355/3505 - Mechanics of Materials (3 cr.)
- MENG 356/3506 - Mechanical Design I (3 cr.)
- MENG 361/3601 - Fundamentals of Thermodynamics (3 cr.)
- MENG 362/3602 - Applied Fluid Mechanics (3 cr.)
- MENG 365/3605 - Applied Thermodynamics (3 cr.)
- MENG 372/3502 - Mechanical Systems (3 cr.)
- MENG 375/3705 - System Dynamics (3 cr.)
- MENG 428/4208 - Selection of Materials and Processes for Design (3 cr.)
- MENG 457/4507 - Mechanical Design II (3 cr.)
- MENG 466/4606 - Heat Transfer (4 cr.)
- MENG 490/4980 - Senior Project I (1 cr.)
- MENG 491/4981 - Senior Project II (2 cr.)
- MENG 497/4950 - Industrial Training (1 cr.)
- PHYS 215/2211 - Introduction to Electronics (3 cr.)
- PHYS 221L/2212 - Electronics Laboratory (2 cr.)

## Concentration Electives (21 credit hours)

Courses must be selected from at least two of the five available concentrations of courses. A minimum of twelve credits must be taken from one concentration as follows:

## Design Concentration:

A minimum of nine credits from courses in group A of the Design concentration and the remaining three credits from courses in either group of the concentration.

### Group A:

- MENG 451/4551 - Computer-Aided Design and Prototyping (3 cr.)
- MENG 453/4553 - Finite Element Method and Applications in Design (3 cr.)
- MENG 455/4565 - Design of Engineering Systems (3 cr.)
- MENG 475/4555 - Applied Vibration Measurements, Analysis and Control (3 cr.)
- MENG 476/4756 - Automatic Control Systems (3 cr.)

### Group B:

- MENG 413/4663 - Design of Renewable Energy Systems (3 cr.)
- MENG 427/4227 - Failure of Mechanical Components (3 cr.)
- MENG 477/4757 - Robotics: Design, Analysis and Control (3 cr.)
- MENG 458/4558 - Integrated Design (3 cr.)
- MENG 439/4239 - Advanced Manufacturing Processes (3 cr.)
- MENG 494/4931 - Selected Topics in Design (3 cr.)

## Industrial Concentration:

Students are required to complete the six credits from group A courses of the Industrial concentration and six credits from its group B courses.

### Group A:

- MENG 341/4440 - Engineering Operations Research (3 cr.)
- MENG 445/4445 - Production and Inventory Control (3 cr.)

### Group B:

- MENG 344/4444 - Work Analysis and Design (3 cr.)
- MENG 441/4441 - Decision Support in Engineering Systems (3 cr.)
- MENG 442/4442 - Reliability Engineering and Risk Analysis (3 cr.)
- MENG 443/4443 - Systems Simulation (3 cr.)
- MENG 447/4477 - Manufacturing System Automation (3 cr.)
- MENG 448/4448 - Facilities Planning (3 cr.)
- MENG 449/4449 - Maintenance Management Systems (3 cr.)

## Materials and Manufacturing Concentration:

A minimum of six credits from group A courses of the Material and Manufacturing concentration and six from its group B courses.

### Group A:

- MENG 421/4221 - Ceramics and Composites (3 cr.)
- MENG 425/4225 - Polymers and Composites (3 cr.)
- MENG 426/4226 - Metals, Alloys and Composites (3 cr.)
- MENG 429/4229 - Nanostructured Materials (3 cr.)

### Group B:

- MENG 427/4227 - Failure of Mechanical Components (3 cr.)
- MENG 432/4232 - Materials, Processing, and Design (3 cr.)
- MENG 436/4932 - Selected Topics in Materials and Manufacturing (3 cr.)
- MENG 439/4239 - Advanced Manufacturing Processes (3 cr.)

## Mechatronics Concentration:

Students are required to complete the nine credits from the courses in group A of the Mechatronics concentration and the remaining three credits from courses in group B.

### Group A:

- MENG 476/4756 - Automatic Control Systems (3 cr.)
- MENG 478/4778 - Microcontrollers and Mechatronics systems (3 cr.)
- MENG 479/4779 - Integrated Design of Electromechanical Systems (3 cr.)

### Group B:

- MENG 439/4239 - Advanced Manufacturing Processes (3 cr.)
- MENG 447/4477 - Manufacturing System Automation (3 cr.)
- MENG 477/4757 - Robotics: Design, Analysis and Control (3 cr.)
- MENG 000/4937 - Selected Topics in Mechatronics (3 cr.)

## Power Concentration

Students are required to complete the six credits from the courses in group A of the Power concentration and the remaining six credits from courses in group B.

### Group A:

- MENG 412/4662 - Power Plant Technology (3 cr.)
- MENG 413/4663 - Design of Renewable Energy Systems (3 cr.)

### Group B:

- MENG 411/4661 - Turbo-Machinery (3 cr.)
- MENG 415/4665 - Internal Combustion Engines (3 cr.)

- MENG 416/4666 - Design of Heating, Ventilation, and Air Conditioning Systems (3 cr.)
- MENG 417/4667 - Refrigeration and Air-conditioning (3 cr.)
- MENG 000/4936 - Selected Topics in Power Engineering (3 cr.)

## Notes:

In addition, a minimum of six credits must be taken from another area of concentration.

Pending approval of department and relevance of topic, only one of the concentration electives may be substituted for by a MENG 4930 course.

Students opting for more than one concentration will take a minimum of twenty four credits, such that the minimum requirements of each area of concentration are satisfied. Common courses may be double-counted.

## General Electives (3 credits)

## Petroleum Engineering (B.S.)

Students who have matriculated in Fall 2015 or later are governed by this catalog, and those who have matriculated earlier have the option of being governed by the catalog of their year of matriculation, and should refer to the earlier catalog for program details.

### Bachelor of Science

The petroleum engineer is concerned mainly with the exploration, drilling, reservoir and production operations. Economic and environmentally safe petroleum production and processing require the application of engineering principles in addition to a wide spectrum of knowledge including chemistry, geology, physics, and mathematics.

The petroleum engineering program at AUC graduates a petroleum engineer who, within a few years of graduation, meets societal needs in one or more of the following roles:

1. A professional team member to meet local and global petroleum industry demands.
2. A successful member in an academic or research organization or as an entrepreneur.
3. A distinguished member in the petroleum community through promotion or professional development with awareness of ethics and environmental issues.

To provide more depth above that provided by the fundamental petroleum engineering core courses, students are required to select 9 credit hours from among a list of more specialized elective courses.

Students will be admitted to the program either through the AUC admissions office (gate admissions), after satisfying the general admission requirements and grade requirements in mathematics and sciences as declared by the department, or as undeclared and transfer students based on their performance record after successful completion of the criteria courses. Students are advised to consult with the department to ensure that admission criteria have been successfully met.

A total of 162 credits must be successfully completed to be awarded a Bachelor of Science in Petroleum Engineering.

## Core curriculum requirements (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 crs) and the capstone projects

PENG 4980 and PENG 4981

## Engineering and Science core requirements (52 credits)

- ENGR 101/1001 - Introduction to Engineering (1 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CHEM 105/1005 - General Chemistry I (3 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)
- ENGR 214/2104 - Engineering Mechanics II (Dynamics) (3 cr.)
- ENGR 229/2112 - Strength and Testing of Materials (4 cr.)
- ENGR 261/2122 - Fundamentals of Fluid Mechanics (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- ENGR 313/3202 - Engineering Analysis and Computation I (3 cr.)
- ENGR 318/3212 - General Electrical Engineering (3 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- MACT 317/3224 - Probability and Statistics (3 cr.)

## Petroleum core requirements (65 credits)

- SCI 250/2005 - Introduction to Geology (3 cr.)
- PENG 000/2013 - Petroleum Industry Overview (1 cr.)
- PENG 301/3011 - Petroleum Geology and Exploration (3cr.)
- PENG 302/3021 - Reservoir Rock Properties (3 cr.)
- PENG 303/3022 - Petrophysics and Fluids Lab (1 cr.)
- PENG 311/3111 - Drilling Engineering I (3 cr.)
- PENG 313/3112 - Drilling Engineering I Lab (1 cr.)
- PENG 305/3211 - Reservoir Fluids (3 cr.)
- PENG 331/3215 - Reservoir Engineering Fundamentals (3 cr.)
- PENG 333/4224 - Well Testing (2+1 cr.)
- PENG 351/3225 - Natural Gas Engineering (3 cr.)
- PENG 320/3227 - Formation Evaluation (3cr. + 1cr.)
- PENG 321/3310 - Well Completion and Workover (3 cr.)
- PENG 322/3311 - Production Engineering Fundamentals (2 + 1 Lab)
- PENG 323/3321 - Surface Facilities (3 cr.)
- PENG 361/3411 - Thermodynamics (3cr.)
- PENG 411/4121 - Drilling Engineering II (3 cr.)

- PENG 471/4223 - Reservoir Simulation and Modeling (2 cr. + 1 cr.)
- PENG 412/4225 - Secondary and Tertiary Recovery (3 cr.)
- PENG 461/4226 - Petroleum Economics (3 cr.)
- PENG 000/4227 - Reservoir Description and Characterization (3 cr.)
- PENG 000/4320 - Artificial Lift Methods (3 cr.)
- PENG 497/4950 - Industrial Training (1cr.)
- PENG 490/4980 - Senior Project I (1cr.)
- PENG 491/4981 - Senior Project II (2cr.)

## Electives (12 credits)

Students must select four courses (12 credits) out of the following electives.

- PENG 000/4015 - Exploration Methods (3 cr.)
- PENG 000/4125 - Advanced Well Construction (3 cr.)
- PENG 000/4229 - Unconventional Reservoirs (3 cr.)
- PENG 451/4313 - Oil and Gas Transmission and Storage (3 cr.)
- PENG 000/4325 - Well Stimulation (3 cr.)
- PENG 494/4930 - Selected Topics in Petroleum and Energy Engineering (3cr.)

## Physics, with a specialization in Solar Energy (B.S.)

### Bachelor of Science

The undergraduate program in Physics is designed to provide students with a thorough and flexible training in the fundamental aspects of classical and modern physics. Lecture material is reinforced and complemented by closely integrated laboratory work, and the varied course offerings provide several options from which students may choose according to their interests and abilities.

Physics students can either obtain a bachelor's degree in Physics or a bachelor's degree in Physics with a specialization in Solar Energy.

The Solar Energy specialization is in alignment with both national and international trends that emphasize the importance of renewable energy in general and solar energy in particular. While retaining the fundamentals of the conventional degree in Physics, this specialization provides students with basic and applied knowledge in the solar energy field.

A student who intends to major in Physics or to change from any other major must successfully complete the following courses with a minimum average GPA of 2.5: PHYS 1011; PHYS 1012; PHYS 1021; PHYS 1022; MACT 1122.

A total of 132 credit hours are required for the bachelor's degree in Physics distributed as follows:

### Core Curriculum (33 credits)

The remaining 7 credit hours required to satisfy the core are fulfilled by the concentration Science/lab (4 cr.) and the capstone projects PHYS 4980 (1 cr.) and PHYS 4981 (2 cr.)

### Concentration Requirements (43 credits)

- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)
- PHYS 204L/2222 - Optics Laboratory (1 cr.)
- PHYS 211/2041 - Foundations of Modern Physics (3 cr.)
- PHYS 000/2042 - Modern Physics Laboratory (1 cr.)
- PHYS 214/2221 - Waves and Optics (3 cr.)
- PHYS 215/2211 - Introduction to Electronics (3 cr.)
- PHYS 221L/2212 - Electronics Laboratory (2 cr.)
- PHYS 279/3241 - Computational Methods in Physics (2 cr. + 1 cr.)
- PHYS 311/3031 - Thermodynamics and Statistical Mechanics (3 cr.)
- PHYS 312/3013 - Theoretical Mechanics (3 cr.)
- PHYS 316/3023 - Electromagnetic Theory (3 cr.)
- PHYS 321L/3052 - Nuclear Physics Lab (1 cr.)
- PHYS 322L/3232 - Solid-State Physics Lab (2 cr.)
- PHYS 325/4231 - Introduction to Solid-State Physics (3 cr.)
- PHYS 421/4042 - Quantum Mechanics I (3 cr.)
- PHYS 404L/4225 - Photonics and Optical Communication Laboratory (1 cr.)

## Collateral Requirements (22 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 231/2123 - Calculus III (3 cr.)
- MACT 232/2124 - Calculus IV (3 cr.)
- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)

## Thesis Requirement (3 credits)

- PHYS 401/4980 - Research Skills (1 cr.)
- PHYS 000/4981 - Senior Thesis (2 cr.)

## General Electives (at most 12 cr.)

## Collateral Electives (at most 6 cr. of SSE courses)

## Concentration Electives (at least 13 cr.)

For the concentration electives of BS in Physics, the student has to complete at least 13 cr. chosen from PHYS 4910 , PHYS 4930 , groups A, B, C

For the concentration electives of BS in Physics with Solar Energy specialization, the student has to complete at least 13 cr. chosen from group B and at least 6 cr. chosen from group C



PHYS 402/4910 - Independent Study (1-3 cr.)

PHYS 415/4930 - Selected Topics in Physics (3 cr.)

## Group A

- PHYS 000/3071 - General Relativity and Cosmology (3 cr.)
- PHYS 000/4043 - Quantum Mechanics II (3 cr.)
- PHYS 413/4051 - Nuclear and Particle Physics (3 cr.)

## Group B

- PHYS 412/4233 - Semiconductor Physics (3 cr.)
- PHYS 000/4241 - Introduction to Solar Energy (3 cr.)
- PHYS 000/4242 - Introduction to Nanophysics (3 cr.)
- PHYS 000/4243 - Physics of Solar Energy Conversion Nanosystems (3 cr.)
- PHYS 000/4244 - Introduction to Nanotechnology (3 cr.)
- PHYS 323L/4234 - Solar Energy Lab (1 cr.)

## Group C

- PHYS 414/4224 - Photonics (3 cr.)
- PHYS 314/3223 - Advanced Optics (3 cr.)
- PHYS 416/4281 - Experimental Methods in Physics (3 cr.)

## Accounting Minor

Students who seek to a minor in accounting must already be declared in another major and completed ACCT 201/2001 - Financial Accounting (3 cr.) with a minimum grade of B and ACCT 202/2002 - Managerial Accounting (3 cr.) with a minimum grade of B. Students who have successfully completed these courses, with the minimum required grades and who meet the minimum minor weighted grade point average as determined by the department, will be accepted in the minor. Accepted students should plan their minor with their academic advisor with the approval of the department.

Calculation of the Minor weighted grade point Average

The minor weighted grade point Average = Overall GPA at time of minor declaration x 60% + (Average GPA in ACCT 2001 and ACCT 2002) x 40%.

Admission to the Accounting minor is competitive. Eligible students will be ranked and selected based on their minor weighted grade point average.

Students who seek the Bachelor of Business Administration degree are not permitted to minor in accounting.

The accounting minor consists of at least five courses (15 credits) two of which are required, and three are electives, as follows:

## Required courses:

- ACCT 201/2001 - Financial Accounting (3 cr.)
- ACCT 202/2002 - Managerial Accounting (3 cr.)

**Additional elective courses (at least THREE) from the following with approval of the advisor:**

- ACCT 301/3001 - Intermediate Accounting I (3 cr.)
- ACCT 302/3002 - Intermediate Accounting II (3 cr.)
- ACCT 303/3003 - Advanced Accounting (3 cr.)
- ACCT 304/3004 - Cost Accounting (3 cr.)
- ACCT 305/3005 - Auditing (3 cr.)
- ACCT 306/3006 - Principles of Taxation (3 cr.)

## **American Studies Minor**

The minor in American Studies at AUC is an interdisciplinary program in which students take a minimum of five courses (15 credits) among specified offerings involving the study of the history or culture of the United States and the Americas. Students are required to take ECLT 2019 /HIST 2019 (Introduction to American Studies), and four other courses as electives from among courses offered on American issues and topics in anthropology, journalism, history, literature, philosophy, sociology, political science, and other disciplines. Courses listed under the heading "Selected Topics" may be included if the content is relevant to the United States and the Americas.

### **Requirements:**

- ECLT 209/2019 - Introduction to American Studies (3 cr.)

**And at least four of the following:**

- AMST 299/2096 - Selected Topics for Core Curriculum (3 cr.)
- AMST 301/3100 - The US and the World Economy (3 cr.)
- AMST 310/3010 - American Literature to 1900 (3 cr.)
- AMST 311/3011 - Modern American Literature (3 cr.)
- AMST 356/3016 - American Philosophy (3 cr.)
- AMST 400/4001 - Selected Topics in American Studies (3 cr.)
- AMST 444/4444 - Media Law and Policy (3 cr.)
- ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)
- ANTH 390/3305 - Selected People and Culture Areas (3 cr.)  
See footnote one.
- ECLT 308/3008 - Modern European and American Literature (3 cr.)
- HIST 201/2501 - History of American Civilization to the Nineteenth Century (3 cr.)
- HIST 202/2502 - History of Modern American Civilization (3 cr.)
- HIST 401/4588 - Selected Topics in the History of the United States (3 cr.)
- POLS 303/3403 - American Government and Politics (3 cr.)
- POLS 415/4615 - U.S. Foreign Policy (3 cr.)
- SOC 303/3303 - Social Movements (3 cr.)
- SOC 307/3304 - Social Class and Inequality (3 cr.)

- See footnote one.
- SOC 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)  
See footnote one.
- SOC 408/4020 - Criminology (3 cr.)  
See footnote one.

## Notes:

Footnote one: when instructor and the Dean of GAPP deem course content appropriate

Footnote two: with permission of the instructor

See departmental announcements or AUC Catalog entries under departmental headings for complete course descriptions.

## Anthropology Minor

The minor in Anthropology provides students with a basic knowledge of anthropological method and theory from a cross-cultural perspective on selected aspects of the world's cultures and societies.

Fifteen credits are required for the minor in Anthropology: ANTH 2101 , ANTH 3105 and three additional anthropology courses of which at least one must be at the 400-level. Please select from the following:

ANTH 199/1099 - Selected Topics for Core Curriculum (3 cr.)  
 ANTH 000/2006 - Youth Cultures (3 cr.)  
 ANTH 000/2007 - Anthropology of the Occupied: Palestine/ Israel (3 cr.)  
 ANTH 299/2099 - Selected Topics for Core Curriculum (3 cr.)  
 ANTH 210/2005 - Arab Society (3 cr.)  
 ANTH 240/2201 - Introduction to Community Development (3 cr.)  
 ANTH 302/3015 - Global Families: Kinship and Relatedness in Late Modernity (3 cr.)  
 ANTH 303/3020 - Social Movements (3 cr.)  
 ANTH 309/3102 - History of Social Theory (3 cr.) cross listed with SOC 3102  
 ANTH 311/3104 - Contemporary Anthropological Theory (3 cr.)  
 ANTH 312/3301 - Anthropologies of Middle East and North Africa (3 cr.)  
 ANTH 320/3040 - States, Capital and Rural Lives (3 cr.)  
 ANTH 321/3045 - The Urban Experience (3 cr.)  
 ANTH 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)  
 ANTH 340/3202 - Participatory Action Research in Community Settings (3 cr.)  
 ANTH 341/3070 - Anthropology and Film (3 cr.)  
 ANTH 352/3075 - Language in Culture (3 cr.)  
 ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)  
 ANTH 370/3085 - Environmental Issues in Egypt (3 cr.)  
 ANTH 372/3090 - Public Anthropology (3 cr.)  
 ANTH 382/3302 - Anthropologies of Africa (3 cr.)  
 ANTH 384/3303 - Anthropologies of Latin America (3 cr.)  
 ANTH 386/3304 - Anthropologies of Asia (3 cr.)  
 ANTH 390/3305 - Selected People and Culture Areas (3 cr.)  
 ANTH 400/4099 - Selected Topics in Anthropology (3 cr.)  
 ANTH 402/4405 - Independent Study (1-3 cr.)  
 ANTH 407/4015 - Psychological Anthropology (3 cr.)  
 ANTH 000/4020 - Anthropology of Violence (3 cr.)  
 ANTH 422/4025 - Religion in a Global World (3cr.)  
 ANTH 425/4030 - Women, Islam and the State (3 cr.)  
 ANTH 440/4203 - Practicum in Community Development (3 cr.)

ANTH 445/4499 - Selected Topics in Coptic Studies (3 cr.)  
 ANTH 450/4050 - Critical Approaches to Development (3 cr.)  
 ANTH 455/4055 - Seminar in African Studies (3 cr.)  
 ANTH 460/4560 - Development Studies Seminar (3 cr.)  
 ANTH 462/4065 - Culture, Economy and the Everyday (3 cr.)  
 ANTH 492/4070 - Political Anthropology (3 cr.)  
 ANTH 000/4075 - Migrants and Transnationals (3 cr.)  
 ANTH 495/4107 - Senior Seminar (3 cr.)

## Applied Probability and Statistics Minor

Applied Probability and Statistics are essential tools for analyzing data in various fields. A minor in Applied Probability and Statistics will prepare students and enhance their abilities to understand and solve problems in their own major fields. The minor in Applied Probability and Statistics is also designed to meet a demand by industry and governmental agencies for personnel who are able to utilize appropriate statistical and other quantitative methods to solve problems as diverse as quality control and population dynamics and to facilitate wise decision making in the face of uncertainty.

### Requirements (15 credits):

- MACT 112/1221 - Statistical Reasoning (3 cr.)  
Or MACT 210/2222 - Statistics for Business (3 cr.)
- MACT 427/4231 - Applied Regression Methods (3 cr.)

and either

- MACT 306/3211 - Applied Probability (3 cr.)  
and
- MACT 307/3223 - Statistical Inference (3 cr.)

or

- MACT 317/3224 - Probability and Statistics (3 cr.)

In addition to 3-6 credits from:

- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 429/4233 - Applied Multivariate Analysis (3 cr.)

## Arab and Islamic Civilizations Minor

### Requirements (15 credits):

Any five courses offered by the department (ARIC).

## Arabic Literature Minor

## Program Requirements (15 credits):

Students should take two (2) introductory courses in sequence either:

- ARIC 201/2101 - Introduction to Classical Arabic Literature (3 cr.)
- ARIC 202/2102 - Introduction to Modern Arabic Literature (3 cr.)

Or

- ARIC 203/2103 - Classical Arabic Literature in Translation (3 cr.)
- ARIC 204/2104 - Modern Arabic Literature in Translation (3 cr.)

Students will also take three (3) courses from the following, depending on the student's area of interest:

- ARIC 305/3104 - Arabic Literature and Gender (3 cr.)
- ARIC 306/3106 - Arabic Literature and Film (3 cr.)
- ARIC 307/3107 - The Writer and the State (3 cr.)
- ARIC 308/3108 - Colloquial and Folk Literature (3 cr.)
- ARIC 309/3097 - Selected Themes and Topics in Arabic Literature (3 cr.)
- ARIC 310/3197 - Selected Themes and Topics in Arabic Literature in Translation (3 cr.)
- ARIC 314/3114 - The Arabic Novel (3 cr.)
- ARIC 315/3115 - Arabic Drama (3 cr.)
- ARIC 316/3116 - The Arabic Short Story (3 cr.)
- ARIC 401/5110 - Senior Seminar in Arabic Texts (3 cr.)
- ARIC 402/5111 - Senior Seminar in Arabic Literature in Translation (3 cr.)
- ARIC 403/5112 - Arabic Literary Criticism (3 cr.)

## Arabic Writing and Reporting Minor

The Arabic Writing and Reporting Minor develops essential Arabic language skills appropriate to a variety of professional and community contexts, including journalism and mass media, the private sector, governmental and non-governmental organizations, universities and institutes of higher education, creative writing and indeed all other public pursuits in Arabic speaking countries and communities.

The minor has two tracks (1) Arabic Reporting Skills and (2) Arabic Writing Skills

### Track 1. Arabic Reporting Skills

## Requirements (18 credits):

Prerequisites: students must take ALWT 2271 from Reading to Writing: Intermediate Level (3cr.) and ALWT 3271 from Reading to Writing: High Intermediate Level (3cr.) or be exempted from those classes by performing well on the Arabic placement exam administered every semester by the Department of Arabic Language Instruction.

Students shall take six courses for a total of eighteen (18) credits:

## Core Courses (15 credits):

- ALWT 420/4271 - From Reading to Writing: Advanced Level: 3 credits
- JRMC 200/2200 - Introduction to Mass Communication (3 cr.)
- JRMC 312/3312 - Multimedia Journalism Lab: The Caravan (3 cr.)
- JRMC 412/4412 - Newsroom Editing and Management (3 cr.)
- JRMC 402/4402 - Reporting and Writing in Arabic (3 cr.)

## Elective Courses (one of the following):

- ALWT 421/4272 - Arabic Language Proficiency for Media Writing 3 credits
- ALWT 521/5271 - Professional Arabic TV Script Writing 3 credits

## Track 2. Arabic Writing Skills

## Requirements (18 credits):

Prerequisites: students must take ALWT 2271 from Reading to Writing: Intermediate Level (3cr.) and ALWT 3271 from Reading to Writing: High Intermediate Level (3cr.) or be exempted from those classes by performing well on the Arabic placement exam administered every semester by the Department of Arabic Language Instruction.

Students shall take six courses for a total of eighteen (18) credits:

## Core Course:

ALWT 420/4271 - From Reading to Writing: Advanced Level: 3 credits

## Five (5) elective courses from the following list:

- ARIC 401/5110 - Senior Seminar in Arabic Texts (3 cr.)
- ALWT 462/4201 - Professional Translation in Business: 3 credits
- ALWT 463/4202 - Diplomatic Professional Translation: 3 credits
- ALWT 421/4272 - Arabic Language Proficiency for Media Writing 3 credits
- ALWT 422/4273 - Professional Business Writing: 3 credits
- ALWT 423/4274 - Professional Diplomatic Writing (3 cr)
- ALWT 521/5271 - Professional Arabic TV Script Writing 3 credits
- JRMC 402/4402 - Reporting and Writing in Arabic (3 cr.)
- APLN 516/5102 - The Linguistics of Arabic (3 cr.)
- TVDJ 538/5238 - Arabic TV Script Writing (3 cr.)

\* Students may also be permitted, at their advisor's discretion, to take ALNG 399/3991 - Selected Topics (3 cr. per semester) if the topic is writing related.

## Archaeological Chemistry Minor

This minor in archaeological chemistry provides students with the necessary knowledge for the elucidation of some archaeological problems. The minor is of particular value to Arts or Egyptology students.

### Requirements

Total credits: 17.

*All of the following courses (14 cr.):*

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)
- CHEM 312/3002 - Archaeological Chemistry I (3 cr.)

**And one of the following courses (3 cr.):**

- CHEM 103/1003 - Chemistry and Society (3 cr.)
- SCI 240/2004 - Chemistry, Art and Archaeology (3 cr.)

## Architectural Design Minor

The minor in Architectural Design provides students with an understanding of the underlying principles of architectural design. It serves students in all majors. It is especially useful for students interested in pursuing careers in the development, finance, construction and/or promotion of building related activities. It is also important for other students with social, cultural, and art backgrounds, who are interested in the respective aspects of the built environment. Construction engineering students will also benefit from the minor by becoming better qualified in the challenging activities of the construction industry.

Students from any discipline may apply for the Minor. A limited number will be accepted every semester. Students are accepted based on their GPA and on available quota in the department. The following requirements must be satisfied for joining and continuing in the minor:

- Students with a minimum GPA of 3.0 are accepted based on available quota in the department.
- A minimum grade of "B" in the basic architectural design courses (ENGR 1005, ARCH 1521 and ARCH 2512 ) to continue in the minor.

**The Minor requires completion of 16 credit hours. These are:**

**Basic Architectural Design Requirement (7 cr. hours):**

All of the following courses:

- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ARCH 273/1521 - Digital Representation Tools for Architects (2 cr.)
- ARCH 250/2512 - Foundations of 3-Dimensional Design (3 cr.)

## Background Humanities and Fine Arts Elective Requirement (3 cr. hours):

One of the following courses:

- ARCH 221/1511 - Free-hand Representation for Architects (3 cr.)
- ARCH 314/2211 - History and Philosophy of Modern and Contemporary Architecture (3 cr.)
- ARIC 205/2205 - The World of Islamic Architecture, from the Beginnings to the Present Day (3 cr.)
- EGPT 203/2030 - Introduction to Egyptian Architecture (3 cr.)

## Main Architectural Design Requirement (6 cr. hours)

The following courses:

- ARCH 251/2551 - Introduction to Architectural Design (3 cr.)
- ARCH 420/4541 - Design of Interior Spaces I (3 cr.)

## Notes:

Construction Engineering students may not count the main architectural design courses (ARCH 4541 ) for both the Construction Engineering Major and the Architectural Design Minor.

## Bioinformatics Minor

The program offers a minor in Bioinformatics for students interested in an academic or industrial career in computational biology for analysis of molecular data in health, diseases, environment and/or food research and industry.

### Course Structure

To be awarded a minor in Bioinformatics, a student must successfully complete the following 18 credits depending on the students' major.

### Molecular Biology (3 credits)

- BIOL 221/2150 - Genetics (3 cr. + 1 cr. lab)
- BIOL 211/2230 - Molecular and Cell Biology (3 cr. + 1 cr. lab)
- CHEM 315/3015 - Biochemistry (3 cr.)

### Introductory Computing (3 credits)



- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)

## Bioinformatics Specialization (9 credits)

- BIOL 360/3600 - Introduction to Bioinformatics (3 cr.)
- BIOL 361/3601 - Bioinformatics Tools and Techniques (3 cr.)
- BIOL 460/4690 - Bioinformatics Capstone Seminar I (1 cr.)
- BIOL 461/4691 - Bioinformatics Capstone Seminar II (2 cr.)

## Elective (3 credits)

- BIOL 310/3130 - Molecular Evolution and Population Genetics (3 cr. + 1 cr. lab)
- BIOL 307/3310 - Microbiology (3 cr. + 1 cr. lab)
- BIOL 341/3510 - Ecology (3 cr. + 1 cr lab)
- BIOL 411/4150 - Molecular Biology of the Gene (3 cr. + 1 cr. lab)
- BIOL 408/4930 - Selected Topics in Biology (1-4 cr.)
- CSCE 321/2202 - Analysis and Design of Algorithms (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)
- CSCE 465/3601 - Artificial Intelligence (3 cr.)
- CSCE 427/4602 - Introduction to Artificial Neural Networks (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.) 1

## Notes

<sup>1</sup>Only bioinformatics and computational biology selected topics and guided studies courses will be counted towards the concentration. Requires advisor and chairs approval.

If a course from the list of possible electives for the minor is in the student's major requirement, it does not fulfill the minor elective requirement.

Students are reminded to work out a feasible study plan for the required courses in this minor. In particular, they need to ensure that they have sufficient number of semesters left in the candidature to complete the courses and to note that BIOL 360/3600 and BIOL 361/3601 are only offered once a year.

## Biology Minor

The program also offers a minor in Biology to supplement the education of students in related disciplines including but not limited to biometry, bioinformatics, biochemistry, biophysics, psychology, and anthropology.

Twenty credits are required for a minor in Biology as following:

- Eight credit from two 100 level courses:

BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab) or BIOL 103/1010 - Introduction to Life Sciences (3 cr. + 1 cr. lab) and

BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab)

- Twelve credit from 200, 300, or 400 level BIOL courses.

## Biomedical Sciences Minor

The minor in Biomedical Sciences provides students with a useful complement to majors in sciences, engineering, business and humanities at AUC. The program offers directed study in human and animal systems to broaden the background of students wishing to pursue professional careers in biomedical industry, biotechnology, bioinformatics, medicine, and other related areas.

This program fulfills the sciences requirements for the Medical College Admission Test (MCAT®), and the Dental College Admission test (DAT®). Students who wish to apply for medical, dental or other related biomedical graduate programs must complete all other course requirements for admission, as well as other application requirements and extracurricular activities.

### Program of Study

The program requires completion of a minimum of 15 credits in biomedical sciences courses. Biology majors are not eligible for this minor.

### Admission requirements

- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)
- CHEM 106/1006 - General Chemistry II (3 cr.) + CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.) + PHYS 124L/1022 - General Physics Laboratory II (1 cr.)

### Required courses

- BIOL 211/2230 - Molecular and Cell Biology (3 cr. + 1 cr. lab)
- BIOL 315/3280 - Biochemistry (3 cr.)

### Elective Courses

A minimum of TWO courses from the following:

- BIOL 307/3310 - Microbiology (3 cr. + 1 cr. lab)
- BIOL 312/3326 - Vertebrate Anatomy and Physiology (3 cr. + 1 cr. lab)
- BIOL 301/3360 - Animal Physiology (3 cr. + 1 cr. lab)
- BIOL 303/3370 - Developmental Biology (3 cr. + 1 cr. lab)
- BIOL 411/4150 - Molecular Biology of the Gene (3 cr. + 1 cr. lab)
- BIOL 415/4230 - Immunology (3 cr. + 1 cr. lab)
- BIOL 430/4330 - Tumor Biology (3 cr. + 1 cr. lab)
- BIOL 360/3600 - Introduction to Bioinformatics (3 cr.)
- BIOL 408/4930 - Selected Topics in Biology (1-4 cr.)
- BIOL 410/4910 - Guided Studies in Biology (1-4 cr.)

## Business Administration Minor

The minor in business administration is designed to introduce students to the basic concepts, models and techniques of the discipline. Students seeking to minor in Business Administration have to apply for the minor following the completion of the following three courses:

ACCT 201/2001 - Financial Accounting (3 cr.)

BADM 203/2001 - Introduction to Business (3 cr.)

ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

or

ECON 202/2011 - Introduction to Microeconomics (3 cr.)

or

ENGR 345/3222 - Engineering Economy (3 cr.)

Students seeking to minor in Business Administration have to apply for the minor prior to registering for business minor courses. The selection of students into the minor in Business Administration is competitive and will depend on the calculation of an equal weighted score between:

### I. Overall GPA

The Overall GPA will be calculated using the following criteria:

1. A minimum of 27 credit hours must be completed.
2. All courses a student has completed excluding the course with the worst grade\*.

\*The worst grade is only excluded if the student has taken 30 or more credit hours.

### II. GPA in Minor Requirement courses

The student's GPA in the above three courses required for minor declaration.

Admission to the Business Administration minor is competitive. Eligible students will be ranked and selected based on their weighted grade point average.

## Requirements

The minor requires completion of five courses (15 credit hours) as follows:

1.

- ACCT 201/2001 - Financial Accounting (3 cr.)

2.

- BADM 203/2001 - Introduction to Business (3 cr.)

3.

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)  
or
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)  
or
- ENGR 345/3222 - Engineering Economy (3 cr.)

4.

- MKTG 302/2101 - Principles of Marketing (3 cr.)

5.

- FINC 303/2101 - Business Finance I (3 cr.)

## Chemistry Minor

The minor in chemistry provides students with a workable knowledge of the basic principles of chemistry and some of their applications. Students may choose to concentrate on one of the main areas in Chemistry.

The minor in chemistry is comprised of (16-18 credits).

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)

## Additional Requirements

- 8-10 credits of higher level courses in chemistry to be chosen in consultation with a faculty advisor.

## Classical/Medieval Islamic History Minor

### Requirements (15 credits):

5 courses from the following, depending on the student's area of interest:

- ARIC 320/3020 - Introduction to Sufism (3 cr.)
- ARIC 321/3321 - Zawiya, Harems, Coffee shops, Everyday Life in the Pre-Modern Mideast (3 cr.)
- ARIC 322/3322 - Land, Trade and Power: a History of Economic Relations in the Middle East, 600-1800 A.D. (3 cr.)
- ARIC 323/3323 - Marriage and the Family in the Medieval and Early Modern Middle East (3 cr.)
- ARIC 324/3324 - Non-Muslim Communities in the Muslim World (3 cr.)
- ARIC 336/3336 - Studies in Ibn Khaldun (3 cr.)
- ARIC 343/3343 - Birth of Muslim Community and Rise of the Arab Caliphates (3 cr.)
- ARIC 344/3344 - Caliphs and Sultans in the Age of Crusades and Mongols (3 cr.)

- ARIC 345/3345 - Gunpowder Empires: Ottomans, Safavids and Mughols (3 cr.)
- ARIC 353/3353 - Muslim Political Thought (3 cr.)
- ARIC 440/5131 - Arabic Historical Literature (3 cr.)
- ARIC 451/5133 - Islamic Institutions (3 cr.)
- ARIC 460/5135 - Selected Topics in Middle Eastern History, 600-1800 AD (3 cr.)

## Community Development and Organizing Minor

The minor in Community Development provides students with theoretical and practical knowledge that enhances their understanding and vision of a strong civil society, one that is engaged and participatory. The required curriculum includes hands-on community-based learning experiences to initiate the students' professional development in an applied setting. Students learn about the relevance and role of community and personal empowerment in response to population needs. The practicum model is designed with a broad educative focus meant to provide students not only with skills and techniques, but also opportunities for inquiry, for trying and testing new ideas within collaborative relationships, and for engaging community development in new ways.

Academic Advising will be provided to minors by the Anthropology, Sociology and Psychology faculty. Students need to consult the academic advisor that will be based in either the Department of Sociology, Egyptology, and Anthropology or the Department of Psychology in order to declare Community Development and Organizing as a minor.

Course requirements: 15 credits, including the following:

### Required Courses (9 credits)

- PSYC 240/2201 - Introduction to Community Development (3 cr.)
- PSYC 340/3202 - Participatory Action Research in Community Settings (3 cr.)
- AND
- SOC/ANTH/PSYC 4203 - Practicum in Community Development (3 cr.)

### Electives (6 credits) two of the following:

- ANTH 303/3020 - Social Movements (3 cr.)
- ANTH 370/3085 - Environmental Issues in Egypt (3 cr.)
- ANTH 372/3090 - Public Anthropology (3 cr.)
- ANTH 380/3105 - Fieldwork Methods (3 cr.)
- ANTH 450/4050 - Critical Approaches to Development (3 cr.)
- ANTH 460/4560 - Development Studies Seminar (3 cr.)
- SOC 203/2301 - Social Problems of the Middle East (3 cr.)
- SOC 307/3304 - Social Class and Inequality (3 cr.)
- SOC 435/4040 - Gender and Power in Development (3 cr.)
- SOC 304/3025 - Development Agencies (3 cr.)
- PSYC 330/3003 - Community Psychology (3 cr.)
- PSYC 430/4063 - Advanced Community Psychology (3 cr.)
- RHET 410/4260 - Writing for Project Funding (3 cr.)

## Comparative Religion Minor

The minor in Comparative Religion is designed to allow students with an interest in religious studies to pursue their research by choosing from a selection of courses on various aspects of the subject both past and present.

## Requirements (15 credits):

- CREL 210/2603 - Religions of the World (3 cr.)

## Any two other CREL courses (6 credits)

## Either two further CREL courses or any two of the following courses (6 credits):

- ANTH 422/4025 - Religion in a Global World (3cr.)
- ARIC 320/3020 - Introduction to Sufism (3 cr.)
- ARIC 324/3324 - Non-Muslim Communities in the Muslim World (3 cr.)
- ARIC 335/3435 - Introduction to the Study of Islam (3 cr.)
- EGPT 440/4040 - Ancient Egyptian Religion and Ethics (3 cr.)
- EGPT 445/5160 - Selected Topics in Coptic Studies (3 cr.)
- PHIL 226/2112 - Philosophy of Religion (3 cr.)

## Notes:

With the approval of the CREL advisor, other 300 or 400 level courses on Islam from ARIC, HIST, POLS or PHIL may be substituted for the non-CREL courses listed above.

## Computer Science Minor

A minor in Computer Science provides students from other disciplines with basic knowledge and practice in computing that would enable them to develop simple or advanced applications in their field of study.

A minor in Computer Science is comprised of at least 15 credits. Students must follow the study plan of one of the listed options, according to their majors. Students are required to plan their courses such that not more than six Computer Science credits are taken in one semester.

## Options for Minor

### Theoretical Aspects in Computer Science:

#### Recommended for Math major students:

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)

- CSCE 321/2202 - Analysis and Design of Algorithms (3 cr.)
- CSCE 000/2203 - Analysis and Design of Algorithms Lab (1 cr.)
- CSCE 422/4201 - Theory of Computing (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)

## Data Base Systems:

### Recommended for Business, Economics & Engineering majors students:

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)

## Computer Systems:

### Recommended for Physics, Mechanical & Construction majors students but not permitted for Electronics Engineering major:

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- CSCE 230/2301 - Digital Design I (3 cr.)
- CSCE 231/2303 - Computer Organization and Assembly Language Programming (3 cr.)
- CSCE 239L/2302 - Digital Design I Lab (1 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)

## Embedded Systems:

### Recommended for Electronics Engineering major students only:

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)
- CSCE 110/1101 - Fundamentals of Computing II (3 cr.)
- CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)
- CSCE 345/3401 - Operating Systems (3 cr.)
- CSCE 432/4301 - Embedded Systems (3 cr.)
- CSCE 438L/4302 - Embedded Systems Lab (1 cr.)
- CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)

## Coptic Studies Minor

The minor in Coptic Studies provides students with an introduction to the Coptic period as it follows on from the Pharaonic period and into the Islamic period. This interdisciplinary program, drawing primarily from the Egyptology and Arabic Studies, will cover religion, art, literature, & social and political history from the early days until the present. Influences between different groups, as manifested culturally, will also be studied. Although the main offerings

for this minor are currently based in Egyptology and Arabic Studies, other offerings from Political Science, Religion, Art History, History, etc. can also be included, where appropriate.

The minor is supervised by the head of the Egyptology Unit in the SAPE Department.

## Requirements (15 credits):

- EGPT 400/5150 - Introduction to Coptic (3 cr.)

### Any two of the following:

- EGPT 342/5120 - History of Egypt in the Graeco-Roman Era (3 cr.)
- EGPT 445/5160 - Selected Topics in Coptic Studies (3 cr.)

### Any two of the following:

- ARIC 324/3324 - Non-Muslim Communities in the Muslim World (3 cr.)
- ARIC 344/3344 - Caliphs and Sultans in the Age of Crusades and Mongols (3 cr.)
- ARIC 370/3270 - The Age of Transition: Early Islamic Art and the Pre-Islamic Past (3 cr.)

## Notes:

Appropriate courses from other departments may be substituted.

## Design of Interior Spaces Minor

The Department of Architecture in collaboration with the department of Arts offers a Minor in the Design of Interior Spaces. The Minor builds on two strong and successful programs available at AUC namely the Architectural Engineering and the Graphic Design programs. It serves students in all majors at AUC.

The minor provides students with the essential notions of the design of interior spaces which will enable them to deal with the basic tools for spatial interior design. It is especially useful for students interested in pursuing careers related to the different aspects of interior design and/or to pursue further studies in the area, or to continue graduate studies in the domain of interior design if they wish.

### Admission

Students from any discipline may apply for the Minor. A limited number will be accepted every semester. Students are accepted based on their GPA and on available quota in the department. The following requirements must be satisfied for joining and continuing in the Minor:

- Students with a minimum GPA of 3 are accepted based on available quota in the department.
- A minimum grade of "B" in each of the basic design courses to be able to continue in the minor.
- Architecture and Arts major students can double count only 7 credit hours from the minor towards their respective majors.

The Minor requires completion of 19 credit hours. These are:

## Basic Design Requirements (10 cr. hours)

Students should successfully complete the following courses:



- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- ARCH 273/1521 - Digital Representation Tools for Architects (2 cr.)
- DSGN 200/2200 - Design Foundations (3 cr.)
- DSGN 201/2201 - Design Principles & Practices (3 cr.)

## Main Interior Design Requirements (9 cr. hours)

Students should successfully complete the following courses

- ARCH 420/4541 - Design of Interior Spaces I (3 cr.)
- ARCH 000/4936 - Design of Interior spaces II 3 credits (1 hr lecture and 3 hours studio)
- DSGN 305/3205 - Retail Design (3 cr.)

## Development Studies Minor

The purpose of the development studies minor is to offer students an introduction to the various social, political, economic, and cultural factors related to the process of development. The approach is interdisciplinary and comparative, with primary emphasis upon development-related issues.

Academic advising is provided through the Anthropology and Sociology units of the Department of Sociology, Egyptology, and Anthropology on behalf of an interdisciplinary group of faculty.

## Requirements (15 credits):

From the following lists of approved courses, three "development courses" from at least two disciplines other than the major, one "area studies course" not included in the major, and the Development Studies Seminar to be taken after or concurrent with the completion of other courses in the minor:

## Approved Development Courses:

- ANTH 320/3040 - States, Capital and Rural Lives (3 cr.)
- ANTH 321/3045 - The Urban Experience (3 cr.)
- ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)
- ANTH 372/3090 - Public Anthropology (3 cr.)
- ANTH 450/4050 - Critical Approaches to Development (3 cr.)
- ANTH 462/4065 - Culture, Economy and the Everyday (3 cr.)
- ANTH 492/4070 - Political Anthropology (3 cr.)
- ECON 310/4014 - Public Economics and Policy Analysis (3 cr.)
- ECON 312/3053 - Economic Development (3 cr.)
- POLS 310/3510 - Introduction to Development (3 cr.)
- POLS 323/3423 - Comparative Government and Politics: Developing Systems (3 cr.)
- POLS 460/4560 - Development Studies Seminar (3 cr.)
- SOC 303/3303 - Social Movements (3 cr.)
- SOC 304/3025 - Development Agencies (3 cr.)
- SOC 321/3045 - The Urban Experience (3 cr.)
- SOC 322/3050 - Rural Sociology (3 cr.)
- SOC 323/3055 - Fundamentals of Population Studies (3 cr.)

- SOC 431/4035 - Political Sociology (3 cr.)
- SOC 435/4040 - Gender and Power in Development (3 cr.)
- SOC 450/4106 - Critical Approaches to Development (3 cr.)

## Approved Area-Studies Courses:

- ANTH 312/3301 - Anthropologies of Middle East and North Africa (3 cr.)
- ANTH 382/3302 - Anthropologies of Africa (3 cr.)
- ANTH 384/3303 - Anthropologies of Latin America (3 cr.)
- ANTH 386/3304 - Anthropologies of Asia (3 cr.)
- ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)
- ECON 414/4094 - Economics of Egypt (3 cr.)
- ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.)
- POLS 206/2404 - Europe in International Politics in the Twentieth Century (3 cr.)
- POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)
- POLS 324/3424 - Comparative Government and Politics in Contemporary Eastern Europe and Russia (3 cr.)
- POLS 354/3454 - Political and Social Thought in the Modern Arab World (3 cr.)
- POLS 420/4420 - Issues in Middle East Politics (3 cr.)
- POLS 439/4439 - Government and Politics in the Modern Caucasus and Central Asia (3 cr.)
- SOC 203/2301 - Social Problems of the Middle East (3 cr.)

## Special Topics

Selected special topics courses may be accepted as part of "development courses" or "area-studies courses" by the approval of the Advisor:

- ANTH 400/4099 - Selected Topics in Anthropology (3 cr.)
- SOC 400/4099 - Selected Topics in Sociology (3 cr.)

## Economics Minor

Students who seek a minor in economics must complete:

- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- ECON 202/2011 - Introduction to Microeconomics (3 cr.)

With an average grade of B prior to applying for declaration.

After minor declaration, students must complete three other economics courses, 300-level or above.

Economics courses that cannot be included in the minor are:

- ECON 316/3061 - Mathematics for Economists II (3 cr.)
- ECON 318/3081 - Introduction to Econometrics (3 cr.)

Accepted students should plan their minor with their academic advisor with the approval of the department

The minor in field of study provides students with an introduction to the fundamental historical, descriptive, and theoretical concepts of the field.

## Educational Studies Minor

The minor in educational studies is administered by the Department of International and Comparative Education in the Graduate School of Education. This minor offers undergraduate students at AUC an opportunity to study educational issues related to educational reform, as well as theories and practices of teaching and learning. It is an initial base from which they may pursue postgraduate interests in education, and it provides humanities, social sciences or natural sciences majors with an introduction to the professional opportunities available in education.

This minor requires 15 credit hours.

### **ELECTIVES**

- EDUC 000/2011 - Education and Society (3 cr.)
- EDUC 000/2021 - Fundamentals of Teaching and Learning (3 cr.)
- EDUC 000/3011 - Educating Children and Youth for a Sustainable Future (3 cr.)
- EDUC 000/3021 - Educational Assessment and Instructional Design (3 cr.)
- EDUC 000/3031 - Education, Civil Society and International Development (3 cr.)
- EDUC 000/4031 - Gender and Education (3 cr.)
- EDUC 000/1099 - Selected Topics for the Core Curriculum (3 cr.)
- EDUC 000/2099 - Selected Topics in Core Curriculum (3 cr.)
- EDUC 000/4098 - Selected Topics for Core Curriculum (3 cr.)

## **Egyptology Minor**

Egyptology is the science and study of Ancient Egypt, including the different aspects of its material and nonmaterial culture. The minor in Egyptology is designed to provide students with a substantive introduction to Ancient Egyptian civilization through the study of its history, art and architecture, religion and literature.

### **Requirements (15 credits):**

Any three of the following (However a sequence from the Predynastic through the Ptolemaic period must be covered by taking the history or/and art sequences) :

.

- EGPT 343/3211 - History of Ancient Egypt I: Pre-Dynastic Through Middle Kingdom Egypt (3 cr.)
- EGPT 344/3212 - History of Ancient Egypt II: Middle Kingdom through Ptolemaic Egypt (3 cr.)
- EGPT 304/5100 - Culture and Society of Ancient Egypt (3 cr.)
- EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
- EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)

### **Two from among the following**

- EGPT 250/2250 - Ancient Egyptian Literature in Translation (3 cr.)
- EGPT 253/2251 - Hieroglyphics I (3 cr.)
- EGPT 254/2252 - Hieroglyphics II (3 cr.)
- EGPT 440/4040 - Ancient Egyptian Religion and Ethics (3 cr.)

Or any other course in the EGPT 5100 series

AND, if not taken for the requirement, any of the history or art sequences:

EGPT 3211 , EGPT 3212

EGPT 3201 , EGPT 3202

## Electronics Minor

*The Electronics Minor is coordinated by the Electronics and Communications Engineering department (ECNG).*

The aim of the minor in electronics is to provide students typically majoring in physics, chemistry, computer science, mathematics, and engineering with a working knowledge of electronics. The hands-on laboratory instruction emphasized in the minor enables scientists and engineers to optimize their use of electronic equipment. The Electronics Minor cannot be taken by students majoring in ECNG.

**Requirements** 17 credit hours of electronics minor should cover:

- PHYS 215/2211 - Introduction to Electronics (3 cr.)
- PHYS 221L/2212 - Electronics Laboratory (2 cr.)
- ECNG 218L/2108L - Digital Logic Design Lab (1 cr.)
- ECNG 210/2101 - Digital Logic Design (3 cr.)

**A minimum of 8 credits selected from the following:**

- CSCE 330/3301 - Computer Architecture (3 cr.)
- CSCE 339L/3302 - Computer Architecture Lab (1 cr.)
- ECNG 413/4103 - Testing of Digital Circuits (3 cr.)
- PHYS 323L/4234 - Solar Energy Lab (1 cr.)
- PHYS 404L/4225 - Photonics and Optical Communication Laboratory (1 cr.)
- PHYS 414/4224 - Photonics (3 cr.)

## English and Comparative Literature Minor

The minor in English and Comparative Literature introduces students to the analysis of the various literary genres and seeks to foster a critical appreciation and love of literature as well as an understanding of its role in society and culture.

**Requirements (15 credits):**

Any five literature courses offered by the department, exclusive of 100-level courses.

## Entrepreneurship Minor

The Minor in business entrepreneurship is designed to introduce students to the idea of entrepreneurship, the traits and behaviors of an entrepreneur. They will learn how to identify market opportunities and how to conduct simple feasible studies for their business ideas. Students can also expect to learn the basic legal aspects of establishing a company in Egypt, and the basic marketing and financial knowledge and skills they need to manage their new company. This knowledge is finally integrated when students engage in multidisciplinary teams in the challenging yet exciting task of

creating a new venture and preparing a full business plan. Further exposure to real life will be attained through an internship that each student will have to attend.

Students seeking to minor in Entrepreneurship have to apply for the minor prior to registering for the minor courses. The selection of students into the minor in Entrepreneurship is competitive and depends on the student's overall GPA. Students who minor in entrepreneurship are not permitted to have a minor in business administration or accounting.

## Requirements

The Entrepreneurship minor requires completion of five courses (15 credit hours) as follows:

Students must take the following four courses:

- BADM 203/2001 - Introduction to Business (3 cr.)
- ENTR 303/3201 - Principles of Entrepreneurial Finance (3 cr.)
- ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)
- MKTG 302/2101 - Principles of Marketing (3 cr.)

In addition, students choose one of the following elective courses:

ENTR 417/4301 - Entrepreneurship Lab: Developing and Launching a New Venture (3 cr.)

ENTR 419/4303 - Social Entrepreneurship (3 cr.)

ENTR 000/4503 - Digital Strategy (3 cr.)

ENTR 418/4302 - Corporate Entrepreneurship (3 cr.)

ENTR 420/4501 - Family Business (3 cr.)

ENTR 421/4502 - Innovation and Technology (3 cr.)

## Environmental Science Minor

Coordinated by: A. Bos (Biology), A. Ramadan (Chemistry)

The minor in Environmental Science is an interdisciplinary program coordinated by the departments of Biology and Chemistry. The curriculum is flexible to allow students of all majors to enroll in the minor. The elective courses are designed to satisfy an individual's field of interest. In the course of their studies, students will be subjected to significant environmental issues and challenges at the national, regional and international levels. The minor will enhance the students' career marketability. Students are required to choose an advisor for their minor from either the Department of Biology or the Department of Chemistry.

**Requirements (21-23 credits):**

**Concentration Requirements (9-10 credits)**

- BIOL 399/3910 - Guided Studies in Environmental Sciences (3 cr.)

One of the following Biology courses:

- BIOL 102/1040 - Essentials of Environmental Biology (3 cr.)
- BIOL 302/3040 - Environmental Biology for Engineers (2 cr. + 1 cr. lab)
- BIOL 305/3540 - Environmental Biology (3 cr. + 1 cr. lab)

One of the following Chemistry courses:

- CHEM 104/1004 - Man and the Environment (3 cr.)
- CHEM 205/2005 - Environmental Analytical Chemistry (3 cr.)
- CHEM 311/3011 - Analytical Chemistry II (3 cr.)

Electives (9-10 credits)

- ANTH 370/3085 - Environmental Issues in Egypt (3 cr.)
- BIOL 306/3541 - Environmental Biology of the Red Sea (3 cr. + 1 cr. lab)
- CENG 471/4551 - Environmental and Sanitary Engineering (3 cr.)
- POLS 442/4542 - Environmental Politics (3 cr.)
- SCI 260/2006 - Environmental Geology (3 cr.)
- SCI 302/3002 - Science, Technology and the Environment (3 cr.)
- HIST 430/4107 - The Environment in World History (3 cr.)

Additional Requirements (3 credits)

Choose one of the following:

- MACT 112/1221 - Statistical Reasoning (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)
- MACT 317/3224 - Probability and Statistics (3 cr.)

Notes:

Students must finish their concentration requirements in biology and chemistry before taking BIOL 3910 /CHEM 3910.

## Film Minor

### Minor Requirements:

All Film minor students must complete 18 credit hours of course work as follows:

Complete TWO Foundational Courses (6 credits)

- FILM 220/2120 - Introduction to Film Art (3 cr.)
- FILM 000/2121 - Introduction to Film Production (3 cr.)

Complete THREE Intermediate Courses (9 credits)

- FILM 000/2122 - Introduction to Film Criticism (3 cr.)
- FILM 000/2123 - Introduction to Film Production II (3 cr.)
- FILM 310/3110 - World Cinema (3 cr.)
- FILM 000/3115 - American Cinema 1895-1945 (3 cr.)
- FILM 000/3117 - American Cinema 1945-present (3 cr.)
- FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)
- FILM 340/3140 - Documentary Film (3 cr.)
- FILM 000/3150 - Women and Film (3 cr.)
- FILM 360/3160 - The Filmmaker (3 cr.)
- FILM 390/3190 - Film Genres (3 cr.)
- FILM 352/3252 - Screenwriting (3 cr.)
- FILM 353/3253 - Digital Cinematography (3 cr.)

## Complete ONE Advanced Course (3 credits)

- FILM 330/3130 - Film Theory (3 cr.)
- FILM 344/3254 - Digital Editing (3 cr.)

## Financial Mathematics Minor

This interdisciplinary Minor in Financial Mathematics program allows non-mathematics majors to obtain a basic understanding of how modern mathematics is being applied across a wide spectrum of the financial service industry - investment banks, hedge funds, consulting firms, investment firms, insurance companies, commercial banks, brokerage houses and other corporations.

### Course Structure

To be awarded a minor in Financial Mathematics, a student must successfully complete the following 15 credits:

1. MACT 132/1122 - Calculus II (3 cr.) (*Students may be exempted from the MACT 131 requirement based on high school certificate and score in mathematics or by passing a placement examination.*)
2. MACT 231/2123 - Calculus III (3 cr.)
3. MACT 321/3311 - Introduction to Financial Mathematics (3 cr.)
4. MACT 421/4312 - Mathematics of Derivatives Pricing I (3 cr.)
5. MACT 422/4313 - Mathematics of Derivatives Pricing II (3 cr.)

Students are reminded to work out a feasible study plan for the 5 courses in this minor requirement. In particular, they need to ensure that they have sufficient number of semesters left in the candidature to complete the courses and to note that MACT3311, MACT4312 and MACT4313 are only offered once a year.

**This minor is not awarded with the majors in Mathematics or Actuarial Science.**

## Gender Studies Minor

The minor in gender studies provides students with basic knowledge of gender concepts and theory from a cross-cultural perspective.

Fifteen credits are required for a minor in Gender and Women's Studies.

### **Required**

ANTH 380/3105 - Fieldwork Methods (3 cr.)

GWST 000/4000 Contemporary Debates in Gender and Women's Studies (3 cr.)

### **Select two 300 level courses**

ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)

ANTH 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)/ SOC 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)

ARIC 305/3104 - Arabic Literature and Gender (3 cr.)

ECLT 345/3045 - Literature and Gender (3 cr.)

FILM 000/3150 - Women and Film (3 cr.)

### **Select one 400 level course**

SOC 435/4040 - Gender and Power in Development (3 cr.)

ANTH 425/4030 - Women, Islam and the State (3 cr.)

Additionally: There are numerous 300 and especially 400 level special topics gender courses offered in the departments on a yearly basis. The IGWS Advisory Committee will assemble and approve these on a semester by semester basis and make these additional elective options available on a Gender and Women's Studies Minor website.

## **Global and Public Affairs Minor**

Offered by the Public Policy and Administration Department, the minor in Global and Public Affairs is designed to give undergraduate students a deeper appreciation of the challenges in organizing the state and public management in a global context. The minor introduces students to the conduct of government and diplomacy, learning about policy and how it is made, implemented, and evaluated, including role of different institutions and actors in shaping policy outcomes. Students are introduced to public management issues in nonprofit and government agencies, including setting strategies, developing operational plans, and managing human and financial resources to achieve desired outcome. The program is designed to prepare students for a broad range of careers that are focused on the resolution of public issues in government, the non-profit sector and global intergovernmental organizations.

The Minor is open to all undergraduate students from different majors with no minimum grades or certain GPA. Students who wish to pursue the GPA minor can declare it at any point of their undergraduate studies. Advising for the minor is provided by the undergraduate advisors in Public Policy and Administration Department.

### **Required Courses (9 credits)**

PPAD 308/3198 - Management in Government (3 cr.)

PPAD 000/4111 - Introduction of Public Policy and Administration (3 cr.)

PPAD 000/4113 - Selected Topics in Global and Public Affairs (3 cr.)

### **Elective Courses (6 credits)**



PPAD 299/2099 - Selected Topics for the Core Curriculum (3 cr.)

PPAD 540/5161 - Diplomacy: Theory and Practice (3 cr.)

PPAD 519/5124 - Leadership and Communication for Public Affairs (3 cr.)

PPAD 000/5174 - Internship in Public and Non-Profit Organizations (3 cr.)

The above mentioned PPAD graduate courses cannot be double counted for students pursuing a PPAD graduate degree.

## History Minor

The minor in History is designed to provide students with a substantial introduction to the craft of history while allowing them to choose their own areas of interest.

### Requirements (15 credits):

Any five history courses offered by the department, exclusive of 100-level courses.

## Information Systems Minor

The study of information systems focuses on the need to improve systems for the benefit of individuals, organizations and society at large. An information system is concerned not only with the technical development of systems applications but also with the interface with people and the support of different business and decision processes. The information systems minor aims to provide a supplementary course of study for students who are taking a major in disciplines outside the departments of Management and Computer Science.

Students who select a minor in information systems (IS) understand the fundamental concepts of information processing and the relationship between the underlying technology and end-user applications that are continuously changing and affecting different elements related to business and organizational development and growth... Equipped with this knowledge, the students enrolled in the minor will be able to solve different computer and information systems related problems, as well as exploring the latest in information and communication technology.

Students who minor in information systems are not permitted to have a minor in business administration or accounting.

### Course Requirements

Students who minor in information systems are required to complete the following courses:

1.

- CSCE 106/1001 - Fundamentals of Computing I (3 cr.)

2.

- CSCE 201/2502 - Information Technology (3 cr.)  
or
- MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)

3.

- MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)  
or
- MOIS 430/4202 - Business Information Systems Analysis and Development (3 cr.)

4.

- MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)

5.

- CSCE 456/4502 - Design of Web-based Systems (3 cr.)  
or
- MOIS 435/3301 - Entrepreneurial IT and Electronic Business (3 cr.)

## Interactive Media Design Minor

A minor in Interactive media design will enable students to understand the creative practice in the digital sphere. From interactive design to animation to different technical skills, students will be exposed to thinking and working in the media design world.

Based on the availability of space, a limited number of students will be accepted into the minor. Faculty recommendations are based on the student's performance in the required two courses for the minor declaration, DSGN 2113 and DSGN 2200

### Minor Requirements (15 credits):

Students required to complete the FOUR following courses:

- DSGN 213/2113 - Introduction to Visual Cultures (3 cr.)
- DSGN 200/2200 - Design Foundations (3 cr.)
- DSGN 250/2250 - Digital Practice I (3 cr.)
- DSGN 350/3250 - Digital Practices II (3 cr.)  
and choose ONE additional course from following:
- DSGN 313/3213 - Interactive Design (3 cr.)
- DSGN 335/3235 - Animation (3 cr.)

## International Relations Minor

### Requirements:

- POLS 203/2003 - Introduction to Political Science II (3 cr.)  
This course must be taken if, and only if, POLS 1001 was not taken during the Freshman year.
- POLS 205/2403 - Europe in the Age of Revolution and Reform (1789-1914) (3 cr.)  
Or

- POLS 206/2404 - Europe in International Politics in the Twentieth Century (3 cr.)  
Students minoring in International Relations are strongly encouraged to take POLS 2404.
- POLS 320/3620 - Introduction to International Relations Theories (3 cr.)

## Additional Requirements

**Three** courses (**two** courses, if POLS 2003 had to be taken) chosen from:

- POLS 405/4605 - International Politics of the Middle East (3 cr.)
- POLS 409/4609 - International Organizations (3 cr.)
- POLS 410/4610 - Global Security (3 cr.)
- POLS 411/4611 - Comparative Foreign Policy Analysis (3 cr.)
- POLS 414/4614 - Egyptian Foreign Policy (3 cr.)
- POLS 415/4615 - U.S. Foreign Policy (3 cr.)
- POLS 413/4513 - International Financial Institutions (3 cr.)
- POLS 430/4030 - Seminar: Special Topics in Political Science for Undergraduates (3 cr.)
- POLS 440/4640 - Seminar: Special Topics in International Relations for Undergraduates (3 cr.)
- POLS 471/4371 - Introduction to Public International Law (3 cr.)
- POLS 440/5140 - Seminar: Special Topics in International Relations for both Undergraduates and Graduates (3 cr.) when approved by the department

## Islamic Art and Architecture Minor

This minor gives a greater appreciation of the cultural heritage of the Arab-Islamic world to interested students.

### Requirements (15 credits):

- ARIC 206/2206 - The City of Cairo (3 cr.)
- ARIC 270-271/2270-2271 - From Andalusia to Indonesia: Introduction to Islamic Art and Architecture (3 cr. per semester)

### Two of the following:

- ARIC 370/3270 - The Age of Transition: Early Islamic Art and the Pre-Islamic Past (3 cr.)
- ARIC 371-372/3271-3272 - Islamic Architecture in Egypt and Syria (3 cr. per semester)
- ARIC 368/3268 - The Art of the Book in the Islamic World (3 cr.)
- ARIC 369/3269 - The Arts of Fire: Ceramics and Glass of the Islamic World (3 cr.)
- ARIC 465-466/5122-5123 - Islamic Architecture in Turkey, Persia and Central Asia (3 cr.)

## Islamic Studies Minor

The minor is designed for students, particularly those coming from abroad, who wish to gain a deeper knowledge and appreciation of Islam as a culture.

### Requirements (15 credits):

- ARIC 404/5113 - Sira and Hadith (3 cr.)
- ARIC 435/5141 - Studies in the Qur'an (3 cr.)
- ARIC 451/5133 - Islamic Institutions (3 cr.)

And two of the following:

- ARIC 336/3336 - Studies in Ibn Khaldun (3 cr.)
- ARIC 353/3353 - Muslim Political Thought (3 cr.)
- ARIC 354/3405 - Islamic Philosophy (3cr.)
- ARIC 454/5134 - Modern Movements in Islam (3 cr.)
- ARIC 463/5101 - Selected Topics in the History of Islamic Thought and Institutions (3cr.)

## Journalism and Mass Communication Minor

The study of journalism and mass communication provides the student with a basic exposure to news gathering and reporting skills, multi-media writing skills and other mass media cultures. Students who have completed JRM C 2200 and RHET 1100 and who meet the GPA requirement of 3.4 are encouraged to apply for the minor before their junior year.

### Requirements (18 credits):

- JRM C 200/2200 - Introduction to Mass Communication (3 cr.)
- JRM C 201/2201 - Media Writing (3 cr.)

And one of the following:

- JRM C 202/2202 - Multimedia Writing and Production (3 cr.)
- JRM C 203/2203 - Mass Media Ethics and Responsibility (3 cr.)
- JRM C 250/2250 - Global Media Systems (3 cr.)

### Additional Requirements:

Three additional courses at the 300 level or above (provided that prerequisites are completed). Courses not included are JRM C 406/4406 - Internship (3 cr.) and JRM C 499/4499 - Directed Individual Study in Mass Communication (1-3 cr.) and Capstone Courses JRM C 4480 , JRM C 4482 and JRM C 4425 and MTKG courses.

## Linguistics Minor

The linguistics minor is administered by the Department of Applied Linguistics. The minor offers courses that help students understand how language is used for effective communication in different fields such as politics, the media, and business. It also aims to help students understand how language relates to community and identity. In addition, the minor aims to equip students with research skills and the tools to collect and analyze data. Furthermore, the minor offers courses in language teaching and using computers for linguistic analysis.

### Requirements (9 credits):

- LING 252/2200 - Introduction to Linguistics (3 cr.)
- LING 000/2220 - Language and Society (3 cr.)
- LING 000/3310 - Linguistic Fieldwork (3 cr.)

### And two of the following elective courses (6 credits)

LING 200/2201 - Languages of the World (3 cr.)

LING 268/2210 - Principles and Practice of Teaching English (3 cr.)

LING 000/2230 - Language and Communication (3 cr.)

LING 3075 / ANTH 352/3075 - Language in Culture (3 cr.)

LING 000/3320 - Language and Politics (3 cr.)

LING 000/3330 - Introduction to Corpus Linguistics (3 cr.)

LING 000/3340 - Language Assessment (3 cr.)

LING 000/4410 - Introduction to Computational Linguistics (3 cr.)

## Mathematics Minor

The minor in Mathematics will acquaint non-mathematics majors with the diversity of the field and enhance the student's ability to formulate and solve problems in other disciplines.

### Requirements (15 credits):

#### For students majoring in the Science & Engineering School:

- MACT 233/2141 - Differential Equations (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- and 3 courses among:
- MACT 232/2124 - Calculus IV (3 cr.)
- and the 300-level and 400-level MACT courses

#### For students majoring in Economics:

- MACT 112/1221 - Statistical Reasoning (3 cr.)
- MACT 240/2132 - Linear Algebra (3 cr.)
- ECON 316/3061 - Mathematics for Economists II (3 cr.)
- Two courses from: 300-400 level MACT courses and ECON 416/4061 - Mathematical Economics (3 cr.)

#### For all the other students:

- MACT 112/1221 - Statistical Reasoning (3 cr.)  
Or MACT 210/2222 - Statistics for Business (3 cr.)
- MACT 131/1121 - Calculus I (3cr.)  
and any 3 MACT courses (excluding MACT 1111 , MACT 1112 and MACT 1930 )

## Mechatronics

*Coordinator and Minor Advisor:* M. Habib

The minor in Mechatronics provides students with broad understanding of the latest developments of synergized interdisciplinary knowledge, design principles, technologies, and practical skills within the growing field of Mechatronics. It serves students in all majors. The Minor in Mechatronics as a unifying interdisciplinary field enables students with such knowledge and practical experience to develop new and innovative solutions across disciplines for highly emerging technical challenges. It is envisaged that the Minor would attract students to be part of the new era of industrialization, widen their views and understanding, develop creative thinking, and to enable students to look forward to a high quality job satisfaction with enhanced career prospects.

The minor in Mechatronics requires to complete (15) credit-hour courses. Students can select their (15) credit-hour from two pools of courses as follow:

### I. The first pool of courses is under MENG courses.

It is required to select a minimum of (9) credit-hour from the following list:

**Minor core: students must complete the following two courses**

- MENG 477/4757 - Robotics: Design, Analysis and Control (3 cr.)
- MENG 479/4779 - Integrated Design of Electromechanical Systems (3 cr.)

**Minor electives: a minimum of 3 credit-hour must be selected from the minor electives**

- MENG 375/3705 - System Dynamics (3 cr.)
- MENG 476/4756 - Automatic Control Systems (3 cr.)
- MENG 478/4778 - Microcontrollers and Mechatronics systems (3 cr.)
- MENG 000/4937 - Selected Topics in Mechatronics (3 cr.)

### II. The second pool of courses is under other SSE departments.

A maximum of (6) credit-hour to be selected from the following list:

**For students from ECNG**

- ECNG 321/3202 - Automatic Control Systems (3 cr.)
- ECNG 453/4503 - Microcontroller system design (3 cr.)

## For Students from CSCE

- CSCE 427/4602 - Introduction to Artificial Neural Networks (3 cr.)

## For students from PHYS

- PHYS 421/4042 - Quantum Mechanics I (3 cr.)

## For students from PENG

- PENG 471/4223 - Reservoir Simulation and Modeling (2 cr. + 1 cr.)

## Middle East Politics Minor

The minor in Middle East politics is open to students majoring in disciplines other than political science. It requires successful completion of five courses selected from the following, which may be taken with the consent of the instructor:

### Requirements:

- POLS 203/2003 - Introduction to Political Science II (3 cr.)  
This course must be taken if, and only if, POLS 101 was not taken during the Freshman year.
- POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)

### Additional Requirements

**Four** courses (**three** courses if POLS 2003 had to be taken) selected from the following:

- POLS 325/3425 - Government and Politics of Egypt (3 cr.)
- POLS 354/3454 - Political and Social Thought in the Modern Arab World (3 cr.)
- POLS 405/4605 - International Politics of the Middle East (3 cr.)  
The requirement that POLS 3620 be taken as a prerequisite for POLS 4605 may be waived for minors with the consent of the instructor
- POLS 420/4420 - Issues in Middle East Politics (3 cr.)
- POLS 422/4422 - Contemporary Egypt (3 cr.)
- POLS 430/4030 - Seminar: Special Topics in Political Science for Undergraduates (3 cr.)  
Whenever content is relevant and subject to department approval. May be taken more than once for credit if content changes
- POLS 432/4432 - Seminar: Comparative Politics and/or Policies (3 cr.)  
Whenever content is relevant and subject to department approval.
- POLS 440/5140 - Seminar: Special Topics in International Relations for both Undergraduates and Graduates (3 cr.)  
when approved by the department

## Music Minor

In order to complete the minor in music, a student will:

- Learn to read music, and acquire fundamental listening and sight-reading skills.
- Learn the basic principles of music theory, either Western or Arab.
- Study representative great works of music literature and composers who produced them, either Western or Arab.
- Make substantial progress in learning to sing or play an instrument; more advanced students may also present part of a solo recital, with the permission of their teacher.
- Sing in a choir, and/ or play in an instrumental ensemble.

This will require that the student complete 17 credit hours of instruction, normally including the following:

## Theory and literature (10 cr.)

- MUSC 220/2200 - Introduction to Music (3 cr.)

### EITHER

- MUSC 240/2400 - Western Music Theory I (3 cr.)  
AND
- MUSC 241/2401 - Sight-Singing and Aural Skills I (1 cr.)  
AND
- MUSC 360/3200 - Music in the Western Tradition (3 cr.)

### OR

- MUSC 245/2450 - Arab Music Theory I (3 cr.)  
AND
- MUSC 246/2451 - Maqam I (Arab Music Sight-Singing and Aural Skills) (1 cr.)  
AND
- MUSC 342/3250 - Music in the Arab Tradition (3 cr.)

## Performance (4 cr.)

MUSC 1800 Applied Private Instruction (1 cr. each = 2 cr.)

Two semesters of ensemble, chosen from among the following:

- MUSC 262/2620 - Arab Music Ensemble (1 cr.)
- MUSC 263/2630 - Guitar Ensemble (1 cr.)
- MUSC 264/2640 - Chamber Music Ensembles (1 cr.)
- MUSC 265/2650 - Rehearsal/Performance Practicum (1 cr.)
- MUSC 266/2660 - Chamber Singers (1 cr.)
- MUSC 267/2670 - Cairo Choral Society (1 cr.)

## Music Technology (3 cr.)



EITHER

- MUSC 330/2300 - Introduction to Music Technology (3 cr.)
- OR
- MUSC 331/2301 - Music Production Using Protocols I (3 cr.)

## Music Technology Minor

In order to complete a minor in music technology, a student will:

- Learn to read music, and acquire fundamental listening and sight-reading skills.
- Learn the basic principles of music theory (either Western or Arab).
- Acquire some fluency at playing piano, and at using the keyboard as a tool for music data entry; more advanced students may present a part of a solo recital, in piano or another instrument, with permission of their teacher.
- Learn the fundamental techniques of recording, editing, mixing, and mastering.
- Acquire an intermediate knowledge of Protocols and editing software.
- Acquire an intermediate understanding of MIDI.

This will require the student to complete 18 credit hours of instruction, normally including the following:

### Theory and literature (7 cr.)

- MUSC 220/2200 - Introduction to Music (3 cr.)

EITHER

- MUSC 240/2400 - Western Music Theory I (3 cr.)
- AND
- MUSC 241/2401 - Sight-Singing and Aural Skills I (1 cr.)

OR

- MUSC 245/2450 - Arab Music Theory I (3 cr.)
- AND
- MUSC 246/2451 - Maqam I (Arab Music Sight-Singing and Aural Skills) (1 cr.)

### Performance (2 cr.)

- MUSC 284/2850 - Private Instruction for Piano Proficiency (1 cr.) (Twice, each 1 cr. = 2 cr.)

### Music Technology (9 cr.)

- MUSC 232-332-432/2302-3302-4302 - Digital Audio / MIDI Lab (1 cr. each)
- MUSC 330/2300 - Introduction to Music Technology (3 cr.)
- MUSC 331/2301 - Music Production Using Protocols I (3 cr.)

## Petroleum Engineering Minor

Fifteen to Sixteen credit hours are required to earn the minor. Students must take all of the seven credit hours of group A courses, in addition to eight to nine credit hours from group B courses. Students should seek guidance from the Minor Advisor before selecting electives from group B. The advisor is named by the Department of Petroleum and Energy Engineering (PENG).

### Group A: The following courses are required for the Petroleum Engineering minor (7 credits):

- SCI 250/2005 - Introduction to Geology (3 cr.)
- PENG 000/2013 - Petroleum Industry Overview (1 cr.)
- PENG 305/3211 - Reservoir Fluids (3 cr.)

### Group B: 8-9 credits selected from the following:

#### 1- Drilling Engineering Focus (8 credits)

- PENG 302/3021 - Reservoir Rock Properties (3 cr.)
- PENG 303/3022 - Petrophysics and Fluids Lab (1 cr.)
- PENG 311/3111 - Drilling Engineering I (3 cr.)
- PENG 313/3112 - Drilling Engineering I Lab (1 cr.)

#### 2- Production Engineering Focus (9 credits)

- PENG 322/3311 - Production Engineering Fundamentals (2 + 1 Lab)
- PENG 323/3321 - Surface Facilities (3 cr.)
- PENG 461/4226 - Petroleum Economics (3 cr.)

## Philosophy Minor

The minor in philosophy introduces the student to the specific forms of philosophic questioning and to philosophic methods and modes of thought. It offers an opportunity for students to learn about the unique contribution philosophical traditions have made to civilization; moreover the minor shows students the close relationship philosophy has with the social sciences, the arts, and the natural sciences.

### Requirements (15 credits):

Any five philosophy courses, exclusive of 1000-level courses and PHIL 2100, selected in consultation with a member of the philosophy faculty.

## Physics Minor

The minor in physics is designed to provide students majoring in science, computer science or engineering with the opportunity of complementing their major disciplines with a series of courses designed to provide in-depth appreciation of physics.

## Requirements (17 credits)

Students have to complete the following courses (8cr.)

- PHYS 204L/2222 - Optics Laboratory (1 cr.)
- PHYS 211/2041 - Foundations of Modern Physics (3 cr.)
- PHYS 214/2221 - Waves and Optics (3 cr.)
- PHYS 000/2042 - Modern Physics Laboratory (1 cr.)

And a minimum of 9 credits from the following:

- PHYS 311/3031 - Thermodynamics and Statistical Mechanics (3 cr.)
- PHYS 312/3013 - Theoretical Mechanics (3 cr.)
- PHYS 316/3023 - Electromagnetic Theory (3 cr.)
- PHYS 321L/3052 - Nuclear Physics Lab (1 cr.)
- PHYS 322L/3232 - Solid-State Physics Lab (2 cr.)
- PHYS 325/4231 - Introduction to Solid-State Physics (3 cr.)
- PHYS 413/4051 - Nuclear and Particle Physics (3 cr.)
- PHYS 421/4042 - Quantum Mechanics I (3 cr.)

## Political Economy Minor

The minor in Political Economy is open to students majoring in disciplines other than Political Science.

### Requirements:

The Minor requires successful completion of :

- POLS 203/2003 - Introduction to Political Science II (3 cr.)  
(This course must be taken if, and only if, POLS 1001 was not taken during the Freshman year)
- POLS 350/3550 - Introduction to Political Economy (3 cr.)
- POLS 425/4525 - Global Political Economy (3 cr.)

### Additional Requirements

Plus **two** courses (**one** course if POLS 2003 had to be taken) from the following:

- POLS 413/4513 - International Financial Institutions (3 cr.)
- POLS 423/4523 - The Political Economy of Poverty and Inequality (3 cr.)
- POLS 424/4524 - Political Economy of the Middle East and North Africa (3 cr.)
- POLS 442/4542 - Environmental Politics (3 cr.)
- POLS 430/4030 - Seminar: Special Topics in Political Science for Undergraduates (3 cr.) (when approved by POLS Department)
- POLS 430/5130 - Seminar: Special Topics in Political Science for both Undergraduates and Graduates (3 cr.) when approved by POLS Department
- POLS 440/4640 - Seminar: Special Topics in International Relations for Undergraduates (3 cr.) when approved by POLS Department

- POLS 440/5140 - Seminar: Special Topics in International Relations for both Undergraduates and Graduates (3 cr.) when approved by POLS Department

## Political Science Minor

### Requirements (15 credits) to be taken as follows:

1. if POLS 1001 has already been taken in the Freshman Year:  
five Political Science courses at 300 or 400 level.
2. if POLS 1001 has not been taken in the Freshman Year:  
POLS 2003 plus four Political Science courses at 300 or 400 level.

## Psychology Minor

The minor in psychology provides a general introduction to the field without the depth of methodological training required of majors. The minor exposes students to individual and contextual perspectives in psychology.

Students who intend to seek a minor in Psychology must have taken PSYC 1000 and have obtained a grade of "B" or higher. Admission is competitive. A combination of discipline-relevant factors, including performance in PSYC 1000 and GPA will be used to determine eligibility. Students should declare the minor after completing PSYC 1000 to be eligible to register for subsequent courses for the minor.

### Core requirements (3 credits)

- PSYC 201/1000 - Introduction to Psychology (3 cr.)

### General Requirements (6 Credits)

Students must select at least one course from each of the groups listed below

#### Individual Context (3 credits)

- PSYC 327/3270 - Theories of Personality (3 cr.)  
or
- PSYC 342/3420 - Abnormal Psychology (3 cr.)

#### Social Context (3 credits)

- PSYC 301/3010 - Social Psychology (3 cr.)  
or
- PSYC 330/3003 - Community Psychology (3 cr.)

### Additional Requirements (6 credits)

Two additional psychology courses (not including PSYC 2099). Selection of courses for the Minor should be approved in consultation with the designated Psychology faculty and may complement the student's major. Completion of courses that emphasize interdisciplinary content, community engagement, and experiential learning is encouraged.

## Sociology Minor

The minor in sociology introduces students to the central concepts and methods of the field. Emphasis is on the theoretical perspectives of sociology in the study of society, culture, and the individual.

## Requirements (15 credits)

Prerequisites for these courses must be completed in order to minor in sociology.

- SOC 201/2101 - Introduction to Sociology (3 cr.)
  - SOC 309/3102 - History of Social Theory (3 cr.)  
See footnote one
  - SOC 381/3105 - Doing Survey Research in the Social Sciences (3 cr.)  
One 3000-level sociology course from among the following:
  - SOC 000/3305 - Selected Topics in Sociology (3 cr.)
  - SOC 204/3103 - Social Statistics (3 cr.)
  - SOC 301/3010 - Social Psychology (3 cr.)
  - SOC 303/3303 - Social Movements (3 cr.)
  - SOC 304/3025 - Development Agencies (3 cr.)
  - SOC 306/3030 - Sociology of Literature (3 cr.)
  - SOC 307/3304 - Social Class and Inequality (3 cr.)
  - SOC 310/3104 - Contemporary Sociological Theory (3 cr.)
  - SOC 322/3050 - Rural Sociology (3 cr.)
  - SOC 323/3055 - Fundamentals of Population Studies (3 cr.)
  - SOC 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)
  - SOC 340/3202 - Participatory Action Research in Community Settings (3 cr.)
  - SOC 370/3085 - Environmental Issues in Egypt (3 cr.)  
One 4000-level sociology course from among the following:
  - SOC 400/4099 - Selected Topics in Sociology (3 cr.)
  - SOC 402/4405 - Independent Study (3 cr.)
  - SOC 405/4005 - Sociology of Work (3 cr.)
  - SOC 406/4010 - Educational Sociology (3 cr.)
  - SOC 408/4020 - Criminology (3 cr.)
  - SOC 422/4025 - Religion in a Global World (3 cr.)
  - SOC 431/4035 - Political Sociology (3 cr.)
  - SOC 435/4040 - Gender and Power in Development (3 cr.)
  - SOC 440/4203 - Practicum in Community Development (3 cr.)
  - SOC 445/4499 - Selected Topics in Coptic Studies (3 cr.)
  - SOC 450/4106 - Critical Approaches to Development (3 cr.)
  - SOC 455/4055 - Seminar in African Studies (3 cr.)
  - SOC 460/4560 - Development Studies Seminar (3 cr.)
  - SOC 495/4107 - Senior Seminar (3 cr.)
- Certain courses listed with other disciplines can be substituted with the approval of the adviser and unit head to our 3000 level and 4000 level requirement.

### Notes

Footnote 1: Cross listed with Anthropology

## Theatre Minor

The minor in theatre provides a general introduction to the art and craft of theatre through the study of dramatic literature and the exploration of performance processes through practical application.

Students are encouraged to declare the minor early in their academic career to accommodate necessary prerequisites and give the student the benefit of practical experience. After declaring, all students must have an advising session with the Director of Theatre to define the selected course of study.

## Requirements:

A minimum of 18 credits in Theatre:

- THTR 203/1201 - Theatre in the Making (3 cr.)
  - THTR 230/2301 - Play Analysis (3 cr.)
  - Three credits total from the following:
    - THTR 204/2401 - Introduction to Technical Theatre (3 cr.)
    - THTR 240/2601 - Production Practicum (1 cr. per production)
    - THTR 242/2603 - Rehearsal and Performance Practicum (1 cr.)
  - One from the following:
    - THTR 225/2201 - Acting I (3 cr.)
    - THTR 226/2211 - Acting in Arabic I (3 cr.)
  - One from the following:
    - THTR 000/3103 - Drama in Context I: Greeks to English Renaissance (3 cr.)
    - THTR 000/3104 - Drama in Context II: Italian Renaissance to Modern (3 cr.)
    - THTR 000/3105 - Drama in Context III: Modern and Contemporary (3 cr.)
    - THTR 461/4103 - Dramatic Theory and Criticism (3 cr.)
- one additional Theater course, must be a 300 level course or higher.

## Type Design Minor

Students will learn about the intricacies of Type in the Type Design Minor. The skill for using and manipulating both Latin and Arabic typography is the highlight of this minor. Special focus is paid to the history and practice of Arabic script and type.

Based on the availability of space, a limited number of students will be accepted into the minor. Faculty recommendations are based on the student's performance in the required courses for the minor declaration, DSGN 2113 and DSGN 2200

## Minor Requirements (15 credits):

Students required to complete the THREE following courses:

- DSGN 213/2113 - Introduction to Visual Cultures (3 cr.)
  - DSGN 200/2200 - Design Foundations (3 cr.)
  - DSGN 210/2210 - Typography I (3 cr.)
- and choose TWO additional courses from the following:
- DSGN 318/3118 - History of Arabic Calligraphy (3 cr.)
  - DSGN 320/3220 - Typography II (3 cr.)
  - DSGN 330/3230 - Type Design (3 cr.)

## Writing Minor

The Writing Minor advances the knowledge, competencies and values of rhetoric and writing disciplines. It provides an opportunity for concentrated study and practice of writing for different purposes and in different contexts. The Writing Minor complements all majors.

### Requirements (15 credits):

Students who opt to minor in Writing must have completed RHET 1020 with a minimum grade of B-.

**To fulfill the 15 credit hours for the Writing Minor, students take the following:**

**Foundation course for each emphasis area:**

- Writing in the Creative Genres: ECLT 370/3070 - Creative Writing (3 cr.) Required
- Writing in the Academic/Professional Genres: RHET 320/3210 - Business Communication (3 cr.) Suggested

**Additional Requirements (12 credits total):**

- 6-9 credits in one emphasis area
- 3 credits in the other emphasis area, and
- 0-3 credits in either emphasis area of their choice.

Writing Minor courses may be double-counted for Core Curriculum credit at the secondary and capstone levels, consistent with the rules and policies of the Core Curriculum.

Students who have already taken any of the writing courses below as electives or Core courses (as described above) may count credits retroactively.

Course List by Emphasis Area:

### A. Writing in the Creative Genres

Courses in this area cultivate creative thought and facility in expression, using language in an imaginative way. Students who select this area of emphasis will study, practice and work toward mastery in several creative genres of writing, including the following: narrative nonfiction, autobiography, travel writing, fiction, poetry, and children's literature. They will read theory, and practice the conventions of these genres, consider ethical concerns raised in the genres, develop critical mastery of the creative genres, and produce a substantial capstone project demonstrating significant growth in writing in a chosen creative genre.

- ECLT 370/3070 - Creative Writing (3 cr.)
- RHET 340/3120 - Life Narratives (3 cr.)
- RHET 341/3130 - Travel Writing (3 cr.)
- RHET 342/3140 - Writing Children's Literature (3 cr.)
- RHET 345/3110 - The Writer's Workshop (3 cr.)
- RHET 380/3150 - Poetry Writing (3 cr.)
- RHET 390/3160 - Fiction writing (3 cr.)
- RHET 450/4160 - Imagining the Book (3 cr.)

## B. Writing in the Academic/Professional Genres

Courses in this area strengthen writing and communication skills in preparation for a variety of careers. Students who select this area of emphasis will focus on the social power of writing, and will work toward professional competency in the fields of business, science, civil and academic communications. They will read within and practice the conventions of these fields of communication, and will reflect upon ethical and critical standards enforced or called into question by these practices.

- RHET 320/3210 - Business Communication (3 cr.)
- RHET 225/3220 - Public Speaking (3 cr.)
- RHET 321/3230 - Technical Communication (3 cr.)
- RHET 332/3240 - Principles of Mediation and Negotiation (3 cr.)
- RHET 334/3250 - Digital Rhetoric (3 cr.)
- RHET 310/3310 - Discourse and Power (3 cr.)
- RHET 322/3320 - Writing in the Social Sciences (3 cr.)
- RHET 323/3330 - Words that Change the World (3 cr.)
- RHET 325/3340 - Making Your Case: The Art of Persuasion (3 cr.)
- RHET 330/3350 - Writing and Cognition: The Mind and the Machine (3 cr.)
- RHET 410/4260 - Writing for Project Funding (3 cr.)
- RHET 480/4270 - Research and Writing Internship (3 cr.)
- RHET 490/4280 - Advanced Scientific and Technical Writing (3 cr.)
- RHET 400/4360 - Writing for Publication (3 cr.)

## Selected Topics and Independent Study

(Depending on 'topic,' these courses may fit in either 'emphasis' area. Each course may be repeated for credit as long as the content differs each time it is taken.)

- RHET 399/3099 - Selected Topics (3 cr.) - Also fits the Core Secondary: Humanities and Social Sciences category
- RHET 460/4060 - Independent Study (1-3 cr.)

## Development Practice (MDP) option BSc/CENG-MPA

### Dual Degree Option BSc/CENG-MPA

Students enrolled in the School of Science and Engineering may apply to complete the MPA on an accelerated basis in conjunction with completion of the BSc. in Construction Engineering. At present, this option is open only to students completing the BSc. in Construction Engineering. Students interested in this option should consult with their advisors during the Fall of their fourth year for potential admission to the program in their fifth year. The program is jointly administered by the Department of Public Policy and Administration in the School of Public Affairs and the School of Sciences and Engineering. Admission is based on the recommendation of the student's SSE advisor and review by the PPAD department. Students who wish to be admitted to this dual degree should have a minimum GPA of 3.2. The program prepares students for careers in public service with the highest ethical standards, strong competencies in environmental analysis and management as well as public governance, excellent leadership and communication skills, a sound understanding of the use of evidence and analysis in public service settings, and a commitment to building a



better future for the people of Egypt and the region. Students pursue careers in government, nonprofit organizations, international development agencies, academia, and the private sector.

Students electing the dual degree option begin taking graduate courses in their ninth semester and receive both the BSc. and the MPA upon the completion of their coursework and master's thesis, normally at the end of their 6th year. The following course sequence has been developed for this option, but students should consult their advisor in CENG to ensure that all SSE requirements are met:

Students who seek to register in this dual degree should complete four 400-level courses that are related to business or public administration, public policy, economics, political science or global affairs. Courses will need to be approved by the department prior to registration

Additionally, students must take the seven PPAD graduate courses listed below and two thesis registration.

### **SEMESTER X**

PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)

PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)

PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.)

### **SEMESTER XI**

PPAD 501/5221 - Strategic Management for Government and Nonprofit Organizations (3 cr.)

PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)

PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)

PPAD 000/5174 - Internship in Public and Non-Profit Organizations (3 cr.)

### **SEMESTER XII**

- PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.) (MPA Credit)
- PPAD 516/5132 - Social and Environmental Policy (3 cr.) (MPA Credit)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.) (MPA Credit)
- PPAD 599/5299 - Research Guidance (0 cr.) (MPA Credit)

## **Thesis**

Students are required to write a thesis on some aspect of public administration relevant to their area of study. The preparation of the thesis and the thesis itself must comply with Departmental and AUC guidelines with regard to content, format, dates, and the review and supervision process. Students are responsible for familiarizing themselves with these guidelines and meeting formal deadlines. Students preparing the thesis normally develop a preliminary thesis proposal during PPAD 5201, a required core course, but may prepare an alternative thesis proposal if desired. Once the proposal is approved, students should enroll in PPAD 5298, the thesis research seminar, in the first semester in which they are working on the research component and write-up of their thesis. Thereafter, if additional work is required to complete the thesis, students can enroll each semester in PPAD 5299. Students must pay 3 credits of tuition for the first enrollment in PPAD 5298 and PPAD 5299 and thereafter pay 1 credit of tuition each semester, until the thesis is successfully defended and approved by the Dean.

## **Political Science (B.A.) and International Human Rights Law (M.A.)**

### **Dual Degree Option in Political Science (B.A.) and International Human Rights Law (M.A.)**

The Dual Degree option combines a BA in Political Science and an MA in International Human Rights Law. It is a dual degree, creating a synergy between the existing BA in Political Science and the existing MA in International Human Rights Law.

The dual degree option enables good students to prepare for a postgraduate degree while completing the requirements for the BA in Political Science. Non-law students who achieve a MA Degree under the auspices of the Law Department at AUC qualify for better jobs in Egypt or abroad, or pursue a legal education at prestigious law schools in the United States and elsewhere. The MA degree also provides students with the necessary expertise in international human rights law and with the intellectual, analytical and communication tools needed to intervene critically and effectively in the global policy debates confronting their societies as policy makers, academics, activists and international civil servants.

By the end of the sixth semester of the political science BA at AUC, and after successfully completing POLS 4371, the student has to declare her/his intention to pursue the Dual Degree by submitting a graduate admission application. The student should follow the application procedures for graduate studies. Admission decisions will be made by the Law Department's Admission Committee. Successful applicants will be admitted pending the fulfillment of two conditions: i) finishing the requirements of their undergraduate degrees with at least B (GPA 3); and ii) obtaining an average of at least a B+ (GPA of at least 3.3) across the three cross-listed 'Dual Degree' Law courses. Places are limited.

Students enrolled in the dual degree will receive a political science BA degree certificate upon the completion of their undergraduate course requirements. Many students feel the need to work in parallel to the pursuit of an MA degree. We believe that students who fulfill the pols BA requirement should not be denied the opportunity to do so.

Under this structure, dual-degree students will be required to take three 400-level courses that are cross-listed under LAW and POLS. These three "Dual Degree" cross-listed courses (see below) will count for credit towards both the BA in Political Science and under the MA in International Human Rights Law.

The three 'Dual Degree' Law courses to be offered to undergraduates in the Political Science Department are the following: (a) POLS 471/4371 - Introduction to Public International Law (3 cr.) (b) POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) and (c) POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) The curriculum for the MA IHRL requires the completion of nine courses and a thesis, as indicated in the tentative plan below: 3 POLS/LAW undergraduate courses, 2 graduate regional human rights courses, 3 graduate elective courses, LAW 5227, and the thesis.

#### **Tentative Plan for Full-time Students**

##### **SEMESTER VI (POLS undergraduate program)**

LAW/POLS 471/4371 - Introduction to Public International Law (3 cr.) (counts towards both concentrations in POLS for all students) (and MA IHRL credits)  
[4 POLS courses or other courses as required to complete POLS BA degree]

##### **SEMESTER VII (POLS undergraduate program)**

LAW/POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) (counts towards both BA POLS and

MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

#### **SEMESTER VIII (POLS undergraduate program)**

LAW/POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) (counts towards both BA POLS and MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

#### **SEMESTER IX (MA IHRL program)**

LAW 511/5211 - International Humanitarian Law (3 cr.) \* (1 out of 3 starred courses required)

LAW 514/5214 - Human Rights in the Middle East (3 cr.) \* (1 out of 3 starred courses required)

LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.) \* (1 out of 3 starred courses required)

LAW Electives\*\*

#### **SEMESTER X (MA IHRL program)**

LAW 000/5221 - Law and Patriarchy (3 cr.)

LAW Electives\*\*

LAW 527/5227 - Graduate Law Seminar (3 cr.)

#### **SEMESTER XI (MA IHRL program)**

LAW 599/5299 - Research Guidance/Thesis (no cr., pass/fail)

*\*\* Lists of LAW elective courses will be provided to students in the program prior to registration for each semester.*

## **Sustainable Development M.Sc. (Dual Degree)**

The M.Sc. Sustainable Development program at AUC and the various English language delivered LaureaMagistrale in Ingegneria, Architecture or Design at the Politecnico di Milano offer a dual degree program. This cooperation between the American University in Cairo and the Politecnico di Milano provides students interested in both universities the opportunity to have two masters but not obligatory. Students interested only to study at the AUC still can apply only for the AUC Masters in Sustainable Development, so they do not have to apply for a second degree from Italy and the same for the students interested only in Politecnico di Milano.

Students from Politecnico di Milano, after completing their first year of LaureaMagistrale and achieving a minimum of 60 ECTS (18 Credit Hours), join the M.Sc. program in Sustainable Development offered by AUC. Such students will complete 18 Credit Hours (60 ECTS), divided into 9 Credit Hours of Core Module courses (GREN 5201 is mandatory, plus selected ones from among GREN 5202, GREN 5203, GREN 5204, and GREN 5205) and 9 Credit Hours from the modules: Green Technologies Module (GREN 5211, GREN 5213, GREN 5214, GREN 5215), the Entrepreneurship Module (GREN 5221, GREN 5222, GREN 5223, GREN 5224), the Sustainable Cities Module (GREN 5231, GREN 5232, GREN 5233, GREN 5235), or the Sustainable Communities Module (GREN 5244, GREN 5245, GREN 5246, GREN 5247, GREN 5248). An additional 9 Credit Hours (30 ECTS) are required as Sustainable Development Project, to be carried out either as a project work/internships at the Politecnico di Milano or at AUC in the form of three courses (GREN 5281, GREN 5282, GREN 5283). Finally, such students will produce a final thesis in English through 30 ECTS (9 Credit Hours) defended to faculty at both institutions. After completing 180 ECTS (60 ECTS at POLIMI, 18 Credit Hours at AUC, 9 credit hours/30 ECTS of project and 30 ECTS thesis), students shall be awarded two MSc degrees: the "LaureaMagistrale" in Ingegneria, Architettura or Design, according to the specific course of studies at the POLIMI and the Master of Science in Sustainable Development.

Students from the American University in Cairo, after completing 18 Credit Hours (60 ECTS) in the M.Sc. Sustainable Development program, join one of the English-language delivered LaureaMagistrale programs at the Politecnico di Milano to take 60 ECTS (18 Credit Hours). At AUC, the initial 18 Credit Hours is divided into 9 Credit Hours of Core

Module courses (GREN 5201 is mandatory, plus selected ones from among GREN 5202, GREN 5203, GREN 5204, and GREN 5205) and 9 Credit Hours from the modules: Green Technologies Module (GREN 5211, GREN 5213, GREN 5214, GREN 5215), the Entrepreneurship Module (GREN 5221, GREN 5222, GREN 5223, GREN 5224), the Sustainable Cities Module (GREN 5231, GREN 5232, GREN 5233, GREN 5235), or the Sustainable Communities Module (GREN 5244, GREN 5245, GREN 5246, GREN 5247, GREN 5248). Upon completion of those 18 Credit Hours, students who began at AUC study for one year at Politecnico di Milano for 60 ECTS (18 Credit Hours) in one of the approved programs; approved courses are those that meet the qualifications for the selected degree program (list of available programs and admission rules can be found under: <http://www.polinternational.polimi.it/educational-offer/laurea-magistrale-equivalent-to-master-of-science-programmes/>)

Students will have also to complete an additional 9 Credit Hours (30 ECTS) of Sustainable Development Project at AUC in the form of three courses (GREN 5281, GREN 5282 and GREN 5283) or as a project work/internships at the Politecnico di Milano. Finally, such students will produce a final thesis in English through 9 Credit Hours (GREN 5251, GREN 5252, GREN 5253) defended to faculty at both institutions. After completing total 54 Credit Hours (180 ECTS), students shall be awarded two MSc degrees: the "LaureaMagistrale in Ingegneria, Architettura or Design, according to the specific course of studies at the POLIMI and the Master of Science in Sustainable Development.

The conversion of credits from Politecnico di Milano to the American University in Cairo is calculated as follows: 1 Credit Hours is equal to 3.33 ECTS.

### **Admissions**

A candidate for the Dual Degree Program, at both AUC and the Politecnico di Milano must meet the requirements for admission to the AUC M.Sc. Sustainable Development program and the selected LaureaMagistrale. AUC students can apply after completing their first semester latest by 30th March of each year. Admission to the Dual Degree Program is based on academic qualifications, experience, and a personal statement of interest.

### **Executive Master of Business Administration (EMBA)**

The EMBA is a professional degree designed for experienced executives with significant work experience (minimum 8 years) who are seeking to push their boundaries and limits with greater strategic vision, skills and leadership development that can immediately be applied to their current positions and have immediate effect on advancing to senior management positions in their organizations. The program focuses on integrating innovation, entrepreneurship and leadership to encourage future executives to think out the box. The curriculum emphasizes managerial and leadership skills, developing creativity and innovation, building on previous experiences, creating a solid networks with classmates, alumni and faculty as well as mastering broad range of functional and managerial knowledge. It enable students to apply immediately newfound skills and ideas in their workplace and engage in real-time global business challenges.

### **Admissions**

All applicants must satisfy the general university requirements for graduate programs and have a bachelor's degree from a regionally accredited college or university in any academic discipline with minimum GPA of 3.0 and minimum 8 years of experience in his field of work. The GMAT is recommended but not required as the case of the MBA. A personal interview is a must to be accepted in the program. In addition, minimum acceptable results for standardized test for English Language proficiency will be required as in line with university policies for admission i.e TOFEL, 2 recommendation letters, written essay, written letter of commitment from the organization, whether sponsoring or not its employees, to allow their employees off the job during the program. To obtain EMBA degree, a total of 48 credit hours are required.

## EMBA Program Structure

The EMBA program is delivered in a highly interactive modular format. It consists of 23 modules for a total of 48 credit hours to satisfy the requirements of the program at AUC.

## Program Details

The 23 modules of the program are divided into five sections:

### Section 1: General Management Perspectives:

Takes Participants from general insights to challenging business practices of today's economy and globalization, thus preparing them for what they will be doing in the coming modules. Participants will learn general insights about business practices, globalization of economy latest theories and best practices of today, importance of using team-work approach which the program focuses on through out the modules either through group assignments, case studies and projects and building basic framework in a qualitative, analytical and problem solving skills. It covers the following modules:

- EMBA 601/5601 - Change Management and Global Transformation (1.75 cr.)
- EMBA 602/5602 - Team-work & Communication (1.75 cr.)
- EMBA 603/5603 - Data Analysis and Analytical Decision Modeling for Optimizing Decisions (2 cr.)

### Section 2: Business Core:

Gaining common business knowledge background with more depth and complexity in order to master the management's fundamentals and disciplines. This section is going to prepare them to master the management fundamentals i.e. accounting, finance, marketing etc., with a much higher level of complexity and expertise. It will expand and strengthens participants' basic knowledge in the fundamental disciplines of business, so they will be able to integrate everything together when making business decisions or developing action plans that provide effective leadership of the organization.

- EMBA 604/5604 - Managerial Economics (1.75 cr.)
- EMBA 605/5605 - Strategic Accounting (1.75 cr.)
- EMBA 606/5606 - Financial Management (2 cr.)
- EMBA 607/5607 - Corporate Financial Management (1.75 cr.)
- EMBA 608/5608 - Talent Management, Coaching & Mentoring (1.75 cr.)
- EMBA 609/5609 - Managerial Decision Making and Operation Management (2 cr.)
- EMBA 610/5610 - Global Marketing Management (International Live-in Module) (2.75 cr.)
- EMBA 611/5611 - Competitive & Corporate Strategy (International Live-in Module) (2.75 cr.)
- EMBA 612/5612 - E- Business & Managers' Toolkit (2 cr.)

### Section 3: Managerial Global Leadership:

The modules combine a solid foundation in critical management practices with essential skills for senior level executives i.e. negotiation. It prepares executives to be effective leaders, confident, innovative, visionary, be able to manage entrepreneurial ventures and for the management greatest challenge of all, constant change. The continuous

shift in the globalized economy and the rapid advances in communication technology forces organizations to constantly reshape their business strategies, structure and role of their business leaders. Executives have to change themselves to be confident, speedy, visionary, innovative, and responsive to this challenging business environment. Being effective leaders, they will help their organizations to survive in this unpredictable global business environment; relating business to legal environment, competition law and corporate governance and how they affect decision-making. This section addresses what executives should know about legal environment, competition law and about how corporate governance affects the way organizations are directed and controlled. It will address some important aspects such as separation of ownership and control, property rights and reconciling conflicts between stakeholders. It examines how the quality of corporate governance system influences prices, shares of the company and cost of raising capital and how it complies with the legal and regulatory requirements. It relates business to its legal environment and provides broad analysis of how laws influence management decisions and strategies. Participants will be familiarized with certain basic legal concepts relating to doing business on the national and international levels. Thus completing the cycle by making executives familiar with how business decisions and transactions should comply with national as well as international laws.

- EMBA 613/5613 - Leadership & Management (1.75 cr.)
- EMBA 614/5614 - Innovation and Creating the Best Practices of Tomorrow (1.75 cr.)
- EMBA 615/5615 - Global Supply Chain Management and Operational Excellence (2 cr.)
- EMBA 616/5616 - Negotiation & Conflict Management (1.75 cr.)
- EMBA 617/5617 - Entrepreneurial Management (1.75 cr.)
- EMBA 618/5618 - Doing Business With The East (International Live-in Module) (2.75 cr.)
- EMBA 619/5619 - Doing Business With The East (International Live-in Module) (2.75 cr.)

## Section 4: Advanced Business Core:

Relating business to legal environment, competition law and corporate governance and how they affect decision-making. This section addresses what executives should know about legal environment, competition law and about how corporate governance affects the way organizations are directed and controlled. It will address some important aspects such as separation of ownership and control, property rights and reconciling conflicts between stakeholders. It examines how the quality of corporate governance system influences prices, shares of the company and cost of raising capital and how it complies with the legal and regulatory requirements. It relates business to its legal environment and provides broad analysis of how laws influence management decisions and strategies. Participants will be familiarized with certain basic legal concepts relating to doing business on the national and international levels. Thus completing the cycle by making executives familiar with how business decisions and transactions should comply with national as well as international laws.

- EMBA 620/5620 - Corporate Governance & Social Responsibility (2 cr.)
- EMBA 621/5621 - Business & Legal Environment (1.75 cr.)
- EMBA 622/5622 - Development & Rationale for Competitive Law (1.75 cr.)

## Section 5: Integrating Project:

This section is the integrating part of the program. Participants undertake a consulting project within their own organization, identify a challenge or an opportunity to seek to address and undertake the appropriate analysis leading to a recommended course of action. They are encouraged to apply and integrate several analytic tools and organizational skills learned in various modules during the program.

- EMBA 623/5623 - Adapting to Global Environment - Integration Consultation Project (4 cr.)

## **Arabic Studies, with specializations in Islamic Art and Architecture, Arabic Language and Literature, Middle Eastern History and Islamic Studies (M.A.)**

The department of Arab and Islamic Civilizations (ARIC) offers Master's degrees in Arabic Studies with emphases in four fields: Islamic Art and Architecture, Middle Eastern History, Islamic Studies, Arabic Language and Literature. The degree program is designed to give students a solid academic background in the ideas and traditions that form the foundation of the important contributions of the Arab and Muslim peoples to human civilization. Course offerings cover the Arab and Islamic world from the seventh century to the modern era. All students must write a master's thesis based on research using original Arabic language sources. There is no comprehensive exam option. The master's degree in Arabic Studies is best-suited for students who hope to pursue a career in academia, but it will also prove invaluable to students who want to go into diplomacy, government service, journalism, and similar fields.

The student may choose one of the following areas of specialization:

1. Arabic Language and Literature
2. Islamic Art and Architecture
3. Middle Eastern History
4. Islamic Studies

### **Courses**

The student must take a minimum of eight courses in his/her area of specialization.

#### **These must include**

##### **For Arabic Language and Literature specialization**

Choose one of the following:

- ARIC 504/5210 - Seminar on a Selected Work or Author in Classical Arabic Literature (3 cr.)
- OR
- ARIC 507/5211 - Seminar on Modern Arabic Literature: Nineteenth Century (3 cr.)
- ARIC 508/5212 - Seminar on Modern Arabic Literature: Twentieth Century (3 cr.)

##### **For Islamic Art and Architecture specialization**

Choose one of the following:

- ARIC 575-576/5222-5223 - Special Studies in Islamic Art and Architecture (3 cr.)

##### **For Islamic Studies Specialization**

Choose one of the following:

- ARIC 435/5141 - Studies in the Qur'an (3 cr.)
- Or
- ARIC 525/5241 - Seminar on Selected Topics in Sira or Hadith (3 cr.)

Students may also choose one of the following:

- ARIC 526/5242 - Seminar on Selected Topics in Islamic Law and Legal Theory (3 cr.)  
Or
- ARIC 527/5243 - Selected Topics in Islamic Theology, Sufism or Philosophy (3 cr.)

## For Middle Eastern History specialization

Choose one of the following:

- ARIC 530/5230 - Seminar on a Selected Topic in Medieval Arab/Islamic History, 600-1800 A.D. (3 cr.)  
OR
- ARIC 542/5231 - Seminar on the Nineteenth-Century Middle East (3 cr.)  
OR
- ARIC 543/5232 - Seminar on the Twentieth-Century Middle East (3 cr.)

## Additional Requirements

5100 level courses may be taken as part of the M.A. program in which case extra readings and research will be required of the graduate students. See below:

- ARIC 510-511/5213-5214 - Special Studies in Classical Arabic Literature (3 cr.)
- ARIC 512-513/5215-5216 - Special Studies in Modern Arabic Literature (3 cr.)
- ARIC 521-522/5202-5203 - Special Studies in Islamic Thought and Institutions (3 cr.)
- ARIC 560 - 561/5233-5234 - Special Studies in Middle Eastern History (3 cr.)
- ARIC 575-576/5222-5223 - Special Studies in Islamic Art and Architecture (3 cr.)

## Notes:

Subject to departmental approval, up to two courses may be taken outside the area of specialization.

Courses on 19th - 20th century Middle Eastern history are taught by the Department of History.

## Admissions

The history unit has a preference for applicants who already have some academic background in Arabic and Islamic studies and who have studied the Arabic language at the university level for at least one year.

## Language

To be eligible for the master of arts degree in Arabic Studies the student must reach an acceptable level of proficiency in advanced literary Arabic as established by examinations. The student whose degree concentration is Arabic language and literature is expected to go beyond this minimum requirement. The student whose degree concentration is Islamic Art & Architecture is expected to attain the equivalence of ALNG 2101-2102-2103 by test. The student whose degree concentration is history must reach the ALNG 3103-3104 level or its equivalent before writing his/her thesis. To be eligible for the degree of master of arts in Arabic studies, the student must also demonstrate through examination a reading knowledge of at least one major language other than English, preferably French or German. If the student's research can be performed successfully without knowledge of a third language, the department may exempt the student from this requirement.



## Thesis

A thesis is required in all three branches of the master of arts in Arabic studies. The thesis must be written in English and submitted in accordance with university regulations.

## Community Psychology (M.A.)

### Master of Arts in Community Psychology

The Community Psychology degree places its graduates at the forefront of advancing global trends towards multicultural and systemic community psychology practice. Courses prepare students to work with communities, schools, governments, international or multilateral organizations and/or nongovernmental organizations to develop, implement, and evaluate psychosocial interventions that promote psychological and physical health and well-being. The program exposes students to methods of community psychology practice that are ethically responsible and culturally appropriate to Egypt and the region. The program emphasizes experiential learning and intensive mentoring.

#### Admission

The applicant should have a minimum of 3.0 GPA in undergraduate studies; if the student has a Masters in a related field already, a 3.0 GPA will also be expected at that level. Applicants should have taken an introduction to psychology course and completed previous coursework in statistics and research methods relevant to the social sciences. It is preferred that applicants have completed an undergraduate major in psychology or a related field, or have relevant work experience. Admission is competitive, and dependent on successful interview.

While applications are accepted and evaluated during both the fall and spring application periods, the program course sequence only starts in the fall semester. Admitted students with course prerequisite requirements and/or English language requirements, must complete these requirements before being allowed to enroll in the program classes. Completion of these prerequisites can take up to a year, so applicants who do not have an undergraduate degree in psychology are encouraged to apply during the fall application period in order to have enough time to meet the prerequisite requirements before the start of the program.

#### Language Requirement

The applicant should demonstrate proficiency in the English language in accordance with AUC standards.

## Courses (36 credit hours)

Course work for the Master of Art requires the completion of 36 credits as follows:

### 1. Core courses

15 credits Required / 5 courses

- PSYC 500/5200 - Fundamentals of Counseling (3 cr.)
- PSYC 502/5210 - Community Psychology and Systems Theory (3 cr.)
- PSYC 505/5230 - Ethics and Professional Issues (3 cr.)
- PSYC 508/5220 - Applied Research Design and Statistical Analysis (3 cr.)
- PSYC 540/5270 - Group Work (3 cr.)

## 2. Specialization courses

9 credits Required / 3 courses

- PSYC 525/5253 - Consultation to Non-Profit Organizations (3 cr.)
- PSYC 530/5233 - Community Assessment and Program Evaluation (3 cr.)
- PSYC 535/5243 - Prevention and Intervention in Communities (3 cr.)

## 3. Elective

3 credits Required / 1 Elective course

## 4. Internship/Final Project

6 credits Required 8 months

- PSYC 596/5283 - Internship in Community Psychology (3 cr.)

In order to ensure that students are ready for community practice, they will be assessed for professional competence by a team of faculty members prior to approval for enrollment in internship. If a student fails to meet the minimum competency standards outlined in the graduate handbook, they will not be allowed to register.

## 5. Thesis

A thesis must be written in English and submitted in accordance with university regulations. Students should familiarize themselves with procedures regarding committee selection, writing of the thesis, presentation to the supervisor and readers, and defense of the thesis. Complying with the procedural requirements within the specified time sequences is the responsibility of the student.

- PSYC 599/5299 - Research Guidance and Thesis (3 cr.)

# Counseling Psychology (M.A.)

## Master of Arts in Counseling Psychology

The Counseling Psychology program will help students develop skills and knowledge that are needed to provide counseling services to individuals, couples, and groups struggling with psychosocial issues and mental illness. The program emphasizes experiential learning and exposes students to methods of psychological practice that are ethically responsible and culturally appropriate to Egypt and the region.

### Admission

The applicant should have a minimum of 3.0 GPA in undergraduate studies; if the student has a Masters in a related field already, a 3.0 GPA will also be expected at that level. The applicant should have also completed an undergraduate major in psychology and/or the completion of a minimum of 12 credits (or equivalent) in psychology or related social/behavioral sciences including: Statistics, Research Design, and Abnormal Psychology. Admission is competitive, and dependent on successful interview.

While applications are accepted and evaluated during both the fall and spring application periods, the program course sequence only starts in the fall semester. Admitted students with course prerequisite requirements and/or English language requirements, must complete these requirements before being allowed to enroll in the program classes.

Completion of these prerequisites can take up to a year, so applicants who do not have an undergraduate degree in psychology are encouraged to apply during the fall application period in order to have enough time to meet the prerequisite requirements before the start of the program.

### **Language Requirement**

The applicant should demonstrate proficiency in the English language in accordance with AUC standards.

## **Courses (48 credit hours)**

Course work for the Master of Art requires the completion of 48 credits as follows:

### **1. Core Courses**

18 credits Required / 6 courses

- PSYC 500/5200 - Fundamentals of Counseling (3 cr.)
- PSYC 502/5210 - Community Psychology and Systems Theory (3 cr.)
- PSYC 504/5202 - Advanced Lifespan Development (3 cr.)
- PSYC 505/5230 - Ethics and Professional Issues (3 cr.)
- PSYC 508/5220 - Applied Research Design and Statistical Analysis (3 cr.)
- PSYC 540/5270 - Group Work (3 cr.)

### **2. Specialization courses**

24 credits/ 8 courses

- PSYC 000/5122 - Physiological Psychology (3 cr.)
- PSYC 510/5241 - Theories of Counseling and Psychotherapy (3 cr.)
- PSYC 515/5251 - Psychological Assessment (3 cr.)
- PSYC 506/5261 - Psychopathology and Resilience across Cultures (3 cr.)
- PSYC 000/5271 - Career Development and Counseling (3 cr.)
- PSYC 550/5281 - Couples Counseling and Human Sexuality (3 cr.)
- PSYC 580/5264 - Practicum I in Counseling Psychology (3 cr.)
- PSYC 581/5274 - Practicum II in Counseling Psychology (3 cr.)

### **3. Internship**

6 credits Required 8 months.

- PSYC 590/5284 - Internship in Counseling Psychology (3 cr. + 3 cr.)

### **4. Optional Thesis**

A thesis is not required for the MA in Counseling Psychology. However, students may wish to complete a thesis if they want to explore a specific research area or if they are planning to enroll in a Ph.D. program. Students who decide to complete a thesis may substitute PSYC 5299, Research Guidance and Thesis for enrollment in PSYC 5281 Couples Counseling and Human Sexuality.

The optional thesis must be written in English and submitted in accordance with university regulations. Students should familiarize themselves with procedures outlined in the graduate handbook regarding committee selection, writing of the thesis, presentation to the supervisor and readers, and defense of the thesis. Complying with the procedural requirements within the specified time sequence is the responsibility of the student.

## 5. Professional Competence Requirements

In order to ensure that students have the maturity and professional skills needed to act as a counselor, they will complete a standardized assessment for professional competence administered by a faculty committee prior to approval for enrollment in Practicum I, Practicum II, and Internship. If a student fails to meet competency standards they will not be allowed to continue in the program.

It is an ethical violation for a student to practice psychological counseling and testing beyond their level of competence. If a student is found to be working or volunteering in a capacity that is beyond their competence, they will be reviewed for dismissal from the program.

## Economics in International Development (M.A.)

This program is specially designed for students who wish to acquire in-depth understanding and knowledge in the field of development. An interdisciplinary approach is adopted as an essential requirement for gaining a broader and more integrated perspective of this dynamic field of study. The program should be of interest to those who plan to seek a position or a career with a wide range of development-related institutions at the macro or micro levels. Examples include; United Nations Agencies, The World Bank, bilateral donor representative offices/projects, NGOs, and development-finance institutions. In addition, the program equips students to assume technical positions in government departments directly concerned with development planning and evaluation.

### Admission

The applicant for admission to this program should have a good knowledge of the concepts and analytical tools of economics. An applicant whose bachelor's degree is in a discipline other than economics may be admitted provisionally, but in such cases the applicant must either display competence in economics by passing required examinations or develop the necessary competence by completing additional undergraduate courses.

The department uses as reference for admission, minimum acceptable scores on the Graduate Record Exam (GRE) of 150 verbal, 150 quantitative, and 3.0 analytical (which is equivalent to 450 verbal, 600 quantitative, and 3.0 analytical for exams taken prior to September 1, 2011). Prior to full admission, students must have reported their GRE examination scores.

## Courses

A minimum of 27 credit hours is required. All students must:

### 1. Take five core courses

- ECON 500/5251 - The Economic Setting for Development (3 cr.)
- ECON 505/5231 - Advanced International Trade (3 cr.)
- ECON 507/5282 - Quantitative Methods (3 cr.)
- ECON 519/5213 - Project Evaluation (3 cr.)
- ECON 590/5259 - Research Practicum (3 cr.)

## 2. Choose four electives

One from each of the following groups of courses as indicated below:

### Group 1

- ECON 508/5271 - Labor Economics (3 cr.)
- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- ECON 512/5254 - Economic Growth & Development (3 cr.)
- ECON 506/5299 - Advanced Topics in Economics (3 cr.)

### Group 2

- POLS 525/5225 - International Political Economy (3 cr.)
- POLS 535/5235 - Middle East Politics (3 cr.)
- POLS 536/5236 - Contemporary Issues in Political Islam (3 cr.)
- POLS 561/5261 - Public Policy and Development (3 cr.)
- POLS 562/5262 - International Development Organizations (3 cr.)

### Group 3

- SOC/ANTH 500/5201 - Classical Social Thought (3 cr.)
- SOC/ANTH 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)
- SOC/ANTH 535/5235 - Maintaining Systems of Global Inequality (3 cr.)
- SOC/ANTH 560/5260 - Population Dynamics (3 cr.)
- PSYC 525/5253 - Consultation to Non-Profit Organizations (3 cr.)

### Group 4

- PPAD 504/5222 - Fundamentals of Financial Planning and Management for Government and Nonprofit Organizations (3 cr.)
- PPAD 512/5114 - Management of Development Programs (3 cr.)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.)
- PPAD 520/5133 - Global Health Issues and Policies (3 cr.)
- PPAD 522/5135 - Promotion of Local Economic Development (3 cr.)
- PPAD 526/5128 - Corporate Social Responsibility and NGO Partnerships (3 cr.)

**Economics with a Thesis Option or with concentrations in Middle East Economic Development, Competitive Strategy and Valuation, International Economics, and Financial Economics for Non-Thesis Track (M.A.)**

Completion of the AUC Graduate Program in Economics opens wide opportunities for prestigious and creative jobs in research centers and departments, both in government and private institutions. AUC graduates of this program have also made valuable additions to several U.N. and international development institutions.

### Admission

The applicant for admission to the master's program in economics should have a considerable background in economic theory. An applicant whose bachelor's degree is in a discipline other than economics may be admitted provisionally, but in such cases the applicant must complete additional undergraduate courses. The prerequisite for full admission to the master's degree in economics is completion of ECON 4061 and ECON 4081 with a grade of B or better; i.e. a student must complete ECON 4061 and ECON 4081 before enrolling in any 500 level course.

The department uses as reference for admission, minimum acceptable scores on the Graduate Record Exam (GRE) of 150 verbal, 150 quantitative, and 3.0 analytical (which is equivalent to 450 verbal, 600 quantitative, and 3.0 analytical for exams taken prior to September 1, 2011). Prior to full admission, students must have reported their GRE examination scores.

Students applying for Master in Economics can choose either Thesis Track or Non-Thesis Track option. Total credit hours for completion of the Master Degree for either track is 27 credit hours.

## Requirements for Thesis Track

### Courses

All students must take the following four courses (12 credit hours)

- ECON 501/5221 - Advanced Macroeconomic Theory (3 cr.)
- ECON 502/5211 - Advanced Microeconomic Theory (3 cr.)
- ECON 518/5281 - Econometrics (3 cr.)
- ECON 525/5201 - Research Workshop (3 cr.)

Three Additional Courses (9 credit hours)

A maximum of three hours of 5000-level courses or 4000 level courses in related fields other than economics may be taken for graduate credit with the approval of the Director of Graduate Studies and the Department Chair.

Thesis (six credit hours)

An M.A. thesis is not allowed to be submitted for examination until the student has made a presentation of a major part of it at the department seminar.

## Requirements for Non-Thesis Track

### Courses

All students must take the following four courses (12 credit hours)

- ECON 501/5221 - Advanced Macroeconomic Theory (3 cr.)

- ECON 502/5211 - Advanced Microeconomic Theory (3 cr.)
- ECON 518/5281 - Econometrics (3 cr.)
- ECON 525/5201 - Research Workshop (3 cr.)

### Three Additional Courses (9 credit hours)

A maximum of three hours of 5000-level courses or 4000 level courses in related fields other than economics may be taken for graduate credit with the approval of the Director of Graduate Studies and the Department Chair.

## Concentration Fields

Within the Non-Thesis track student must complete at least one Concentration Field (6 credit hours).

*The MA in Economics offers four concentration fields:*

### 1. Middle East Economic Development (6 credit hours)

- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- ECON 512/5254 - Economic Growth & Development (3 cr.)

### 2. Competitive Strategy and Valuation (6 credit hours)

- ECON 519/5213 - Project Evaluation (3 cr.)
- ECON 520/5215 - Competitive Strategy and Game Theory (3 cr.)

### 3. International Economics (6 credit hours)

- ECON 505/5231 - Advanced International Trade (3 cr.)
- ECON 517/5233 - International Finance (3 cr.)

### 4. Financial Economics (6 credit hours)

- ECON 504/5241 - Financial Economics (3 cr.)
- ECON 528/5242 - Financial Econometrics (3 cr.)

## Educational Leadership (M.A.) with concentrations in School Leadership and Higher Education

### Master of Arts in Educational Leadership (EDUL)

A total of 34 credit hours (10 courses plus the thesis) are required for MA students. Students may, with prior department approval, bring in up to six credit hours of coursework from other relevant programs. The program seeks to enroll students who are passionate about improving educational leadership in schools and higher education in Egypt, the Middle East, and beyond. By focusing on education from an international and comparative perspective, we intend for students to gain professional educational skills in a global context of reform. All students in the MA Program in Educational Leadership must either complete and defend a thesis, or complete the "Alternative to thesis Option" as

described below.

### **Thesis**

The Graduate School of Education conceives of the thesis in one of a variety of ways, including, but not limited to:

As a research paper that utilizes quantitative, qualitative, or mixed research methods based on a theoretical framework and a full review of the related literature.

As a thorough literature review that utilizes meta-analytic techniques or a theoretical framework to organize and portray a concept, argument, or field-based concern.

As an applied project that utilizes a rigorous literature review and a carefully explained problem in order to demonstrate skill in applying research to real problems in the field.

As a policy analysis or program evaluation that utilizes various analytic methods to provide interpretation on the effect of a particular policy or program, bolstered by a thorough literature review.

The thesis should be between 10,000 and 20,000 words and should demonstrate capacity to utilize research tools and existing empirical and theoretical literature.

To conduct a thesis in lieu of the comprehensive examination, the student must submit a pre-proposal to the department. The evaluation of the pre-proposal will indicate whether or not the department will allow the student to do a thesis instead of the comprehensive examination. A proposal must be submitted to, and approved by, a committee consisting of a faculty supervisor and two readers. Upon approval, IRB and other research approvals (such as CAPMAS) must be obtained prior to any data being collected. Upon completion of the thesis, the document must be submitted to, and approved by, the same committee. A period of two semesters must be devoted to the thesis.

### **Alternative to Thesis Option**

In lieu of a thesis, the student may opt to: (i) take one extra 3-credit course; and then (ii) sit for a comprehensive exam, through registering for a 1-credit Comprehensive Exam course EDUC 5288. The exam will consist of essays written in a specified time period, followed by a brief oral interview conducted by 2 faculty members. The purpose of the interview is to give the candidate the opportunity to amplify and supplement the written papers.

## **Core Courses**

The following courses represent the content Core courses required of all students.

- EDUC 511/5201 - Foundations of Educational Research (3 cr.)
- EDUC 521/5202 - Social Foundations of Education (3 cr.)
- EDUC 531/5203 - Introduction to International & Comparative Education (3 cr.)
- EDUC 541/5204 - Human Development & Learning Theory (3 cr.)
- EDUC 542/5221 - Transformative Leadership (3 cr.)
- EDUC 546/5223 - Organizational Theory and Educational Institutions (3 cr.)

All students must also complete two semesters of the thesis by registering for EDUC 599/5299 - Research Guidance and Thesis (2 cr.) (2 cr. each course) in the last two semesters of the program, for a total of 4 credit hours, or complete the Alternative to Thesis option.

## **Concentrations**

Each student will select one of the following concentrations: School Leadership or Higher Education. Students must take a minimum of three courses from their concentration and complete their thesis on a subject within that concentration.



## 1. School Leadership

Students in the School Leadership concentration are required to complete at least three of the following courses:

- EDUC 551/5205 - Foundations of Instructional Practice (3 cr.)
- EDUC 535/5213 - Educational Evaluation & Assessment (3 cr.)
- EDUC 534/5217 - Strategic Educational Planning and Development (3 cr.)
- EDUC 544/5222 - School Governance and Management (3 cr.)
- EDUC 573/5224 - Research-based Instructional Leadership (3 cr.)
- EDUC 556/5233 - Action Research (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)
- EDUC 000/5236 - Education for Sustainable Development (3 cr.)

## 2. Higher Education

Students in the Higher Education concentration are required to complete at least three of the following courses:

- EDUC 534/5217 - Strategic Educational Planning and Development (3 cr.)
- EDUC 552/5231 - Online and Blended Learning Design and Instruction in Developing Countries (3 cr.)
- EDUC 562/5241 - Pedagogy & Theory of Modern Teaching & Learning in Higher Education (3 cr.)
- EDUC 563/5242 - Theories of Student Development in Higher Education (3 cr.)
- EDUC 564/5243 - Policy and Administration in Higher Education (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)
- EDUC 000/5236 - Education for Sustainable Development (3 cr.)

Additional courses for both concentrations can be taken from among the other MA-level courses offered by the Graduate School of Education.

## **Egyptology and Coptology MA, with tracks in Art, Archaeology and History; Language, Literature and Religion; and Coptology (M.A.)**

### **Master of Arts in Egyptology & Coptology**

The graduate program in Egyptology/Coptology at AUC offers an outstanding opportunity to study Egyptology/Coptology at the graduate level in Egypt.

There are 3 different possible tracks for the MA:

Art, Archaeology and History  
Language, Literature and Religion  
Coptology

The graduate program will help prepare students for careers in Egyptology/Coptology and for further studies in the discipline. It takes full advantage of being located in Egypt where students can visit and study the monuments in context, as well as gain practical experience in their chosen field. The program is designed to expose students to different aspects of the discipline, teach them to think critically and creatively, and put into practice the academic skills that they are acquiring. To ensure AUC graduates a high quality of academic opportunity and flexibility, these programs follow international guidelines for similar degrees at accredited institutions in the USA and Europe.

## Requirements

The MA consists of a total of 27 credits: 8 courses (7 classroom courses, 1 of field-work, appropriate to each candidate's interest, which can be substituted for an alternative class for the Coptology MA), and a thesis. 4 are core courses, and 4 can be chosen by the student. Thus, for students with an archaeological interest this will be more excavation focused, and for students who are more philologically inclined, this will be more epigraphic in nature. If students have a non-Egyptology background, up to a year of additional course work of prerequisites might be required, although obtaining an A- or above on placement tests in the requisite subjects would waive them. These classes will be drawn from the undergraduate offerings, but for graduate students will require extra work in the form of a more extensive reading list, more detailed and longer papers, and more challenging exams. Some of these courses can be taken, with instructors' consent, while taking graduate courses.

We also require students to have a reading knowledge of either French or German prior to writing a thesis, which would be tested by a language exam. If the student's research can be performed successfully without knowledge of a second language, the department may exempt the student from this requirement.

A thesis is required in all three branches of the MA in Egyptology and Coptology. The thesis must be written in English and submitted in accordance with university regulations.

A maximum of two 400-level courses may be taken as part of the MA program. Approved 300 and 400 level courses may be taken at the 500 level in special circumstances.

## Admission Criteria

Applicants seeking admission to the graduate program should have an undergraduate degree of high standing (3.0 equivalent to a B or higher), and pass the Egyptology Unit's English language proficiency test (if deemed necessary). Admission will only be in the fall semester. To continue in the program, a 3.0 average must be maintained.

## Breakdown of Courses for Each Track:

### Egyptology: Art, Archaeology, and History (after fulfilling prerequisites):

4 core courses and 4 optional courses and a thesis (EGPT 5992)

## Required:

- EGPT 540/5180 - Advanced Method and Theory: Archaeological and Historical (3 cr.)
- EGPT 598/5991 - Research Seminar: Research Design and Writing (3 cr.)
- EGPT 541/5420 - Material Culture: Looking at Artifacts in Context (3 cr.) or EGPT 542/5430 - Site Analysis (3 cr.)

If a student has had no field experience, s/he should take

- EGPT 591/5191 - Field Work (3 cr.)

If the student has had sufficient field experience, the fourth course should be chosen from the list below, in consultation with the advisor.

## Optional:

Four choices from other courses depending on individual interest (if students were AUC undergraduates, they will have to take courses that they have never taken before):

- EGPT 510/5100 - Culture and Society of Ancient Egypt (3 cr.)
- EGPT 512/5130 - Art, Societies, and Cultures of the Ancient Near East (3 cr.)
- EGPT 530/5120 - Graeco-Roman Egypt (3 cr.)
- EGPT 519/5199 - Selected Topics in Ancient Egyptian Art and Culture (3 cr.)  
\*\* Can be taken more than once if the subject matter changes.
- EGPT 521/5140 - Societies and Cultures of Ancient Nubia (3 cr.)
- EGPT 522/5220 - Ancient Egyptian Religion and Ethics (3 cr.)
- EGPT 525/5230 - Settlement and Daily Life in Ancient Egypt (3 cr.)
- EGPT 526/5240 - Death and Burial in Ancient Egypt (3 cr.)
- EGPT 533/5330 - Coptic Art and Architecture (3 cr.)
- EGPT 545/5170 - Selected Topics in Cultural Resource Management and Museology (3 cr.)  
\*\* Can be taken more than once if the subject matter changes.
- EGPT 560/5440 - The Iconography of Ancient Egypt (3 cr.)  
ANY language class (Egyptian texts-from amongst the offerings for the philologists) If appropriate for people who wish to specialize in conservation.
- EGPT 000/5030 - Independent Study and Guided Readings (3 cr.)  
Cannot be taken more than twice.

## Egyptology: Language, Literature, and Religion (after fulfilling prerequisites):

4 core courses and 4 optional courses and a thesis (EGPT 5992)

## Required:

- EGPT 598/5991 - Research Seminar: Research Design and Writing (3 cr.)
- EGPT 504/5510 - Advanced Hieratic (3 cr.)

Any two from the below, depending on level, and in consultation with advisors:

- EGPT 561/5550 - Advanced Readings in Ancient Egyptian Religion Texts (3 cr.)
- EGPT 500/5151 - Hieroglyphics III (3 cr.)
- EGPT 501/5153 - Hieroglyphics IV (3 cr.)
- EGPT 562/5560 - Advanced Readings in Historical Literature from the Old Kingdom to the Late Period (3 cr.)

## Optional:

Four choices from other courses depending on individual interest, including:

- EGPT 502/5520 - Introduction to Demotic (3 cr.)
- EGPT 503/5530 - Ptolemaic Hieroglyphs (3 cr.)
- EGPT 505/5150 - Introduction to Coptic (3 cr.)
- EGPT 521/5140 - Societies and Cultures of Ancient Nubia (3 cr.)
- EGPT 522/5220 - Ancient Egyptian Religion and Ethics (3 cr.)
- EGPT 530/5120 - Graeco-Roman Egypt (3 cr.)
- EGPT 510/5100 - Culture and Society of Ancient Egypt (3 cr.)
- EGPT 512/5130 - Art, Societies, and Cultures of the Ancient Near East (3 cr.)
- EGPT 519/5199 - Selected Topics in Ancient Egyptian Art and Culture (3 cr.)  
\*\* Can be taken more than once if the subject matter changes.
- EGPT 591/5191 - Field Work (3 cr.)
- EGPT 545/5170 - Selected Topics in Cultural Resource Management and Museology (3 cr.)  
\*\* Can be taken more than once if the subject matter changes.
- EGPT 000/5030 - Independent Study and Guided Readings (3 cr.)  
Cannot be taken more than twice.

## Coptology:

4 core courses and 4 optional courses and a thesis (EGPT 5992)

## Required:

- EGPT 505/5150 - Introduction to Coptic (3 cr.)
- EGPT 506/5540 - Advanced Coptic Texts (3 cr.)
- EGPT 598/5991 - Research Seminar: Research Design and Writing (3 cr.)
- EGPT 533/5330 - Coptic Art and Architecture (3 cr.)  
Or
- EGPT 539/5160 - Selected Topics in Coptic Studies (3 cr.)

## Choices:

Four choices from other courses depending on individual interest:

- EGPT 530/5120 - Graeco-Roman Egypt (3 cr.)
- EGPT 531/5320 - The Romano-Byzantine World and Egypt (3 cr.)
- EGPT 532/5310 - Classical Art and Archaeology (3 cr.)
- EGPT 533/5330 - Coptic Art and Architecture (3 cr.)
- EGPT 539/5160 - Selected Topics in Coptic Studies (3 cr.)  
\* The Selected Topics classes will change from semester to semester, depending on staffing options and student interest. Topics might range from: The study of Coptic Literature; Coptic Music; The Monastery of Abu Mena; Art in Monastic Devotional Practice, etc.
- ARIC 575-576/5222-5223 - Special Studies in Islamic Art and Architecture (3 cr.)
- EGPT 000/5030 - Independent Study and Guided Readings (3 cr.)  
Cannot be taken more than twice.

## Prerequisites

For students who have no background in Egyptology certain prerequisites will be required. Some of their MA coursework can also be taken during the time that they are working on their prerequisites.

**The prerequisites are:**

## Fall

- EGPT 253/2251 - Hieroglyphics I (3 cr.)
- EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
- EGPT 343/3211 - History of Ancient Egypt I: Pre-Dynastic Through Middle Kingdom Egypt (3 cr.)

## Spring

- EGPT 254/2252 - Hieroglyphics II (3 cr.)
- EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)
- EGPT 344/3212 - History of Ancient Egypt II: Middle Kingdom through Ptolemaic Egypt (3 cr.)

## MA Thesis

After completing the coursework, each student will prepare a statement of their research intent and methodology for the MA Thesis. The Research Methods and Theory Class will prepare for this. Once this statement is accepted by the committee, the student will be free to research and write, while continuing to meet with his/her committee head on a regular basis. The student's committee must accept the completed thesis, which will be viva voce.

## English and Comparative Literature (M.A.)

### Admission

An applicant for admission to the master's program in English and comparative literature should have a considerable background in the study of literature. Applicants who are not native speakers of English or graduates of English and comparative literature at AUC will be required to demonstrate on the TOEFL with TWE that their command of English is adequate for study in the program.

### Courses

A minimum of twenty-four graduate hours is required. Normally, eight courses are to be taken at the 5000 level. However, up to two of the eight courses might be taken at the 4000-level.

All students admitted to the graduate program will be required to take the following courses, unless they have taken these courses at the undergraduate level.

- ECLT 506/5106 - Greek Classics in Translation (3 cr.)
- ECLT 508/5108 - History of Literary Criticism (3 cr.)
- ECLT 509/5109 - Modern Literary Criticism (3 cr.)
- ECLT 555/5255 - Research Methods in Literature (3 cr.)

No more than two graduate-level courses may be transferred from another university.

With permission of the student's adviser and the chair of the department, a student may take graduate coursework in another department provided that its content is directly concerned with the area of the student's degree work. No more than two such courses will be accepted for credit toward the master's degree.

### Optional 5000 level courses:

- ECLT 507/5107 - Classics of the Ancient World (3 cr.)
- ECLT 510/5110 - Renaissance Writers (3 cr.)
- ECLT 512/5112 - Seventeenth-Century Writers (3 cr.)
- ECLT 514/5114 - Eighteenth-Century Writers (3 cr.)
- ECLT 516/5116 - The Romantic Movement (3 cr.)
- ECLT 517/5117 - Nineteenth-Century Writers (3 cr.)
- ECLT 523/5123 - Modern Poets (3 cr.)
- ECLT 531/5131 - The Modern Novel (3 cr.)
- ECLT 540/5140 - Readings in American Literature (3 cr.)
- ECLT 542/5142 - Readings in French Literature (3 cr.)
- ECLT 543/5143 - Readings in British Literature (3 cr.)
- ECLT 545-546/5199-5299 - Selected Topics (3 cr.)
- ECLT 000/5101 - Visual, Literary, and Critical Approaches to Gender in MENA (3 cr.)
- ECLT 588/5288 - Comprehensives (no cr.)
- ECLT 599/5298 - Research Guidance and Thesis (no cr.)

### Language

Before writing a thesis the student must demonstrate, in an examination, knowledge of either French or German. At the discretion of the department another modern language may be substituted, should it be more pertinent to the student's field of interest. The exam for both languages will take place in Spring and Fall of each year.

### Thesis

The department conceives of the thesis as a research paper at the recommended length of forty to sixty pages (10,000 to 15,000 words), double-spaced, standard font, which should demonstrate by its high quality the student's ability to handle the techniques of research and to write critically and pointedly about a given subject. The topic must be chosen from subjects in the student's area of concentration. It must be acceptable to the student's thesis director in the light of his/her special qualification and his/her judgment of the student's capability, and the availability of the required library facilities.

A proposal must be submitted to, and approved by, the first and second readers as well as the department chair. This should be approximately one to two thousand words. A working bibliography should be included. There will be a final defense of the thesis and related topics.

## **Gender and Women's Studies in the Middle East/North Africa, with specializations in Geographies of Gender and Justice, Gendered Political Economies, and Gender and Women's Studies in the Middle East/ North Africa (M.A.)**

## **Master of Arts in Gender and Women's Studies in the Middle East/North Africa**

The graduate program in Gender and Women's Studies offers advanced study in **three** tracks:

- Geographies of Gender and Justice
- Gendered Political Economies
- Gender and Women's Studies in the Middle East/ North Africa

The graduate program in Gender and Women's studies prepares graduates for a wide variety of professional careers. Specialists in gender and women's studies are being hired as consultants in international development agencies, local NGO's, national government agencies, all of which hire people that have special training in understanding gender relations. Students wishing to pursue doctoral work will find that interdisciplinary training in gender and women's studies equips them with theoretical and methodological strengths in most disciplines and applied research fields. Consistent with the mission of the School of Global Affairs and Public Policy, Gender and Women's Studies is an interdisciplinary graduate program.

### **Geographies of Gender and Justice**

Geographies of Gender and Justice offers advanced study of contemporary practices and problems of justice ranging from international justice regimes to national legal cultures to social and economic justice claims with a particular focus on the global south.

### **Gendered Political Economies**

The specialization in Gendered Political Economies engages with shifts in the gendering of economic and political trajectories of late modernity. It deals with issues relating to poverty, labor politics, political economies of desire, migration, mobility and development histories and practices. The aim is to provide students with a solid grounding in the nexus between gender and modalities for reorganizing the political economic order in the contemporary world.

### **Gender and Women's Studies in the Middle East/ North Africa**

The Gender and Women's Studies in the Middle East, North Africa focus offers an interdisciplinary field of analysis that draws its questions and approaches from the humanities and social sciences through investigating how relations of gender are embedded in social, political and cultural formations. It provides students with an interdisciplinary and transnational perspective with special emphasis on the Middle East and North African region.

## **Core Requirements**

There are two core requirements for students in all specializations:

- GWST 500/5100 - Theorizing Gender (3 cr.)
- GWST 505/5205 - Gender and Feminist Research Methodologies (3 cr.)

## **Specialization in Geographies of Gender and Justice**

There are three required courses:

- GWST 502/5102 - Justice: Histories and Theories (3 cr.)
- GWST 508/5108 - Women and Human Rights (3 cr.)

- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)

**Electives:**

The remaining three courses are 500 level electives or two 500 level electives and one 400 level elective. The list of electives are reviewed by the IGWS Graduate Advisory Committee every academic year. The list of electives for any given semester is available on the IGWS graduate center website.

## Specialization in Gendered Political Economics

There are three required courses:

- GWST 506/5106 - Reading Capital (3 cr.)
- GWST 000/5109 - Theorizing the Urban (3 cr.)
- GWST 507/5107 - Critical Geographies: Reading the Global South (3 cr.)

**Electives:**

The remaining three courses are 500 level electives or two 500 level electives and one 400 level elective. The list of electives are reviewed by the IGWS Graduate Advisory Committee every academic year. The list of electives for any given semester is available on the IGWS graduate center website.

## Specialization in Gender and Women's Studies in the Middle East and North Africa

There are three required courses:

- GWST 501/5101 - Visual, Literary, and Critical Approaches to Gender in MENA (3 cr.)
- GWST 504/5104 - Mobilities: Gender and Migration (3 cr.)
- LAW 000/5221 - Law and Patriarchy (3 cr.)

**Electives:**

The remaining three courses are 500 level electives or two 500 level electives and one 400 level elective. The list of electives are reviewed by the IGWS Graduate Advisory Committee every academic year. The list of electives for any given semester is available on the IGWS graduate center website.

## MA Thesis

All students must complete a thesis according to university regulations. Students must register for GWST 5299. Before commencing work on the thesis, the student must have a thesis proposal approved by the IGWS Graduate Advisory Committee. Students should familiarize themselves with the specific procedural requirements of the IGWS thesis. Guidelines are available in the IGWS office and on the web.

## Admission

Applicants seeking admission to the graduate program should have an undergraduate degree of high standing in the social sciences or humanities with an overall grade of gayyid giddan or a grade point average of 3.0 or above. Those who lack this background but who are exceptionally well qualified may be admitted provisionally. Provisional admission usually involves additional non-credit coursework to prepare the applicant for graduate work over one or two semesters. Provisionally accepted students must successfully complete the required prerequisites before being admitted to enroll in GWST graduate courses. Students are admitted to the graduate degree program in the fall and spring semester.



## **International & Comparative Education (M.A.) with concentrations in International Education Development & Policy and Teaching and Learning**

### **Master of Arts in International & Comparative Education (ICED)**

A total of 34 credit hours (10 courses plus the thesis) are required for MA students. Students may, with prior department approval, bring in up to six credit hours of coursework from other relevant programs. The program seeks to enroll students who are interested in improving educational policy and practice in Egypt, the Middle East, and beyond. By focusing on education from an international and comparative perspective, the program prepares students to gain inquiry-based practices and professional educational skills in local, regional and global contexts of reform which offer career opportunities in educational policy, development, and NGOs in addition to classroom teaching. All students in the MA Program in International and Comparative Education must either complete and defend a thesis, or complete the "Alternative to thesis Option" as described below.

#### **Thesis**

The Graduate School of Education conceives of the thesis in one of a variety of ways, including, but not limited to:

1. As a research paper that utilizes quantitative, qualitative, or mixed research methods based on a theoretical framework and a full review of related literature.
2. As a thorough literature review that utilizes meta-analytic techniques or a theoretical framework to organize and portray a concept, argument, or field-based concern.
3. As an applied project that utilizes a rigorous literature review and a carefully explained problem in order to demonstrate skill in applying research to real problems in the world.
4. As a policy analysis or program evaluation that utilizes various analytic methods to provide interpretation of the effect of a particular policy or program, bolstered by a thorough literature review.

The thesis should be between 10,000 and 20,000 words and should demonstrate capacity to utilize research tools and existing empirical and theoretical literature.

To conduct a thesis in lieu of the comprehensive examination, the student must submit a pre-proposal to the department. The evaluation of the pre-proposal will indicate whether or not the department will allow the student to do a thesis instead of the comprehensive examination. A proposal must be submitted to, and approved by, a committee consisting of a faculty supervisor and two readers. Upon approval, IRB and other research approvals (such as CAPMAS) must be obtained before any data are collected. Upon completion of the thesis, the document must be submitted to, and approved by, the same committee. An oral defense with the thesis committee will be required. A period of two semesters must be devoted to the thesis.

#### **Alternative to Thesis Option**

In lieu of a thesis, the student may opt to: (i) take one extra 3-credit course; and then (ii) sit for a comprehensive exam, through registering for a 1-credit Comprehensive Exam course EDUC 5288. The exam will consist of essays written in a specified time period, followed by a brief oral interview conducted by 2 faculty members, if needed. The purpose of the interview is to give the candidate the opportunity to amplify and supplement the written papers.

## **Core Courses**

The following courses represent the content Core Courses required of all MA students.

- EDUC 511/5201 - Foundations of Educational Research (3 cr.)
- EDUC 521/5202 - Social Foundations of Education (3 cr.)
- EDUC 531/5203 - Introduction to International & Comparative Education (3 cr.)
- EDUC 541/5204 - Human Development & Learning Theory (3 cr.)

- EDUC 551/5205 - Foundations of Instructional Practice (3 cr.)
- EDUC 575/5215 - Educational Policy Analysis (3 cr.)

All students must also complete two semesters of the thesis by registering for EDUC 599/5299 Research Guidance and Thesis (2 cr. each course) in the last two semesters of the program, for a total of 4 credit hours, or complete the alternative to Thesis option.

## Concentrations

Each student will select one of the following concentrations: International Education Development & Policy, or Teaching and Learning. Students must take a minimum of three courses from their concentration and complete their thesis on a subject within that concentration.

### 1. International Education Development and Policy

Students in the International Education Development and Policy concentration are required to complete at least three of the following courses:

- EDUC 532/5211 - Globalization, Development, and Educational Reform in the Arab World (3 cr.)
- EDUC 533/5212 - Comparative Gender, Adolescent, Youth, and Human Development Policy (3 cr.)
- EDUC 535/5213 - Educational Evaluation & Assessment (3 cr.)
- EDUC 536/5214 - Human Rights-based Education (3 cr.)
- EDUC 588/5216 - Research-Based Comparative Approaches to Educational Reform (3 cr.)
- EDUC 534/5217 - Strategic Educational Planning and Development (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)
- EDUC 000/5236 - Education for Sustainable Development (3 cr.)

### 2. Teaching and Learning

Students in the Teaching & Learning concentration are required to complete at least three of the following courses:

- EDUC 535/5213 - Educational Evaluation & Assessment (3 cr.)
- EDUC 534/5217 - Strategic Educational Planning and Development (3 cr.)
- EDUC 552/5231 - Online and Blended Learning Design and Instruction in Developing Countries (3 cr.)
- EDUC 554/5232 - Literacy, Learning and Education (3 cr.)
- EDUC 556/5233 - Action Research (3 cr.)
- EDUC 557/5234 - Reaching Diverse and Underserved Learners (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)
- EDUC 000/5236 - Education for Sustainable Development (3 cr.)

Additional courses for both concentrations can be taken from among the other MA-level courses offered by the Graduate School of Education.

## International Human Rights Law and Justice (M.A.)

International Human Rights Law considers protection of the individual as developed through organs of the United Nations, other international institutions, and at regional and domestic levels in the North and in the South. The program seeks to give students a thorough grounding in the theoretical underpinnings of human rights law and in the methods of solid multidisciplinary research that are required for investigating legal issues pertaining to human rights. It is intended for those presently working, or desiring to work, in humanitarian organizations, in government departments

and agencies concerned with humanitarian issues, or in other public, private and international sectors where there is increasingly a need for persons who have an understanding of the law and legal consequences of human rights within an international framework.

It is possible to work towards the MA in International Human Rights Law and the Diploma in Forced Migration and Refugee Studies (FMRS) simultaneously or sequentially, and to cross count 4 courses (12 credits) with the advice and consent of the department for a total of eleven courses (see Dual Graduate Degrees under Academic Requirements and Regulations section).

### Admission

The applicant for admission to the MA program should have an acceptable bachelor's degree in law, political science or a closely related social science (preferably with a minor in political science or law studies) with a grade of gayyid giddan (very good) or a grade point average of 3.0. Applicants with deficiencies in their preparation may be required to take appropriate courses at the undergraduate level. English language proficiency is required as per general AUC graduate admission requirements. Admitted degree candidates should normally start their course sequence in the fall semester. Students enrolled in the AUC English Language Institute must complete all ELI Courses and modules before being allowed to enroll in Law Classes. For these students, spring enrollment is allowed.

## Course Requirements

The International Human Rights Law MA degree requires a total of 27 credits hours.

There are five required courses:

- LAW 509/5209 - International Law (3 cr.)
- LAW 510/5210 - Introduction to International Human Rights Law and Critique (3 cr.)
- LAW 000/5221 - Law and Patriarchy (3 cr.)
- LAW 527/5227 - Graduate Law Seminar (3 cr.)

one out of the following three courses:

- LAW 511/5211 - International Humanitarian Law (3 cr.)
- LAW 514/5214 - Human Rights in the Middle East (3 cr.)
- LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.)

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The remaining four courses are electives, two of which have to be Law courses.  
Department approval is required for electives offered by other departments.

## Thesis Requirements

The research requirement for the MA in International Human Right Law is satisfied by writing a thesis of sufficient depth and length for the topic addressed therein and prepared under the supervision of a faculty member of the department. Students are required to register for the following course while fulfilling their thesis requirement.

- LAW 599/5299 - Research Guidance/Thesis (no cr., pass/fail)

## Degree Time Framework

Fulfilling the M.A. in International Human Rights Law normally calls for two years of study.

## Dual Degree Option in Political Science (B.A.) and International Human Rights Law (M.A.)

The Dual Degree option combines a BA in Political Science and an MA in International Human Rights Law. It is a dual degree, creating a synergy between the existing BA in Political Science and the existing MA in International Human Rights Law.

The dual degree option enables good students to prepare for a postgraduate degree while completing the requirements for the BA in Political Science. Non-law students who achieve a MA Degree under the auspices of the Law Department at AUC qualify for better jobs in Egypt or abroad, or pursue a legal education at prestigious law schools in the United States and elsewhere. The MA degree also provides students with the necessary expertise in international human rights law and with the intellectual, analytical and communication tools needed to intervene critically and effectively in the global policy debates confronting their societies as policy makers, academics, activists and international civil servants.

By the end of the sixth semester of the political science BA at AUC, and after successfully completing POLS 4371, the student has to declare her/his intention to pursue the Dual Degree by submitting a graduate admission application. The student should follow the application procedures for graduate studies. Admission decisions will be made by the Law Department's Admission Committee. Successful applicants will be admitted pending the fulfillment of two conditions: i) finishing the requirements of their undergraduate degrees with at least B (GPA 3); and ii) obtaining an average of at least a B+ (GPA of at least 3.3) across the three cross-listed 'Dual Degree' Law courses. Places are limited.

Students enrolled in the dual degree will receive a political science BA degree certificate upon the completion of their undergraduate course requirements. Many students feel the need to work in parallel to the pursuit of an MA degree. We believe that students who fulfill the pols BA requirement should not be denied the opportunity to do so.

Under this structure, dual-degree students will be required to take three 400-level courses that are cross-listed under LAW and POLS. These three "Dual Degree" cross-listed courses (see below) will count for credit towards both the BA in Political Science and under the MA in International Human Rights Law.

The three 'Dual Degree' Law courses to be offered to undergraduates in the Political Science Department are the following: (a) POLS 471/4371 - Introduction to Public International Law (3 cr.) (b) POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) and (c) POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) The curriculum for the MA IHRL requires the completion of nine courses and a thesis, as indicated in the tentative plan below: 3 POLS/LAW undergraduate courses, 2 graduate regional human rights courses, 3 graduate elective courses, LAW 5227, and the thesis.

### **Tentative Plan for Full-time Students**

#### **SEMESTER VI (POLS undergraduate program)**

LAW/POLS 471/4371 - Introduction to Public International Law (3 cr.) (counts towards both concentrations in POLS for all students) (and MA IHRL credits)  
[4 POLS courses or other courses as required to complete POLS BA degree]

#### **SEMESTER VII (POLS undergraduate program)**

LAW/POLS 478/4378 - Introduction to International Human Rights Law (3 cr.) (counts towards both BA POLS and

MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

#### **SEMESTER VIII (POLS undergraduate program)**

LAW/POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.) (counts towards both BA POLS and MA IHRL credits)

[4 POLS courses or other core courses as required to complete POLS BA degree]

#### **SEMESTER IX (MA IHRL program)**

LAW 511/5211 - International Humanitarian Law (3 cr.) \* (1 out of 3 starred courses required)

LAW 514/5214 - Human Rights in the Middle East (3 cr.) \* (1 out of 3 starred courses required)

LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.) \* (1 out of 3 starred courses required)

LAW Electives\*\*

#### **SEMESTER X (MA IHRL program)**

LAW 000/5221 - Law and Patriarchy (3 cr.)

LAW Electives\*\*

LAW 527/5227 - Graduate Law Seminar (3 cr.)

#### **SEMESTER XI (MA IHRL program)**

LAW 599/5299 - Research Guidance/Thesis (no cr., pass/fail)

*\*\* Lists of LAW elective courses will be provided to students in the program prior to registration for each semester.*

## **Journalism and Mass Communication (M.A.)**

### **Master of Arts**

The Master of Arts program in journalism and mass communication is designed to provide intellectual growth and advanced training for persons already engaged in mass media or public information work. Students wishing to specialize in a particular area, such as marketing communication or international business journalism, sociological or political communication, are encouraged to design a sequence of elective courses that best meets their interests.

### **Admission**

Students are required to have a minimum GPA of 3.00 (on a 4.00 scale) on an undergraduate degree from an accredited college or university. For students who have been out of school for some time work experience or other relevant criteria may be considered in lieu of a lower than 3.0 GPA. Students who have below a 3.0 cumulative GPA from their bachelor's degree may still be considered for provisional admission and should provide an explanation of extenuating circumstances and/or a demonstration of outstanding work experience.

Students who do not have an undergraduate degree in a mass communication major from AUC may be asked to complete a set of readings and/or a program of undergraduate prerequisite courses completed with grades of B or higher.

In addition to the general requirements established by the university, the applicant must demonstrate a proficiency in English at an advanced level and obtain an acceptable score on the Graduate Record Examination (GRE) (*currently frozen*).

Students are also required to submit two recommendation letters from relevant, credible sources and a personal statement of purpose, which is evaluated for its clarity of expression, creativity, and persuasiveness in arguing that:

- The applicant has the necessary record of preparation and performance to succeed in the program.
- The applicant's goals can be served by the program's courses and experiences.
- The program itself can benefit from the applicant's experiences.

Applicants are also to submit an updated curriculum vitae, official transcripts of all university degrees, and samples of professionally published or broadcast work if available.

A writing sample that demonstrates the potential to write clearly and critically is also required. If the student has graduated within the last three years, an academic paper from the undergraduate (or M.A.) coursework will suffice. Writing samples may include a term paper, a chapter from an Honors or M.A. thesis, or a conference paper. If the student has graduated more than three years ago, he/she should include an essay of 300-500 words about a recent local, regional, or international communication issue that he/she deems important.

Applicants may be required to take an entry exam administered by the department to measure their writing skills and their overall awareness of the communication field and the word around them. Applicants may also be required to sit through a personal interview.

### **Admission Checklist:**

- GRE Scores (frozen)
- Official transcripts
- Proof of English language proficiency
- Two letters of recommendation
- Personal statement
- Curriculum vitae
- Samples of published/ broadcast work
- Writing sample

## **Courses**

A minimum of 27 graduate credit hours is required, including the following four core courses. Note that the four core courses should be taken as early after admission to the program as possible.

- JPMC 500/5200 - Seminar in Mass Communication Theory and Literature (3 cr.)
- JPMC 502/5202 - Seminar: Current Issues in Mass Communication (3 cr.)
- JPMC 504/5204 - Seminar: Research Methods in Mass Communication (3 cr.)
- JPMC 550/5250 - Seminar in International Communication (3 cr.)

## **Note**

Students should complete the following courses as early after admission to the program as possible.

- JPMC 500/5200 - Seminar in Mass Communication Theory and Literature (3 cr.)
- JPMC 504/5204 - Seminar: Research Methods in Mass Communication (3 cr.)

## Additional Requirements

Additional coursework should come from the following list of Master of Arts courses, or because of the interdisciplinary scope of mass communication, students may, with adviser approval, take and apply up to three 500-level courses (9 hours) from other disciplines. A maximum of six credit hours of 400-level coursework may be approved and counted toward the required credit hours.

## Master of Arts Courses

- JRMC 500/5200 - Seminar in Mass Communication Theory and Literature (3 cr.)
- JRMC 501/5201 - Advanced Reporting and Writing (3 cr.)
- JRMC 502/5202 - Seminar: Current Issues in Mass Communication (3 cr.)
- JRMC 504/5204 - Seminar: Research Methods in Mass Communication (3 cr.)
- JRMC 506/5206 - Internship (3 cr.)
- JRMC 550/5250 - Seminar in International Communication (3 cr.)
- JRMC 570/5270 - Seminar in Mass Communication and National Development (3 cr.)
- JRMC 571/5271 - Digital Journalism (3 cr.)
- JRMC 580/5280 - Impact of Television: Issues and Developments (3 cr.)
- JRMC 590/5290 - Special Topics (3 cr.)

## Comprehensive Examination

Master of Arts students must complete the following courses in preparation for the comprehensive examination. The examination procedure is described in the “General Requirements” section. An oral examination may be required in addition to the written examination. Students must pass comprehensive examinations before being permitted to begin work on their theses.

- JRMC 500/5200 - Seminar in Mass Communication Theory and Literature (3 cr.)
- JRMC 502/5202 - Seminar: Current Issues in Mass Communication (3 cr.)
- JRMC 504/5204 - Seminar: Research Methods in Mass Communication (3 cr.)
- JRMC 550/5250 - Seminar in International Communication (3 cr.)

## Thesis

A thesis is required for all students. The department's thesis committee must approve the thesis topic after the student, in consultation with an advisor, submits a formal proposal. Written in English, the thesis must be defended by the student before faculty members, and must conform to current university requirements, policies and procedures.

## Middle East Studies (M.A.)

Consistent with the mission of the School of Global Affairs and Public Policy, Middle East Studies is an interdisciplinary academic program designed to provide students with a comprehensive understanding of the peoples, societies and economies of the region. The graduate program offers courses in Arabic language and literature, anthropology, economics, gender and women's studies, history, law, political science and sociology with the purpose of introducing students to a variety of methodologies for studying the Middle East. The graduate program focuses on the period from the 18th century onwards and addresses issues of religion, ecology, history, economy, society, polity, gender, and culture. Given the geographical location of Cairo, the program as a whole concentrates on the Arab region.

The program is intended for students who wish to pursue a variety of careers such as academia, diplomacy, other government service, work with NGOs, development, business, finance, journalism, public relations and cultural affairs.

### **Master of Arts**

The master's degree program in Middle East Studies is an interdisciplinary degree program. Applicants for admission should have an undergraduate degree of high standing (GPA of 3.0 or higher). Prerequisites are often assigned depending on the individual student's academic background. The program is designed to meet the needs of aspiring professionals who need in-depth knowledge of the modern Middle East as well as those intending to pursue an academic career.

### **Admission**

Students are normally admitted to the MA degree program in the fall only. The application deadline for fall 2019 is February 1 for application with a fellowship and April 1 for application without a fellowship. Students who are offered admission must indicate their intention to enroll by May 15 and pay a deposit to hold their place.

### **Language**

To obtain the MA each candidate must demonstrate, in addition to the normal university requirements in English, proficiency in Modern Standard Arabic up to the completion of ALNG 1101-1102-1103.

Proficiency is tested by an examination administered by the Arabic Language Institute. Students who have no background in Arabic are strongly advised to enroll in the summer intensive course (20 contact hours a week, 12 credits) of the Arabic Language Unit before beginning their MA program.

## **Courses**

Ten courses are required for the MA degree (Eight for those who choose to write an MA thesis and enroll in MEST 5298 and MEST 5299. The following two courses are required:

- MEST 569/5201 - A Critical Introduction to Middle East Studies (3 cr.)
- MEST 570/5202 - Interdisciplinary Seminar in Middle East Studies (3 cr.)

### **Students must choose three of the following 8 courses:**

An approved 400 or 500 level course in modern Arabic literature.

- ARIC 451/5133 - Islamic Institutions (3 cr.)
- ARIC 460/5135 - Selected Topics in Middle Eastern History, 600-1800 AD (3 cr.)
- ARIC 000/5137 - International Trade 1000 - 1700: Egypt and the Mediterranean - Red Sea Trade (3 cr.)
- ARIC 542/5231 - Seminar on the Nineteenth-Century Middle East (3 cr.)  
/HIST 5222
- ARIC 543/5232 - Seminar on the Twentieth-Century Middle East (3 cr.)  
/ HIST 5223
- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- GWST 501/5101 - Visual, Literary, and Critical Approaches to Gender in MENA (3 cr.)
- LAW 505/5205 - Islamic Law Reform (3 cr.)
- MEST 430/4301 - Special Topics in Middle East Studies (3 cr.)
- POLS 535/5235 - Middle East Politics (3 cr.)
- SOC/ANTH 503/5290 - Middle Eastern Societies and Cultures (3 cr.)



## Note

The other five courses (or three for thesis writers) may be selected from 400 or 500 level courses related to the Middle East in Anthropology/Sociology, Arabic Studies, Economics, Gender and Women's Studies, History, Law, Middle East Studies, Migration & Refugee Studies, Public Policy & Administration and Political Science. No more than two 400 level courses may be counted towards the degree and only one course originally at the 400 level, but for which requirements are added to raise it to 500 level may be applied towards the degree. Students must consult with their advisor to ensure an adequate coverage of social science and history.

## Thesis

Students opting to do a thesis must complete a thesis in accordance with university regulations. Before commencing work on the thesis, the student must have a thesis proposal approved by three faculty members.

## Comprehensive Examination

Students not opting to do a thesis will, after the completion of all course requirements, take a comprehensive examination administered by an interdisciplinary examining board. An oral examination will be given following the written test.

# Migration and Refugee Studies with concentrations in Migration, and in Refugee Studies (M.A.)

### Master of Arts

The MA program in Migration and Refugee studies is an interdisciplinary degree program that aims to provide graduates with critical knowledge, research methods and analytical skills of current theoretical, legal, political, economic, social, demographic and psychological issues in migration and refugee studies. The knowledge and skills acquired may be applied in careers within institutions such as governmental, non-governmental and international agencies, as well as universities, research organizations and private corporations dealing with the multitude of issues connected with migration and refugee movements. Students have the option of pursuing concentrations in migration or in refugee studies.

It is possible to work towards the MA in Migration and Refugee Studies with other MAs and Diplomas in the fields of Humanity and Social Sciences simultaneously or sequentially. For more information, see Dual Graduate Degrees under the Academic Requirements and Regulations section: Graduate Academic Requirements & Regulations

### Admission

Applicants seeking admission to the Master's program should have an undergraduate degree of high standing (equivalent of a B grade or higher) within the field of Humanities and/or Social Sciences and meet the university's language proficiency. Pre-requisites may be assigned, depending on the student's academic background. Students with related work, research or volunteer experience will be given priority.

## Requirements:

### Course Requirements

The MA program requires the successful completion of 8 courses (24 credit hours). All students must take the following 5 core courses:

- MRS 507/5100 - Introduction to Migration and Refugee Studies (3 cr.)
- MRS 518/5101 - International Refugee Law (3 cr.)
- MRS 500/5102 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)
- MRS 501/5103 - International Migration & Development (3 cr.)
- MRS 576/5204 - Research Methods in Migration and Refugees Studies (3 cr.)

For a concentration in migration, students should choose 3 courses from the following electives:

- MRS 504/5104 - Mobilities: Gender and Migration (3 cr.)
  - MRS 508/5208 - Special Topics in Migration and Refugee Studies (3 cr.)  
(When relevant to migration)
  - MRS 509/5209 - Migration, Integration and Citizenship (3 cr.)
  - MRS 528/5228 - Migration in International Law (3 cr.)
  - MRS 584/5284 - Practicum: Internship or Research (3 cr.)  
(Supervised internship with organization working on migration issues)
- With Center approval, students may take a course offered by another department or center.**

For a concentration in refugee studies, students should choose 3 courses from the following electives:

- MRS 512/5112 - Psychosocial Issues in Forced Migration (3 cr.)
  - MRS 505/5205 - Palestinian Refugee Issues (3 cr.)
  - MRS 508/5208 - Special Topics in Migration and Refugee Studies (3 cr.)  
(When relevant to refugee studies)
  - MRS 584/5284 - Practicum: Internship or Research (3 cr.)  
(Supervised internship with organization working on refugee issues)
- With Center approval, students may take a course offered by another department or center.**

To take the degree without a concentration, students may choose 3 courses from any of the electives listed above.

## Thesis Requirements

All students must complete a thesis according to university regulations. Before commencing work on the thesis, the student must present a thesis proposal for approval by CMRS. The thesis proposal should comprise a research question, including a set of hypotheses, the sources of information and an outline of the research method to be used – and should not exceed 2000 words. After the acceptance of the thesis proposal, students must register for course MRS 5299 "Research Guidance and Thesis". After the completion of the thesis, it must be defended in an oral examination during which questions may be asked regarding any aspect of the thesis itself or of courses taken in the program particularly as they may relate to the thesis.

## Time Line

Completion of the Masters Degree in Migration and Refugee Studies will normally take 2 years.

## Philosophy (M.A.)

### Mission and Goals:

The mission statement of the M.A. program in Philosophy (reflecting those of the Department and the University) is as follows:

Engaging in graduate study in philosophy is to engage in a process of coming to understand one's self and one's place in the world. The M.A. in Philosophy is devoted to this endeavor through its content and form. It engages students in asking questions about the possibility of knowledge, the nature of morality, beauty and aesthetic experience, the meaning of religious experience, the justification and limits of power, and the purpose and meaning of philosophical inquiry itself. And it holds that to be successful in this enquiry clear and careful thinking, the ability to question deeply held assumptions and attitudes, and a commitment to sound reasoning and careful appraisal of evidence is needed.

The goal of the M.A. in Philosophy is therefore to offer the highest quality liberal arts education to our graduate students. Philosophy postgraduates will finish this M.A. program with an in-depth knowledge of the professional discipline as well as the detailed understanding of the history of ideas more generally. This entails rigorous training in rational and critical thought, the close reading and interpretation of some of the history of philosophy's most challenging texts, exemplary intellectual responsibility, and the ability to clearly and effectively present the results of independently conducted research within the form of a M.A. thesis.

In the words of the executive director of the American Philosophical Association, "The skills that philosophy teaches you are wonderfully transferable." Our program aims at teaching students advanced philosophical skills, which they will be able to usefully apply either within the context of a future professional career or as preparation for entering a Ph.D. program at another institution. Students often register for graduate study in Philosophy because of their love of the discipline, rather than for any utilitarian purpose.

Nonetheless, a background in Philosophy can be professionally beneficial, insofar as employers and professional schools have become increasingly aware over the last couple of decades that philosophers tend to have the best training in thinking and writing, and are open and flexible.

### Requirements

The M.A. in Philosophy is aimed at any undergraduate with a background in the study of philosophy. A minimum of twenty-four graduate hours are required.

Eight courses must be taken, at least six of which must be taken within the Department of Philosophy at the 5000 level. Students are required to follow the Philosophy Graduate Core, a series of advanced 5000 level seminars that are open only to Masters students. Two such 5000 level seminars are taught each semester. The Department also offers a series of electives: a select number of undergraduate courses that can also be taken at the 5000 level.

A maximum of two courses may be taken within other departments at AUC, at either the 4000 or 5000 level but only with the Chair's approval. Students who are not native speakers of Arabic and who wish to write a thesis within the sphere of Islamic Philosophy will be strongly encouraged to elect for credit at least one of the courses (at an appropriate level) offered by the Arabic Language Institute. Although AUC does not currently offer formal instruction in modern European language, students intending to write a thesis within the sphere of Continental Philosophy will be required to have a basic reading knowledge of either French or German. Any student who wishes to write a thesis in the sphere of Continental Philosophy but who lacks such knowledge is strongly encouraged to privately arrange some tuition outside of AUC.

Before commencing work upon the thesis students will be required to write a thesis proposal. The thesis itself should take the form of a research paper of approximately 15,000 words in length. There will also be a final defense of the finished thesis.

The Philosophy Graduate Program Director organizes a series of (non-credit) seminars at the beginning of every academic year, which all graduate students are expected to attend in order to ensure that they possess the research and academic writing skills requisite for tackling the thesis (PHIL 5299 ). This training will be further reinforced by the course requirements for the Department's Philosophy Graduate Core courses, in which the students are required to find and engage with relevant secondary literature and write in a highly professional manner for the papers upon which they are examined.

## Breakdown of Courses

4 Philosophy Graduate Core courses and 4 optional courses (2 of which can be taken within other departments) and a thesis (PHIL 5299 (no cr.) ):

### Required Philosophy Graduate Core:

- PHIL 500/5101 - Advanced Seminar in Classical Philosophy (3 cr.)
- PHIL 501/5122 - Advanced Seminar in Islamic Philosophy (3 cr.)
- PHIL 504/5123 - Kant and Idealism (3 cr.)
- PHIL 505/5124 - Advanced Seminar in Phenomenology (3 cr.)

### Optional courses available for the MA are:

- PHIL 410/5112 - Advanced Seminar in Aesthetics (3 cr.)
- PHIL 000/5104 - Selected Topics in Contemporary Philosophy (3 cr.)
- PHIL 000/5109 - Applied Ethics (3 cr.)
- PHIL 360/5117 - Philosophy of Language (3 cr.)
- PHIL 458-558/5119 - Advanced Seminar in Political Philosophy (3 cr.)
- PHIL 000/5120 - Advanced Seminar in Feminist Philosophy (3 cr.)
- PHIL 403/5199 - Selected Topics in Philosophy (3 cr.)
- FILM 000/4350 - Philosophy and Film (3 cr.) / PHIL 000/5150 - Philosophy and Film (3 cr.)
- PHIL 000/5121 - Philosophical Logic (3 cr.)
- PHIL 000/5130 - Philosophy of Mind (3 cr.)

## **Political Science, Joint Program with University of Tubingen (Comparative and Middle East Politics and Society- CMEPS), with specializations in Comparative Politics, International Relations, and Development Studies (M.A.)**

The Department of Political Science at the American University in Cairo and the Institute of Political Science at the University of Tubingen conduct a joint MA program in Comparative Middle East Politics and Society. Students are required to be enrolled full time, and the third semester of study takes place in the partner institution.

## Required Courses

- POLS 501/5201 - Comparative Theory (3 cr.)  
*(1st semester)*
- POLS 558/5258 - Comparative Politics of the Middle East (3 cr.)  
*(2nd semester)*
- POLS 530/5230 - Regime Change and Democratization (3 cr.)  
*(or Tübingen equivalent 3rd semester)*
- POLS 545/5245 - Development Politics and International Cooperation (3 cr.)  
*(3rd semester)*

Plus- elementary German Proficiency.

Plus five more courses in consultation with the Graduate Advisor/Coordinator of the Joint Degree Program

Plus Thesis

## **Political Science, with specializations in Comparative Politics, International Relations, and Development Studies (M.A.)**

The graduate program in Political Science Department offers advanced study in the discipline of Political Science, with particular emphasis and specializations in three areas; Comparative Politics; International Relations, and; Development Studies (previously Professional Development).

The Political Science Department values its location in the heart of the Middle East and seeks, through its faculty, courses and activities, to link the discipline of political science to the thriving and complex political realities of Cairo, Egypt and the region. Its graduate programs offer students a thorough grounding in the theoretical underpinnings of the political phenomena as well as a deep understanding of political realities in Egypt, the Arab World and the international arena. The programs combine courses aimed at familiarizing students with the knowledge necessary for developing their understanding of these political realities with research seminars that are required for familiarizing students with research methods that they will need to independently analyze complex political phenomena.

The graduate programs are intended for students who would like to pursue academic careers as well as those presently working, or desiring to work, in international political bodies, government departments concerned with political issues, or in other public, private and international sectors where there is increasingly a need for persons who have a scientific understanding of the political realities of the Middle East and the World.

Students have the option of pursuing a one-year Graduate Diploma or a Master's degree in any of the three specializations offered by the Department. In addition to the requirements of each option, students will be able to choose elective courses covering the political topics closest to their interest. They are also encouraged to take up to two relevant courses from other departments and units of AUC. The Department works closely with its students to ensure that their chosen courses correspond to and serve their academic and professional goals.

Graduate students constitute an integral part of the academic life of the Political Science Department. They are encouraged to participate, individually and through their association, at the events and activities organized by the Department both inside AUC campus and in the thriving metropolis that constitutes its environment.

## **Comparative Politics**

The strength of Comparative Politics at AUC is in the areas of Third World Politics and Development, with greatest faculty expertise being in Egypt and the Middle East. Graduate studies in Comparative Politics seek to increase students' knowledge about the political dynamics of disparate systems within the larger contexts of state and society, political economy, interstate and regional relations. It seeks to develop skills of analysis and writing in order to enhance students' understanding of their region of interest and its relations with the world. Comparative Politics is particularly suitable for students who wish to pursue a career in academia, research, journalism, political consultancy, or similar positions in which a solid political background and analytical abilities are required.

## **International Relations**

International Relations include examination of current world politics as well as the many dimensions of the international system. This includes regional relations, foreign policies of selected states, as well as Middle Eastern international and interstate relations, and international political economy. The International Relations option seeks to provide greater depth of understanding of the forces operating in the international arena and the constraints that face foreign policy makers. Practice in analyzing current world and regional events and in the skills of written and oral presentation is provided as well as extra curricular activities that are designed to give students the opportunity to put their academic learning into practice. International Relations option is valuable for students who are working or seek to work in foreign relations, either in their own government or in international organizations. The field also prepares students for employment in other kinds of positions that require the ability to analyze and write about national or international politics.

## **Development Studies**

Development Studies (previously Professional Development) is designed for those who have an interest in studying the developing world. The program includes (but is not limited to) courses with practical components and requires an internship usually done in the summer between the first and second years. Development Studies (previously Professional Development) seeks to prepare students to assume positions of greater responsibility in development agencies and organizations by expanding their understanding of the development field, its aims, objectives, methods of operation, and the broad scope of development work in the world today. It seeks to develop students' critical and analytical capacities, and provide practice in linguistic and writing skills needed for development work. Creativity in finding solutions to development problems is encouraged so that graduates may have an impact in their chosen areas of work in development. Practice in preparing project documents is included in the program. Development Studies (previously Professional Development) is designed for those who are either presently working in development organizations or who are seeking to enter a development career.

## **Admission**

The applicant for admission to the master's program should have an acceptable bachelor's degree in political science or in a closely related social science (preferably with a minor in political science), and a grade-point average of at least 3.00 (an overall grade of gayyid giddan for graduates from Egyptian universities). Applicants with deficiencies in their preparation may be required to take appropriate courses at the undergraduate level.

## **The requirements for the specializations are as follows**

All specializations have gateway courses that situate each specialization within its theoretical context and provide students with analytic tools for other courses. These introductory courses also prepare students for research and analysis needed for writing original seminar papers and for the thesis.

## **Requirements**

## Specialization in Comparative Politics

A specialization in Comparative Politics requires the following courses.

- POLS 501/5201 - Comparative Theory (3 cr.)
- POLS 504/5204 - Advanced Political Science Methods (3 cr.)
- POLS 000/5206 - Foundations of Political Philosophy (3 cr.)
- POLS 530/5230 - Regime Change and Democratization (3 cr.)
- POLS 558/5258 - Comparative Politics of the Middle East (3 cr.)

Plus one course from the following:

- POLS 502/5202 - Scope and Method of Developmental Analysis (3 cr.)
- POLS 503/5203 - International Relations Theories (3 cr.)
- POLS 525/5225 - International Political Economy (3 cr.)

In addition, two courses to be chosen in consultation with the Graduate Studies Director, for a total of 24 credit hours.

## Specialization in International Relations

A specialization in International Relations requires the following course.

- POLS 503/5203 - International Relations Theories (3 cr.)
- POLS 000/5206 - Foundations of Political Philosophy (3 cr.)
- POLS 504/5204 - Advanced Political Science Methods (3 cr.)
- POLS 000/5208 - Critical Approaches to International Relations Theories (3 cr.)

Plus one course from the following:

- POLS 501/5201 - Comparative Theory (3 cr.)
- POLS 502/5202 - Scope and Method of Developmental Analysis (3 cr.)
- POLS 525/5225 - International Political Economy (3 cr.)

Plus two courses from the following:

- POLS 000/5209 - Race, Gender, and Sexuality in International Relations (3 cr.)
- POLS 510/5210 - Global Governance and World Order(s) (3 cr.)
- POLS 554/5254 - Comparative Foreign Policy: Theories and Applications (3 cr.)
- POLS 555/5255 - Conflict and Security in Global Politics (3 cr.)

In addition, one course to be chosen in consultation with the Graduate Studies Director, for a total of 24 credit hours.

## Specialization in Development Studies

A specialization in Development Studies (previously Professional Development) requires the following courses:

- POLS 502/5202 - Scope and Method of Developmental Analysis (3 cr.)
- POLS 504/5204 - Advanced Political Science Methods (3 cr.)
- POLS 000/5206 - Foundations of Political Philosophy (3 cr.)
- POLS 585/5285 - Project Seminar (3 cr.)
- POLS 586/5286 - Skills in Development Practice and Internships (3 cr.)

Plus one course from the following:

- POLS 501/5201 - Comparative Theory (3 cr.)
- POLS 503/5203 - International Relations Theories (3 cr.)
- POLS 525/5225 - International Political Economy (3 cr.)

In addition, two courses to be chosen in consultation with the Graduate Studies Director, for a total of 24 credit hours.

## Note

With department approval, students may take relevant courses outside the department.

## Thesis

A thesis, written in English and submitted in accordance with university regulations, is required of all specializations for the master's degree in Political Science. Students, working with a supervisor of their choice, should submit a detailed thesis prospectus to the department for approval. Once approved, students must register for thesis supervision until graduation. The thesis must be defended in an oral examination.

The Department encourages its students to familiarize themselves with procedures regarding committee selection, writing of the thesis, presentation to the supervisor and readers, and defense of the thesis. It strongly encourages them to plan ahead their program in order to successfully meet the procedural requirements within the specified time frame.

## Sociology-Anthropology (M.A.)

The graduate program in sociology and anthropology equips students with a thorough grounding in the theory and research methods of both disciplines. Drawing on the expertise of faculty in sociology, anthropology, and other disciplines, it offers a unique opportunity for students to conduct original fieldwork-based research amidst an intellectually stimulating environment. Its longstanding tradition of combining scholarship with a commitment to social, economic and political justice makes the program a dynamic environment for learning and research. Our students conduct fieldwork in Egypt and throughout the Middle East on topics such as urban transformation, gender, religious and social movements, memory and politics of the past, migration, environment, health, the family, poverty, ethnicity and nationalism, media, activism, art and expressive culture, and youth cultures.

The program emphasizes an interdisciplinary approach to social theory and research and has broad applications. It has prepared many of our students for doctoral programs in the social sciences at universities in North America, Europe and other parts of the Global South, as well as other career paths in social research, NGOs, development agencies, and international and non-profit organizations.

Located at the heart of the Middle East, the faculty and students engage critically with the region and the representation of its people, cultures, and politics. The vibrant and cosmopolitan city of Cairo makes the program's location ideal for



students interested in conducting fieldwork in the Middle East, North Africa, and the Arab world, as well as its connections to the Mediterranean region, Sub-Saharan Africa, and the larger 'global south'. The program, accepts qualified applicants from a variety of academic and professional backgrounds especially those who are talented and interested in acquiring alternative and critical perspectives on society and politics.

## Admission

The applicant for this program should be a graduate of high standing from an undergraduate program in the humanities or social sciences (refers to fields in the Faculties of Arts) with an overall grade of gayyid giddan or a grade point average of 3.0 or above. Those who lack this background but who are exceptionally well qualified in other respects may be admitted provisionally. In such cases the department may prescribe a noncredit program of work in theory or method for one or two semesters to correct gaps in course background. The department reserves the right to assess applicants' English proficiency and/or social science abilities in person as a condition of acceptance into the program. Students can be admitted to the program in the fall or spring.

## Language

The candidate for the degree must demonstrate proficiency in a language other than English. The language exam is normally taken in Arabic and, in the case of native speakers, is intended to ensure that the student can work as a professional in that language. In certain cases the student may take the exam in a field and/or scholarly language other than Arabic. Students' language skills will be evaluated upon entry into the program for placement purposes and then re-evaluated for proficiency before completing the program.

## Thesis Track

All students must complete a research thesis in accordance with university regulations. Before commencing work on the thesis, the student must write a thesis proposal following strict departmental guidelines that is approved by three faculty members.

Students should familiarize themselves with procedures and deadlines regarding writing the thesis proposal, committee selection, writing of the thesis and presentation to the supervisor and readers. Complying with the procedural requirements by the appropriate deadlines is the responsibility of the student. After completion of the thesis, it must be defended and approved by the thesis committee.

### Courses:

Eight courses (24 credits) are required. All students must take: SOC/ANTH 5201 , SOC/ANTH 5202 , and SOC/ANTH 5298 , and either SOC/ANTH 5203 or SOC/ANTH 5204 . The remaining four courses should be chosen from the list of electives, each of which is offered in principle at least once in a two-year period.

- SOC/ANTH 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- SOC/ANTH 508/5208 - Special Topics in Migration and Refugee Issues (3 cr.)
- SOC/ANTH 000/5209 - Migration, Integration and Citizenship (3 cr.)
- SOC/ANTH 510/5210 - Problems in Sociology-Anthropology (3 cr.)
- SOC/ANTH 515/5215 - Kin, Friends and Neighbors (3 cr.)
- SOC/ANTH 520/5220 - Gender and Sexuality (3 cr.)
- SOC/ANTH 525/5225 - Religion, Ideology and Society (3 cr.)
- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)
- SOC/ANTH 535/5235 - Maintaining Systems of Global Inequality (3 cr.)
- SOC/ANTH 540/5240 - Revisiting the Rural (3 cr.)
- SOC/ANTH 545/5245 - Cities: Structure and Dynamics (3 cr.)
- SOC/ANTH 550/5250 - Sociology of Knowledge (3 cr.)

- SOC/ANTH 555/5255 - Comparative Health and Healing Systems (3 cr.)
- SOC/ANTH 560/5260 - Population Dynamics (3 cr.)
- SOC/ANTH 565/5265 - Ethnicity, Identity and Nationalism (3 cr.)
- SOC/ANTH 570/5270 - Environment and Society (3 cr.)
- SOC/ANTH 575/5275 - Modern Social Movements (3 cr.)
- SOC/ANTH 580/5280 - History and Memory (3 cr.)
- SOC/ANTH 502/5285 - Social and Cultural Dynamics in Contemporary Egypt (3 cr.)
- SOC/ANTH 503/5290 - Middle Eastern Societies and Cultures (3 cr.)
- SOC/ANTH 591/5297 - Independent Study and Readings (3 cr.)
- SOC-ANTH 000/5295 - Reading Capital (3 cr.)

A maximum of six hours of 400-level courses in sociology and anthropology or of 500-level courses in other disciplines (including SOC/ANTH 5200 and SOC/ANTH 5208 when taught by faculty outside the SOC-ANTH program) may be taken with departmental approval.

Additionally, after completing the required eight courses (24 credits) students must enrol in SOC/ANTH 5299 until the completion of their degree.

Final Project

MA thesis

## Comprehensive Examinations Track for SOAN MA

This option allows students who do not wish to write a fieldwork based MA thesis to complete, as an alternative, two further courses and take comprehensive exams.

Students not opting to do a thesis will, after the completion of all course requirements, take comprehensive examinations administered by an Examination Committee. An oral examination may be given following the written test.

### Courses:

Ten courses (30 credits) are required. All students must take SOC/ANTH 5201 , SOC/ANTH 5202 and either SOC/ANTH 5203 or SOC/ANTH 5204 . The remaining seven courses should be chosen from the list of electives, each of which is offered in principle at least once in a two year period.

- SOC/ANTH 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- SOC/ANTH 508/5208 - Special Topics in Migration and Refugee Issues (3 cr.)
- SOC/ANTH 000/5209 - Migration, Integration and Citizenship (3 cr.)
- SOC/ANTH 510/5210 - Problems in Sociology-Anthropology (3 cr.)
- SOC/ANTH 515/5215 - Kin, Friends and Neighbors (3 cr.)
- SOC/ANTH 520/5220 - Gender and Sexuality (3 cr.)
- SOC/ANTH 525/5225 - Religion, Ideology and Society (3 cr.)
- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)
- SOC/ANTH 535/5235 - Maintaining Systems of Global Inequality (3 cr.)
- SOC/ANTH 540/5240 - Revisiting the Rural (3 cr.)
- SOC/ANTH 545/5245 - Cities: Structure and Dynamics (3 cr.)
- SOC/ANTH 550/5250 - Sociology of Knowledge (3 cr.)
- SOC/ANTH 555/5255 - Comparative Health and Healing Systems (3 cr.)
- SOC/ANTH 560/5260 - Population Dynamics (3 cr.)
- SOC/ANTH 565/5265 - Ethnicity, Identity and Nationalism (3 cr.)
- SOC/ANTH 570/5270 - Environment and Society (3 cr.)
- SOC/ANTH 575/5275 - Modern Social Movements (3 cr.)
- SOC/ANTH 580/5280 - History and Memory (3 cr.)

- SOC/ANTH 502/5285 - Social and Cultural Dynamics in Contemporary Egypt (3 cr.)
- SOC/ANTH 503/5290 - Middle Eastern Societies and Cultures (3 cr.)
- SOC/ANTH 591/5297 - Independent Study and Readings (3 cr.)
- SOC-ANTH 000/5295 - Reading Capital (3 cr.)

A maximum of nine hours of 4000-level courses in sociology and anthropology or of 5000-level courses in other disciplines (including SOC/ANTH 5200 and SOC/ANTH 5208 when taught by faculty outside the SOC-ANTH program) may be taken with departmental approval.

Additionally, after completing the required ten courses (30 credits) students must enrol in SOC/ANTH 5289 until the completion of their degree.

## Final Project

Written and oral comprehensive exams on three topics (one theoretical, one focused on methodological / practical concerns, one based on the interests of the student).

## Teaching Arabic as a Foreign Language (M.A.)

*Associate Professors:* Z. Taha, R. El Essawi (Director TAFL program)

Interest in the Arabic language has increased greatly throughout the world. With this has come a demand for professionals trained in the field. Based on modern theory and practice, the master's degree and the diploma programs in Teaching Arabic as a Foreign Language (TAFL) are especially designed to meet this need.

The master's degree requires two years' residence and covers the following areas: linguistics, second language acquisition, and methods of teaching foreign languages. Practice teaching is also required. The courses have been structured to promote research as well as to develop highly trained teachers. In addition, a number of issues related to the role of Arabic in modern society are freshly examined, such as current methods of teaching Arabic to children, reform of the writing system, grammar reform movements, and the problem of diglossia. The TAFL program seeks to inspire new approaches to these problems.

### **Admission:**

- Applicants for the Master of Arts degree in TAFL should preferably hold a Bachelor of Arts degree specializing in Arabic language, Islamic studies, Middle East area studies, or a modern language. Applicants should also meet general university admission requirements.

- Applicants who are not specialized in Arabic language will need to:

Take an entrance exam to be offered by the TAFL program to show that the applicant has adequate command of Arabic to qualify for admission into the program.

Take up to 12 additional credit hours before they start their courses in the TAFL program. The number of credit hours an applicant needs to take will be decided by the academic advisor based on the applicant's performance in the entrance exam, his/her undergraduate GPA, and his/her previous teaching experience. Applicants need to finish such courses with a GPA of 3.0 or more.

### **Language**

Native speakers of Arabic who are holding degrees other than Arabic language or Islamic studies must demonstrate in an examination that their proficiency in Arabic is adequate for study in the program.

For non-native speakers of Arabic the level of language proficiency required for admission is Superior as specified by the guidelines of the American Council for the Teaching of Foreign Languages (ACTFL). Those with less but showing exceptional promise may be recommended for AUC preparatory training in Arabic for a period not to exceed one year.

An applicant who is not a native speaker of English must have sufficient command of English to qualify for admission

as an AUC graduate student. Those with less but showing exceptional promise may be recommended for AUC preparatory training for a period not to exceed one year.

- Applicants for the Master of Arts degree in TAFL should preferably have teaching experience prior to admission into the program or concurrently with the program. Applicants with no or little experience in teaching are required to work as unpaid teacher assistants for at least one semester before graduation.

**For graduation the following is required:**

- A minimum of 30 graduate credit hours and a thesis are required unless the student is not specialized in Arabic where s/he will be required to finish up to 42 credit hours as indicated in section entitled "Admission" (additional courses are listed under collateral requirements).
- Both specialized and non-specialized students have to take the core courses indicated below.
- Electives should complete the required number of credit hours. Choice will depend upon the thesis topic and the student's undergraduate field of study and must be approved by the adviser. While they are normally selected from among 500-level TAFL courses, with the adviser's approval, electives may include up to two non-TAFL courses. No more than two 400-level courses may be counted toward the degree.
- In some circumstances and with the adviser's approval, a candidate may be allowed to replace the thesis with two additional courses, increasing the total number of minimum credit hours required from 30 to 36 if student is specialized in Arabic. If student is not specialized in Arabic, he/she will need to finish up to 54 credit hours instead of 42. In such cases candidate would be required to take a comprehensive examination instead of writing a thesis.
- Students planning to write a thesis must attend a non-credit thesis seminar (Seminar for Thesis Writers) at least one (preferably two) semesters prior to registering for Research Guidance and Thesis course.
- The student writing a thesis must produce a professional paper on some aspect of TAFL. The thesis must be prepared under the guidance and close supervision of a faculty adviser and a designated committee.

**Courses**

**A. For students who specialized in Arabic Language:**

**I. Core requirements:**

- APLN 501/5201 - Principles of Linguistic Analysis (3 cr.)
- APLN 503/5202 - Second Language Acquisition (3 cr.)
- APLN 510/5203 - Methods of Teaching a Foreign Language I (3 cr.)
- APLN 511/5204 - Methods of Teaching Arabic to Non-native Speakers II (3 cr.)
- APLN 520/5302 - Research Methods in Applied Linguistics (3 cr.)
- APLN 553/5205 - Sociolinguistics (3 cr.)
- APLN 555/5206 - Seminar on Challenges Facing AFL Teachers (3 cr.)

**II. Electives:**

- APLN 507/5310 - Computer Assisted Language Learning (CALL) (3 cr.)
  - APLN 540/5270 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)
  - APLN 515/5101 - The Phonetics of Arabic (3 cr.)
  - APLN 550/5322 - Language Pragmatics (3 cr.)
  - APLN 551/5323 - Discourse of Analysis for Language Teachers (3 cr.)
  - APLN 563/5211 - Language Variation and Change (3 cr.)
- (All TESOL electives are open for TAFL students upon agreement of academic advisor.)

**B. For students not specialized in Arabic Language:**

### **I. Collateral requirements**

(The number of courses taken is to be decided by the academic advisor based on result of entrance exam.)

- APLN 515/5101 - The Phonetics of Arabic (3 cr.)
- APLN 516/5102 - The Linguistics of Arabic (3 cr.)
- APLN 551/5103 - Advanced Arabic Grammar (3 cr.)
- APLN 515/5101 - The Phonetics of Arabic (3 cr.)

### **II. Core requirements**

- APLN 501/5201 - Principles of Linguistic Analysis (3 cr.)
- APLN 503/5202 - Second Language Acquisition (3 cr.)
- APLN 510/5203 - Methods of Teaching a Foreign Language I (3 cr.)
- APLN 511/5204 - Methods of Teaching Arabic to Non-native Speakers II (3 cr.)
- APLN 520/5302 - Research Methods in Applied Linguistics (3 cr.)
- APLN 553/5205 - Sociolinguistics (3 cr.)
- APLN 555/5206 - Seminar on Challenges Facing AFL Teachers (3 cr.)

### **III. Electives:**

- APLN 507/5310 - Computer Assisted Language Learning (CALL) (3 cr.)
- APLN 540/5270 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)
- APLN 550/5322 - Language Pragmatics (3 cr.)
- APLN 551/5323 - Discourse of Analysis for Language Teachers (3 cr.)
- APLN 563/5211 - Language Variation and Change (3 cr.)

(All TESOL electives are open for TAFL students upon agreement of academic advisor.)

### **Note regarding required and elective courses:**

Both required and elective courses are divided into two phases.

Phase one courses include:

APLN 5201  
APLN 5202  
APLN 5203  
APLN 5204

Phase two courses include:

APLN 5102  
APLN 5205  
APLN 5206

and/or other elective courses that the student proposes to take in order to finish required credits. Students will have to finish phase one courses before moving to phase two courses.

### **Comprehensive Examination**

The comprehensive examination consists of a written examination followed by an oral examination. It is required only of students not writing theses and may not be taken more than twice.

### **Thesis**

The thesis is usually required for graduation. In some circumstances and with the adviser's approval, a candidate may be allowed to replace the thesis with two additional courses, increasing the total number of minimum credit hours required from 30 to 36. In such cases the candidate would be required to take the comprehensive examination.

The student writing a thesis must produce a professional paper on some aspect of TAFL. The thesis must be prepared under the guidance and close supervision of a faculty adviser and a designated committee.

## Teaching English to Speakers of Other Languages (M.A.)

Professor Emeriti: Y. El-Ezabi, E. F. Perry, P. Stevens

Professors: R. Bassiouney (Department Chair), Amira Agameya

Associate Professors: A. Gebril (Program Director)

The graduate programs in Teaching English to Speakers of Other Languages (TESOL) are designed to enhance knowledge, skills, and effectiveness of teachers, researchers, and administrators in the profession. These programs attract an international student body and combine rigorous academic standards with an appropriate balance between theory and practice.

### Admission

It is desirable that applicants for the Master of Arts degree in TESOL have teaching experience prior to admission into the program; they may also acquire this experience concurrent with the program.

### Language

Applicants who are not native speakers of English will be required to demonstrate on the TOEFL with TWE that their command of English is adequate for study in the program.

## Courses

Required of all students:

- APLN 510/5300 - Methods of TESOL I (3 cr.)
- APLN 501/5301 - Principles of Linguistic Analysis (3 cr.)
- APLN 520/5302 - Research Methods in Applied Linguistics (3 cr.)
- APLN 500/5303 - English Grammar (3 cr.)
- APLN 503/5304 - Second Language Acquisition (3 cr.)
- APLN 502/5305 - Assessment in Language Learning (3 cr.)
- APLN 511/5397 - Methods of TESOL II (3 cr.)

### For thesis writers:

For thesis writers, a minimum of 33 graduate hours plus the thesis is required. For non-thesis writers, a minimum of 36 graduate hours is required plus a comprehensive examination.

## Electives

In choosing electives, students with assistance of their advisors, are to choose at least one course from two of the groups listed below.

## 1. Education and research:

- APLN 507/5310 - Computer Assisted Language Learning (CALL) (3 cr.)
- APLN 570/5311 - Thesis Proposal Writing (3 cr.)
- APLN 531/5312 - Second Language Reading and Writing: Theory and Practice (3 cr.)
- APLN 540/5370 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)

## 2. Linguistics:

- APLN 521/5320 - English Syntax (3 cr.)
- APLN 548/5321 - Corpus Linguistics (3 cr.)
- APLN 550/5322 - Language Pragmatics (3 cr.)
- APLN 551/5323 - Discourse of Analysis for Language Teachers (3 cr.)
- APLN 540/5370 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)

## 3. Cross-linguistic, cross-cultural studies:

- APLN 550/5322 - Language Pragmatics (3 cr.)
- APLN 525/5330 - Language Transfer, Contrastive Analysis, and Error Analysis (3 cr.)
- APLN 553/5331 - Sociolinguistics (3 cr.)
- APLN 540/5370 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)

## Note

In the case of APLN 5370 Selected Topics in Applied Linguistics, the course topic must relate to the general category.

## Capstone Portfolio

As a part of their graduation requirements, students will submit a capstone portfolio at the end of their final semester. The capstone portfolio will include various items of graded student work from core and elective courses showing that students have successfully achieved MATESOL program learning outcomes. The capstone portfolio will be submitted as a final assignment in APLN 511/5397 - Methods of TESOL II (3 cr.) .

## Comprehensive Examination

The Comprehensive Examination consists of a written examination followed by an oral examination. It is required only of students not writing theses, and may not be taken more than twice.

## Thesis

The thesis as a requirement for graduation is optional. The student who chooses to write a thesis must produce a professional paper on some aspect of TESOL/applied linguistics. The thesis must be prepared under the guidance and close supervision of a faculty adviser and a designated committee, and must be defended to the satisfaction of the department. The thesis defense is not open to the public.

## Television and Digital Journalism (M.A.)

### Master's Degree in Television & Digital Journalism

The Kamal Adham Center for Television and Digital Journalism is designed to prepare graduate students for careers in television broadcasting and news reporting in the digital age. Through its master's program, the Center offers graduates the opportunity to become reporters, producers, television anchors, hosts and media professionals at the top television and satellite channels locally and internationally.

The 33-credit hour curriculum provides comprehensive knowledge of the literature and practice of television journalism and news media. It is a practical program that provides intensive and hands-on exposure to the skills needed for producing both field reports and in-studio shows. The program courses focus on editorial and technical skills, such as scriptwriting in English and Arabic, camera use, editing and studio operations, as well as courses on interviewing, talk show hosting and voice coaching. Students learn to use the latest HD and 3D cameras and digital equipment that is comparable to facilities found in major news organizations around the world.

### Admission

Applicants are required to have a minimum GPA of 3.00 (on a 4.00 scale) or its equivalent of gayyid giddan (very good) in an undergraduate degree from an accredited college or university. Applicants with relevant work experience, but with a GPA slightly lower than 3.0 may still be considered for admission by the Center's graduate committee.

In addition to general language requirements established by AUC, the applicant must demonstrate a proficiency in English at an advanced level. All applicants will be personally interviewed by the director of the program in order to assess their level of communication and spoken language skills. Some applicants will be asked to complete, with a minimum grade of B, one to three undergraduate courses in broadcast writing and production as prerequisites.

Applicants must submit official transcripts of all university degrees, an updated curriculum vitae, two recommendation letters from relevant, credible sources and a personal statement of purpose. Applicants with media experience must submit samples of their work.

Since the Television and Digital Journalism Master's is a practical and hands-on program, requiring daily assignments outside of normal scheduled classes, students are expected to be available to take classes and complete assignments during the day and evening hours. Students are advised not to hold full-time employment that might conflict with fulfilling the program's requirements.

#### *Admission checklist:*

- Proof of English Language proficiency
- Official transcripts
- Curriculum Vitae
- Two letters of recommendation
- Personal statement of purpose
- Samples of published/broadcast work if applicable
- Director interview



## TV & Digital Journalism Master's Courses

A minimum of 11 courses totaling 33 credit hours is required for the degree. All students must take the following:

- TVDJ 507/5207 - Practicum: TV or Special Video Assignment (3 cr.)
- TVDJ 537/5237 - TV Digital News Gathering and Script Writing (3 cr.)
- TVDJ 538/5238 - Arabic TV Script Writing (3 cr.)
- TVDJ 539/5239 - TV Presentation and Voice Coaching (3 cr.)
- TVDJ 541/5241 - Field and Studio Digital Camera Production (3 cr.)
- TVDJ 542/5242 - Digital Video Editing (3 cr.)
- TVDJ 545/5245 - TV Studio News Reporting (3 cr.)
- TVDJ 546/5246 - TV Digital Journalism Capstone (3 cr.)
- TVDJ 559/5259 - TV Interviewing and Talk Show Hosting (3 cr.)

## Electives

All students must also take two (2) 500-level courses offered either by the Department of Journalism and Mass Communication or departments and/or Centers of the School of Global Affairs and Public Policy. All electives must be approved by the advisor to ensure relevance to the program.

## Thesis and Comprehensive Exams

The Master's degree in Television and Digital Journalism is a professional degree. In lieu of comprehensive exams and a thesis, students are required to complete a capstone project. Those students who desire a thesis degree in preparation for eventual PhD study at an Egyptian university must, in addition to the requirements above, take JRMCMC 5200, JRMCMC 5202, JRMCMC 5204 and JRMCMC 5250, sit for comprehensives and enroll for a thesis.

## **Business Administration, with tracks in Finance, Marketing, Operations Management, Management of Information Technology and Construction Industry (M.B.A.)**

### **Master of Business Administration (MBA)**

The MBA is designed to prepare students who have completed undergraduate work in any academic discipline and intend to pursue a management career. The primary objective of the program is to provide candidates with a general and versatile business acumen, skills and technical competencies, which have become essential for the success of today's business professional. While the curriculum meets international standards, it also addresses local and regional business peculiarities. Advanced and elective courses provide more specialized insights in certain business areas. The program is housed by the School of Business which holds the triple-crown accreditation; the Association to Advance Collegiate Schools of Business (AACSB), European Quality Improvement System (EQUIS), and the Association of MBAs (AMBA) accreditations.

### **Admission**

All applicants must satisfy the university's graduate admission requirements and obtain an acceptable score on the Graduate Management Admission Test (GMAT). In addition, applicants should have three or more years of relevant

professional experience. To obtain the MBA degree, a minimum of 39 semester credit hours and a maximum of 48 credit hours are required. The exact number of credits will be determined according to the educational background of each candidate.

## MBA Foundation Courses (12-30 credits)

The MBA Foundation courses are directed at providing the student with a basic background in the various functional areas of Business. Once these foundation courses are completed, students will be required to take the Strategic Management course, BADM 5310. The foundation courses are as follows:

- ACCT 501/5201 - Financial Reporting and Analysis (3 cr.)
- FINC 527/5201 - Managerial Economics (3 cr.)
- FINC 540/5202 - Financial Management (3 cr.)
- MGMT 502/5202 - Managing Organizations in a Dynamic Environment (3 cr.)
- MGMT 510/5307 - Entrepreneurship and Innovation (3 cr.)
- MGMT 504/5302 - Managing Human Capital (3 cr.)
- MKTG 520/5201 - Marketing Management (3 cr.)
- MOIS 508/5201 - Information and Communication Technology in Business (3 cr.)
- OPMG 507/5201 - Introduction to Business Statistics (3 cr.)
- OPMG 520/5202 - Operations Management for Competitive Advantage (3 cr.)

## Integrating course:

- BADM 000/5310 - Strategic Management (3 cr.)

## MBA Electives (12-21 credits)

Following the completion of the foundation courses and BADM 000/5310 - Strategic Management (3 cr.) students would select four elective courses from at least three different tracks. At least three courses should be track mandatory courses. A student may also specialize in a specific track by selecting three courses from the same track (two track mandatory courses and a track elective). The fourth course should be selected from another track or from the list of general electives. Concurrent registration for foundation courses, BADM 000/5310 - Strategic Management (3 cr.), track courses, and general electives is subject to approval.

Available tracks are as follows (tracks will only be offered provided that a sufficient number of applicants are enrolled):

Finance

Marketing

Operations Management

Management of Information Technology

Construction Industry

## Finance Track

To complete this track, students must complete four track courses. The two track mandatory courses stated below, and choose one course from the list of track electives. The fourth course is to be taken from any other track or from the list of general electives.

### Two Track Mandatory courses

- FINC 541/5203 - Investments and Portfolio Management (3 cr.)
- FINC 544/5351 - Advanced Corporate Finance (3 cr.)

### Track Electives (choose one course):

- FINC 512/5313 - Options and Derivatives (3 cr.)
- FINC 542/5311 - International Financial Management (3 cr.)
- FINC 543/5312 - Financial Institutions and Markets (3 cr.)
- FINC 570/5370 - Selected Topics in Financial Management (3 cr.)
- FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

## Marketing Track

To complete this track, students must complete four track courses. The two track mandatory courses stated below, and choose one course from the list of track electives. The fourth course is to be taken from any other track or from the list of general electives.

### Two Track Mandatory courses

- MKTG 526/5305 - Integrated Marketing Communication (3 cr.)
- MKTG 530/5306 - Strategic Marketing (3 cr.)

### Track Electives (choose one course):

- MKTG 521/5301 - Marketing Research Methods (3 cr.)
- MKTG 524/5304 - Global Marketing (3 cr.)
- MKTG 000/5307 - Strategic Brand Management (3 cr.)
- MKTG 570/5370 - Contemporary Topics in Marketing (3 cr.)
- MKTG 575/5375 - Independent Study in Contemporary Topics in Marketing (1-3 cr.)

## Operations Management Track

To complete this track, students must complete four track courses. The two track mandatory courses stated below, and choose one course from the list of track electives. The fourth course is to be taken from any other track or from the list of general electives.

### Two Track Mandatory courses:

- OPMG 532/5305 - Operations Strategy (3 cr.)
- OPMG 521/5301 - Managing and Coordinating Supply Chains (3 cr.)

### Track Electives (choose one course):

- OPMG 528/5302 - Managing Dynamic Projects (3 cr.)
- OPMG 533/5306 - Business Dynamics (3 cr.)
- OPMG 530/5303 - Data Analysis (3 cr.)
- OPMG 570/5370 - Selected Topics in Operations Management (3 cr.)
- OPMG 575/5375 - Independent Study in Operations Management (1-3 cr.)

## Management of Information Technology Track

To complete this track, students must complete four track courses. The two track mandatory courses stated below, and choose one course from list of track electives. The fourth course is to be taken from any other track or from the list of general electives.

### Two Track Mandatory courses

- MOIS 549/5301 - Systems Analysis, Design, and Implementation (3 cr.)
- MOIS 550/5302 - Decision Support Systems (3 cr.)

### Track Electives (choose one course):

- MOIS 551/5303 - Electronic Business: Doing Business in the Digital Economy (3 cr.)
- MOIS 555/5305 - Information Technology Strategy and Entrepreneurship (3 cr.)
- OPMG 521/5301 - Managing and Coordinating Supply Chains (3 cr.)
- MOIS 570/5370 - Advanced Topics (Next Generation Technologies) (3 cr.)
- MOIS 575/5375 - Independent Research in Management of Information Systems/Technology (1-3 cr.)

## Construction Industry Track

To complete this track, students must complete four track courses. The two track mandatory courses stated below, and choose one course from list of track electives. The fourth course is to be taken from any other track or from the list of general electives.

### Two Track Mandatory courses

- CENG 530/5261 - Contracts in Construction Industry (3 cr.)
- CENG 531/5262 - Construction Management (3 cr.)

### Track Electives (choose one course):

- CENG 532/5263 - Planning, Scheduling and Control (3 cr.)
- CENG 534/5265 - Risk Management and Bidding Strategies (3 cr.)
- CENG 535/5266 - Claims and Disputes in the Construction Industry (3 cr.)

## List of General Electives

- ACCT 502/5301 - Managerial Accounting for Decision Making (3 cr.)
- ACCT 570/5370 - Selected Topics in Accounting (3 cr.)
- ACCT 575/5375 - Independent Study in Accounting (1-3 cr.)
- MGMT 506/5304 - Management of International Business Organizations (3 cr.)
- MGMT 509/5306 - Leadership (3 cr.)
- MGMT 511/5308 - Strategic Management of Innovation (3 cr.)
- MGMT 570/5370 - Selected Topics in Management (3 cr.)
- MGMT 575/5375 - Independent Study in Management (1-3 cr.)
- ECON 519/5213 - Project Evaluation (3 cr.)
- ECON 520/5215 - Competitive Strategy and Game Theory (3 cr.)
- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- ECON 508/5271 - Labor Economics (3 cr.)

## MBA Capstone (3 credits)

- BADM 000/5401 - Business Consultancy (3 cr.)

## Computing (M. Comp.)

### Master in Computing (Non Thesis Option)

The Master in computing (M.Comp.) at AUC prepares students for higher level professional practice in local and international markets. The objectives of the program are to provide graduates with:

- A broad knowledge of advanced Computer Science topics
- Creative applications of scientific knowledge in the analysis, design, and implementation of computer systems
- Detailed knowledge of modern computational and experimental methods
- Extensive knowledge in an area of student interest from one of the offered fields of research
- Awareness of the local and global context in which Computer Science is practiced, including industrial and business practices, social needs, and considerations of cultures and ethics
- An ability to solve computational problems, think critically, function well in a team, and communicate effectively
- A high standard of written and oral communication on technical matters

### Admission

Admission requirements are the same as those for the thesis-option M.S.

## Courses (33 credit hours)

Eleven courses (33 credit hours) are required: Two core courses (6 credit hours), and Nine electives (27 credit hours).

## Core Courses (6 credit hours)

All candidates must take Two core courses to be chosen from the following four courses:

- CSCE 525/5221 - Algorithms and Complexity Theory (3 cr.)
- CSCE 530/5231 - Advanced Processor Architecture (3 cr.)
- CSCE 545/5241 - Distributed Systems (3 cr.)
- CSCE 565/5261 - Advanced Artificial Intelligence (3 cr.)

## Elective Courses (27 credits)

Nine courses to be chosen from the following courses, two additional courses not taken from the above list could be considered.

- CSCE 529/5222 - Design and Analysis of Parallel Algorithms (3 cr.)
- CSCE 535/5232 - High Speed Networks (3 cr.)
- CSCE 532/5242 - Parallel Computer Architecture (3 cr.)
- CSCE 000/5245 - Embedded Real-Time Systems (3 cr.)
- CSCE 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 561/5263 - Knowledge Engineering (3 cr.)
- CSCE 569/5264 - Natural Language Processing and Machine Translation (3 cr.)
- CSCE 564/5265 - Web Mining (3 cr.)
- CSCE 567/5266 - Computer Vision (3 cr.)
- CSCE 563/5267 - Digital Image Processing (3 cr.)
- CSCE 555/5268 - Computer Graphics and Animation (3 cr.)
- CSCE 000/5269 - Pattern Analysis (3 cr.)
- CSCE 541/5271 - Advanced Software Engineering (3 cr.)
- CSCE 543/5272 - Advanced Software Quality (3 cr.)
- CSCE 000/5910 - Independent Studies in Computer Science and Engineering (1-3 cr.)
- CSCE 585/5930 - Selected Topics in Computer Science and Engineering (3 cr.)
- CSCE 591/5980 - Capstone Project in Computing (3 cr.)
- CSCE 642/6231 - Mobile and Pervasive Computing (3 cr.)
- CSCE 664/6261 - Advanced Data Mining (3 cr.)
- CSCE 692/6930 - Advanced Selected Topics in Computer Science (3 cr.)

## Teaching and Learning (M.Ed.)

To complete the Teaching and Learning (M.ED.), 27 credit hours are required, divided into 9 3-credit courses. The program will take fourteen months to complete. The sequence of courses is fixed; stepping out for a course requires a student to join a new cohort when it reaches that stage in the curriculum. Courses are offered following the AUC semesters.

TEAL 000/5201 - Fundamentals of Curriculum Design, Theory, & Practice (3 cr.)

TEAL 000/5202 - Learning Theory & Educational Psychology (3 cr.)

TEAL 000/5203 - Social & Political Theories of Educational Practice (3 cr.)

TEAL 000/5204 - Assessment of Student Learning (3 cr.)

TEAL 000/5205 - Differentiation of Instruction for Diverse Learners (3 cr.)

TEAL 000/5206 - Problem-based Instructional Models (3 cr.)

TEAL 000/5207 - Promoting Independent & Lifelong Learners (3 cr.)

TEAL 000/5208 - Teaching Capstone (3 cr.)

TEAL 000/5209 - Teaching Portfolio (3 cr.)

**Blended/Online**

This program will only be offered in a blended/online format, and admission will only be granted based on cohorts.

## **Construction Engineering (M.Eng.)**

The Master of Engineering Degree in Construction Engineering prepares graduate students for higher-level professional practice in local and international markets, whether in consulting practice, industry, or government. It is intended for construction engineers who wish to master the practice in their field of specialty

**Program Objectives**

- Detailed knowledge in management, systems, design and materials in construction engineering.
- Extensive knowledge in an area of student interest from one of the fields involved in construction engineering.
- Awareness of the local and global context in which construction engineering is practiced, including economic and business practices, societal needs, and considerations of public health, safety, environment, culture and ethics.
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- A high standard of written and oral communication on technical matters.

**Admission**

Admission requirements are the same as those for the Master of Science Program.

## **Courses (33 credit hours)**

Course work for the Master of Engineering degree requires the completion of a minimum of 33 credit hours as follows:

### **I- Construction Engineering Core (21 credit hours)**

Students must complete 21 credits in graduate construction engineering courses.

### **II- Elective Courses (12 credit hours)**

Students may elect to take four courses (12 credits). A minimum of two courses must be taken from offerings in engineering disciplines (including ENGR). No more than one 400-level course, not in the student's undergraduate major may be taken for graduate credit, subject to approval of the advisor.

## **Electronics and Communications Engineering (M. Eng.)**

The name of the Electronics Engineering department has been changed to be the Electronics and Communications Engineering department. This change is effective starting Spring 2014. All degrees offered by the department will reflect the new name starting Spring 2014, and all transcripts issued for students graduating Spring 2014 onwards will bear the new name.

The Master of Engineering Degree in Electronics and Communications Engineering prepares students for higher level professional practice in local and international markets, whether in private consulting practice, industry, or government activities. It is intended for electronics engineers who wish to master the practice in their field of specialty.

### 1. Program Objectives

The objectives of the Master of Engineering Degree in Electronics and Communications Engineering are to provide the graduates of the program with:

- Detailed knowledge in product, systems, design and materials in electronics engineering.
- Extensive knowledge in an area of student interest from one of the fields involved in electronics engineering.
- Awareness of the local and global context in which electronics engineering is practiced, including economic and business practices, societal needs, and considerations of public health, safety, environment, culture and ethics.
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- A high standard of written and oral communication on technical matters.

### 2. Admission

Admission requirements are the same as those for the Master of Science Program.

## 3. Courses (33 Credit hours)

A minimum of 11 courses is required. The courses are selected from the following categories.

### Core Courses (3 credit hours)

All students select one out of the following four ENGR core courses:

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### Concentration Courses\*\* (30 credit hours)

Candidates must select at least eight courses out of the following ECNG course list:

- ECNG 510/5210 - Advanced Solid-State Devices (3 cr.)
- ECNG 000/5214 - Advanced ASIC Design (3 cr.)
- ECNG 516/5216 - Analog Integrated Circuit Design (3 cr.)



- ECNG 517/5217 - Digital Integrated Circuit Design (3 cr.)
- ECNG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
- ECNG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
- ECNG 520/5231 - Advanced Digital Communications (3 cr.)
- ECNG 521/5233 - Wireless Communication Systems (3 cr.)
- ECNG 522/5230 - Probability and Stochastic Processes with Applications (3 cr.)
- ECNG 524/5234 - Enabling Technologies for High Data Rate Communications (3 cr.)
- ECNG 525/5225 - Digital Signal Processing (3 cr.)
- ECNG 526/5236 - Information Theory and Coding (3 cr.)
- ECNG 530/5238 - Advanced Computer Networks (3 cr.)
- ECNG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)
- ECNG 547/5247 - RF and Microwave Systems (3 cr.)
- ECNG 548/5248 - RF Integrated Circuit Design (3 cr.)
- ECNG 549/5249 - Antennas Design and Applications (3 cr.)
- ECNG 553/5223 - Fault-Tolerant Computing and Reliability Modeling (3 cr.)
- ECNG 556/5226 - Networked Control Systems Design & Applications (3 cr.)
- ECNG 594/5930 - Advanced Topics in Electronics and Communications Engineering (3 cr.)

**\*\*Note:**

- Up to two PHD ECNG courses (600-level) to be taken for credit towards the above MS/ME degree are allowed

- Subject to the approval of the advisor and the graduate director the candidate is permitted to take six credit hours from the following two options

one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering;

Graduate Independent Study course (ECNG 5910) (1 to 3 credit hours).

However, the student may take a maximum of 3 hours of independent study, and a maximum of one course (3 credit hours) from outside the ECNG department.

## **Electronics and Communications Engineering with Concentration in Management of Technology (M. Eng.)**

The name of the Electronics Engineering department has been changed to be the Electronics and Communications Engineering department. This change is effective starting Spring 2014. All degrees offered by the department will reflect the new name starting Spring 2014, and all transcripts issued for students graduating Spring 2014 onwards will bear the new name.

The Master of Engineering Degree in Electronics and Communications Engineering with Concentration in Management of Technology prepares students for higher level professional practice in local and international markets. It is intended for electronics engineers who wish to master the practice in their field of specialty, as well as understanding the notion of technology and innovation as key to wealth creation, competitiveness and sustainable economic and social development. Potential students can come from academia, multinational corporations, government sectors, and owners, managers and employees of private/public sector companies.

### **1. Program Objectives**

## The objectives of the program are:

- To provide students with solid knowledge in product and systems design in electronics engineering.
- To train students to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- To educate students on high standard of written and oral communication on technical matters.
- To enable students to manage and guide technology-based organization in a changing environment
- To expose students to methods of integrating technology and business strategies
- To educate student on methods to develop an organizational structure and necessary functions that permit sustainable success.

## 2. Admission

Admission requirements are the same as those for the Master of Science in Electronics and Communications Engineering program.

## 3. Courses (33 credit hours)

A minimum of eleven courses (33 credit hours) are required.

The ECNG courses are selected from the following categories:

### Concentration Courses\* (24 credit hours)

Candidates must select at least 7 courses out of the following list of 15 courses:

- ECNG 510/5210 - Advanced Solid-State Devices (3 cr.)
- ECNG 000/5214 - Advanced ASIC Design (3 cr.)
- ECNG 516/5216 - Analog Integrated Circuit Design (3 cr.)
- ECNG 517/5217 - Digital Integrated Circuit Design (3 cr.)
- ECNG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
- ECNG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
- ECNG 520/5231 - Advanced Digital Communications (3 cr.)
- ECNG 521/5233 - Wireless Communication Systems (3 cr.)
- ECNG 522/5230 - Probability and Stochastic Processes with Applications (3 cr.)
- ECNG 524/5234 - Enabling Technologies for High Data Rate Communications (3 cr.)
- ECNG 525/5225 - Digital Signal Processing (3 cr.)
- ECNG 526/5236 - Information Theory and Coding (3 cr.)
- ECNG 530/5238 - Advanced Computer Networks (3 cr.)
- ECNG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)
- ECNG 547/5247 - RF and Microwave Systems (3 cr.)
- ECNG 548/5248 - RF Integrated Circuit Design (3 cr.)
- ECNG 549/5249 - Antennas Design and Applications (3 cr.)
- ECNG 553/5223 - Fault-Tolerant Computing and Reliability Modeling (3 cr.)
- ECNG 556/5226 - Networked Control Systems Design & Applications (3 cr.)
- ECNG 594/5930 - Advanced Topics in Electronics and Communications Engineering (3 cr.)

**\*Note:**

Subject to the approval of the advisor and graduate director the candidate is permitted to take three credit hours from one of the following two options:

one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering:

Graduate Independent Study (ECNG 5910) course (1 to 3 credit hours).

**MoT Courses (9 credit hours)**

Candidates must select 3 courses out of the following list:

- MOIS 508/5201 - Information and Communication Technology in Business (3 cr.)
- BADM 000/5310 - Strategic Management (3 cr.)
- ECNG 570/5271 - New Product Design and Development (3 cr.)
- ECNG 571/5272 - Technology and Innovation Management (3 cr.)
- ECNG 572/5273 - Strategic Management of Innovation (3 cr.)
- ECNG 573/5274 - Entrepreneurship and Innovation (3 cr.)

**Environmental Systems Design (M.Eng.)**

*Director: Associate professor : Ahmed El Gendy (ENVE)*

*Steering Committee:*

Professor: Hassan el fawal (SSE dean and BIOL), Salah el haggar (MENG chair), Emad Imam (CENG)

*Associate professor : Ahmed El Gendy (ENVE)*

*Assistant professor: Sherine el baradei (CENG)*

The Master of Engineering Degree in Environmental Systems Design prepares students for higher level professional practice in local and international markets, whether in private consulting practice, industry, or government and regulatory activities.

**Program Objectives**

The objectives of the Master of Engineering Degree in Environmental Systems Design are to provide the graduates of the program with:

- Extensive knowledge in fundamental environmental engineering science, the interactions of pollutants in water, air, and subsurface environments, and the design of treatment / pollutant remediation systems.
- In-depth knowledge in an area of student interest deriving from one of the areas of environmental engineering noted above, including applications in environmental hydraulics, solid and hazardous waste engineering, and management of environmental control systems.

- Awareness of the local and global context in which environmental engineering is practiced, including economic and business practices, societal needs, and considerations of public health, safety, culture and ethics.
- An ability to solve unstructured engineering problems of social significance, think critically, and function well in a team.
- A high and ethical standard of written and oral communication on technical matters.

#### **Admission**

Admission requirements are the same as those for the Master of Science Program.

## **Courses (33 credit hours)**

Course work for the Master of Engineering degree requires the completion of 33 credit hours as follows:

### **I- Engineering core (6 credits)**

- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)

One course (3 cr.) is selected out of

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### **II- Environmental Engineering core (15 credits)**

- ENVE 561/5250 - Water Quality Control (3 cr.)
- ENVE 562/5251 - Unit Operations in Environmental Engineering (3 cr.)
- ENVE 564/5252 - Air Pollution Control Engineering (3 cr.)
- ENVE 566/5254 - Solid and Hazardous Wastes Engineering (3 cr.)
- ENVE 567/5255 - Environmental Chemistry (3 cr.)
- ENVE 569/5258 - Groundwater Hydrology and Contamination (3 cr.)

### **III- Elective Courses (12 credit hours)**

Four courses (12 cr.) are to be selected from a set of graduate courses in engineering, physical sciences, social sciences, management and other related graduate level courses subject to advisor and director's approval. No more than one 400-level course in engineering, computer science and other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor and director's approval.

## **Mechanical Engineering (M.Eng.)**

The Master of Engineering in Mechanical Engineering at AUC prepares students for higher level professional practice in local and international markets.

### **Program Objectives**

The objectives of the Master of Engineering Degree are to provide the graduates of the program with:

- A broad knowledge of modern computational and experimental methods in engineering.
- Detailed knowledge in engineering design, materials and manufacturing, industrial engineering, power and mechatronics.
- Awareness of the local and global context in which mechanical engineering is practiced, locally and globally, including economic and business practices, societal needs, and considerations of public health, safety, environment, culture and ethics.
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- A high standard of written and oral communication on technical matters.

### **Admission**

Admission requirements are the same as those for the Master of Science Program.

## **Courses (33 credit hours)**

Course work for the Master of Engineering degree requires the completion of a minimum of 33 credit hours as follows:

### **I- Engineering and Mechanical Engineering core (21 credits)**

Students must complete 21 credits in graduate engineering and mechanical engineering courses. Up to nine ENGR credits from the Engineering Core courses listed under the Master of Science program in Mechanical Engineering may count toward the fulfillment of this core requirement.

### **II- Elective Courses (9 credit hours)**

Students may elect to take three courses (9 credits). A minimum of two courses must be taken from offerings in mechanical engineering/ engineering disciplines (including ENGR). No more than one 400- level course, not in the student's undergraduate major may be taken for graduate credit, subject to approval of the advisor and department chair.

### **III- Capstone project (3 credits)**

Students are required to undertake an engineering project approved by the chair of the supervisory committee, which consists of the student advisor and two additional faculty members. A final report that has been reviewed for its technical writing quality is submitted and orally defended in the presence of the supervisory committee.

## **Petroleum Engineering (M.Eng.)**

The Master Degree in Petroleum Engineering prepares graduate students to provide the industry with a workforce equipped with technical skills and research capabilities with the understanding of business, management practices, safety and environment and ethical work habits.

### **Program Objectives**

The Petroleum Engineering Program Educational Objectives for the Master Programs are:

- Perform an independent petroleum engineering research work that meets the current industry standards and needs
- Provide the students with the optimum design experiences required for graduates to join the industry of petroleum engineering and continue life-long professional development.
- Apply and abide with highest standards of ethics, environmental, and societal requirements in petroleum industry

#### **Admission Requirements**

Full admission may be granted to entering students who have met the minimum criteria for the AUC graduate admission in addition to the following requirements:

- A BSc degree in petroleum engineering or closely related field with an overall grade point average (GPA) of at least 2.75 or its equivalent, and 3.0 or its equivalent in the major.
- The department may prescribe a number of prerequisite courses to make up for any deficiency. The prerequisite will depend on the student background, petroleum industry experience and the formal training obtained in the industry.

## **Core courses**

#### **Petroleum Engineering Courses (Minimum 21 credit hours)**

**Students select a minimum of seven courses from the Petroleum Courses:**

- PENG 000/5211 - Advanced Drilling (3 cr.)
- PENG 000/5112 - Well Control (3 cr.)
- PENG 000/5221 - Advanced Production Engineering (3 cr.)
- PENG 000/5222 - Petroleum Assets Evaluation (3 cr.)
- PENG 000/5131 - Applied PVT and EOS Modelling (3 cr.)
- PENG 000/5232 - Advanced Well Testing (3 cr.)
- PENG 000/5233 - Enhanced Oil Recovery (3 cr.)
- PENG 000/5134 - Reservoir Management (3 cr.)
- PENG 000/5235 - Compositional Simulation (3 cr.)
- PENG 000/5136 - Advanced Reservoir Simulation (3 cr.)
- PENG 000/5141 - Advanced formation evaluation (3 cr.)
- PENG 000/5142 - Cased-hole logging (3 cr.)
- PENG 000/5243 - Applied Techniques in Unconventional Reservoirs (3 cr.)
- PENG 000/5144 - Geostatistics (3 cr.)
- PENG 000/5251 - Selected Topics in Fundamentals of Petroleum Engineering (3 cr.)
- PENG 000/5252 - Selected Advanced Topics in Petroleum Engineering (3 cr.)
- PENG 000/5253 - Independent Study (3 cr.)
- PENG 000/5254 - Research Guidance Thesis (3 cr.)

## **General Elective Courses (Maximum 9 credit hours)**

Students may elect to take three courses (9 credits). A minimum of two courses must be taken from offerings in petroleum engineering/engineering disciplines (including ENGR). No more than two 4000 level courses may be taken for graduate credit, subject to approval of the advisor and department chair.

## **Capstone Project (3 credit hours)**

PENG 000/5255 - Capstone Project (3 cr.)

Students are required to attend the library and writing modules of ENGR 5940 and to undertake an engineering project approved by the chair of the supervisory committee, which consists of the student advisor and two additional faculty members. A final report is submitted and orally defended in the presence of the supervisory committee.

## **Robotics, Control and Smart Systems (M.Eng.)**

### **Master of Engineering in Robotics, Control and Smart Systems (RCSS)**

The Master of Engineering in Robotics, Control and Smart Systems provides academic excellence through an interdisciplinary education in the fields with aim to prepare graduate students for careers in industry, education and research (local, regional and global).

#### **Program Objectives:**

The Master of Engineering in Robotics, Control and Smart Systems graduates engineers who :

1. Have broad foundation in both the theoretical and the practical skills of RCSS interdisciplinary knowledge space,
2. Integrate fundamental and advanced knowledge to solve complex interdisciplinary problems in the field of RCSS,
3. Work independently as well as collaboratively within interdisciplinary teams and prepared to be team leaders,
4. Demonstrate competitive professional advancement, and engage in advanced academic and research in areas of their interest within industry, research centers, and academia both in local and global environment.

#### **Admissions**

A bachelor's degree in engineering, with minimum GPA of 3.0 out of 4.0 in major area is required as a basic requirement or admissions into the RCSS master's program. Admission is also subject to the general university requirements for graduate programs. For those students whose grade records indicate promising ability, but who otherwise are not have adequate preparation in sciences or engineering, admission may be granted under the requirement that remedial courses will be taken.

#### **Program Structure**

A total of 33 credit hours are required for the Master of Engineering in RCSS. The program of study should include 33 credit hours of courses.

### **Courses (33 credit hours):**

#### **I. Group I (6 credit hours)**

A minimum of 6 credit hours are required from this list of courses:

- RCSS 501/5201 - Robotics: Kinematics, Dynamics and Control (3 cr.)
- RCSS 502/5202 - Embedded Real Time Systems (3 cr.)
- RCSS 503/5203 - Modern Control Design (3 cr.)
- RCSS 504/5204 - Applied Estimation (3 cr.)

## II. Group II (18 credit hours)

A minimum of 18 credit hours are required from this list of courses:

- RCSS 521/5221 - Intelligent and Autonomous Robotic Systems (3 cr.)
- RCSS 522/5222 - Mechatronics Innovations and Experimental Robotics (3 cr.)
- RCSS 523/5223 - Bioinspired Robotics and Multi Robotic Systems (3 cr.)
- RCSS 524/5224 - Robotics and Intelligent Automated Manufacturing (3 cr.)
- RCSS 531/5231 - Teleoperation, Haptic Systems and Collaborative Control (3 cr.)
- RCSS 532/5232 - Robust and Optimal Control (3 cr.)
- RCSS 533/5233 - Nonlinear and Adaptive Control (3 cr.)
- RCSS 534/5234 - Networked Control Systems: Design and Applications (3 cr.)
- RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)
- RCSS 542/5242 - MEMS/NEMS Technology and Devices (3 cr.)
- RCSS 543/5243 - Image Analysis and Computer Vision (3 cr.)
- RCSS 544/5244 - Sensors, Perception and Smart Systems (3 cr.)
- RCSS 545/5245 - Advanced Artificial Intelligence (3 cr.)
- RCSS 592/5930 - Selected Topics in RCSS (3 cr.)

## III. Group III (3 credit hours)

- RCSS 593/5980 - Capstone Project (3 cr.)

## IV. Group IV (6 credit hours)

Select (6 credits) from the above two groups or from other graduate courses in engineering, physical sciences, or management subject to advisor and director's approval. No more than one 400-level course in engineering or other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor and director's approval.

## **Global Affairs, with concentrations in International and Regional Security and International Cooperation in the Global System (MGA)**

The Master of Global Affairs (MGA) is administered by the Department of Public Policy and Administration in the School of Global Affairs and Public Policy. The program prepares students for leadership and responsibility positions in the conduct of global affairs and public policy in governments and international and regional multilateral agencies as well as in business and civil society organizations. It is expected that students will be drawn from and/or employed in mid-career positions in institutions working in global affairs or demonstrate promise for such careers, based on their commitment and their academic and professional background.

The MGA program aims to provide students with knowledge and professional skills required for the functioning of the global system in an inclusive manner at the international and national levels, combining conceptual understanding with analytic skills and knowledge of global affairs. Through this program, students will gain the capability to participate effectively in the formulation and implementation of policies in their own countries and in supporting, guiding, and monitoring action on global affairs at the multilateral level. Ultimately, both their own countries and the global system should benefit from the knowledge acquired.



### Admission

All applicants must satisfy the university's graduate admission requirements. Candidates for the MGA are recommended but not required to have two or more years of relevant professional experience.

### Courses (33 credit hours)

Students seeking the degree of Master of Global Affairs must complete 33 credit hours of coursework plus a master's project. The program core, required of all students, consists of 6 courses (18 credits). Students must also complete a concentration of 5 courses (15 credits). Students may elect either the concentration in International Security or the concentration in International Cooperation. Students are required to declare their concentration before beginning their second semester of enrollment in the program. In addition to coursework, students must complete a master's project consistent with department and university guidelines.

## Core Requirement (18 credit hours):

Students must complete four (4) courses in group 1, two (2) course in group 2

### Group 1: Complete all four (4) of the following:

- PPAD 527/5251 - International Organization in Global Governance (3 cr.)
- PPAD 540/5161 - Diplomacy: Theory and Practice (3 cr.)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
- PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)

### Group 2: Complete two of the following:

- LAW 509/5209 - International Law (3 cr.)
- PPAD 529/5151 - Issues in International Security (3 cr.)
- PPAD 502/5231 - Economics for Public Policy Analysis (3 cr.)
- POLS 561/5261 - Public Policy and Development (3 cr.)
- PPAD 524/5129 - Globalization and Development (3 cr.)
- PPAD 528/5252 - Theory and Practice of Negotiation (3 cr.)
- PPAD 508/5211 - Qualitative Analysis for Policy and Administration (3 cr.)
- PPAD 509/5212 - Applied Quantitative Analysis (3 cr.)

## Concentration Requirement (15 credit hours):

Students must complete 5 courses in one of the following two areas. In addition to the courses shown for each concentration, students may select a course from the core list shown above as a Group 2 concentration course, if not taken as a core course (i.e., a course may be counted toward only one requirement) or, with advisor approval, may substitute an appropriate offering of PPAD 5199 - Selected Topics in Public Policy and Administration.

### MGA Concentration 1: International and Regional Security

5 courses (15 credits) required

#### Group 1: Required for all students in the concentration

- PPAD 532/5154 - Contemporary Security Issues in the Middle East (3 cr.)
- PPAD 530/5152 - Conflict Prevention and Resolution (3 cr.)
- PPAD 539/5258 - Role of Force: Strategy and Statecraft (3 cr.)

## Group 2: Complete two of the following:

- PPAD 531/5153 - Armament, Arms Control and Disarmament (3 cr.)
- MEST 580/5280 - Selected Topics (3 cr.)
- POLS 554/5254 - Comparative Foreign Policy: Theories and Applications (3 cr.)
- PPAD 000/5225 - Regionalism and Regional Integration (3 cr.)
- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)
- PPAD 591/5198 - Practicum (3 cr.)
- MRS 500/5102 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)
- PPAD 524/5129 - Globalization and Development (3 cr.)
- PPAD 509/5212 - Applied Quantitative Analysis (3 cr.)

## MGA Concentration 2: International Cooperation in the Global System

5 courses (15 credits) required

### Group 1: Required for all students in concentration

- PPAD 000/5225 - Regionalism and Regional Integration (3 cr.)
- PPAD 534/5156 - Multilateral and Bilateral Cooperation for Development (3 cr.)
- PPAD 533/5155 - Governance of the Global Economy (3 cr.)

### Group 2: Complete two of the following:

- PPAD 516/5132 - Social and Environmental Policy (3 cr.)
- PPAD 591/5198 - Practicum (3 cr.)
- POLS 554/5254 - Comparative Foreign Policy: Theories and Applications (3 cr.)
- PPAD 520/5133 - Global Health Issues and Policies (3 cr.)
- MRS 501/5103 - International Migration & Development (3 cr.)
- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)

## Capstone Project

Students must complete a capstone project that addresses an issue or a challenge in global affairs with relevance to their concentration. The project should be directed towards an external client engaged in this issue. If a member of the client's staff is not available, the client role may be performed by an alternate designated by the department. The preparation of the capstone project plan and final report must comply with departmental guidelines with regard to client involvement, content, format, and dates. Once the project plan is approved by the supervisor and/ or the client, the student will enroll in PPAD 5293, the capstone project, where they will complete the necessary components per the departmental guidelines and client's specification. The capstone project may be completed as a group or individual project with client and faculty permission.

## **Global Public Health (MPH) with concentrations in Environmental Health, Precision Health and Global Public Health Policy and Management**

The Master of Global Public Health (MPH) program provides postgraduate education to prepare students for a career in several essential and innovative areas of interdisciplinary specialization through a sound foundation in the biomedical, engineering, and data sciences. The MPH program also recognizes the need of the practitioner to be cognizant of the social, behavioral, policy and regulatory dimensions of public health in the regional and global context of today's world. This program, through its implementation science and engineering perspective, will prepare practitioners with a mission of innovation, implementation, education, and service as global citizens committed to health, disease identification, mitigation, and prevention. This is essential to meet global public health workforce needs in our region.

### **Program Goals and Objectives**

The mission of the MPH is to prepare graduates to advance the public's health through education, health promotion, and the improvement of health outcomes of populations and individuals domestically and globally by fostering the critical thinking, leadership, and decision-making of a knowledgeable workforce and scholars.

Core Values on which the programs are based:

- Excellence in pedagogy and mentorship of students;
- Excellence in recruitment of the highest quality faculty, staff, and students;
- Engagement in interdisciplinary education on campus, in the community, and in the region;
- Integrity, with mutual respect and consideration of cultural differences, religious and socioeconomic status;
- Inclusivity, through the recognition of the uniqueness of individuals, domestically and globally;
- Creating an environment that nurtures and fosters dialogs across the campus, community, and globe;
- Empowerment of global citizens, women and men, and communities to make a difference in transforming challenges to opportunities.

The curriculum was developed with the following program goals guiding its development:

1. Implement a competency-based curriculum and systematic assessment to ensure that graduates are prepared with the knowledge, values, and skills to assume leadership roles in global public health, as researchers and practitioners
2. Integrate experiential inter-professional teamwork with social and global perspectives into coursework, fieldwork, and thesis projects designed to foster the development of core public health competencies and a commitment to achieving health equity in community service in diverse communities
3. Link public health research and practice by engaging faculty, students, public health and medical professionals and the community in conducting public health scholarly projects and applied research designed to advance the field and practice.
4. Establish a synergy between disciplines with the focus of translation, implementation, and assessment outside the classroom.
5. Foster a holistic approach that respects the individual, the public, the global community, and the environment to ensure sustainability and responsibility and accountability.

### **Learning Outcomes**

The following outcomes for the Programs in Global Public Health are based on the recommendations of the CePH, the accrediting body for Public Health. They also reflect the core public health competencies identified by the Association of Schools and Programs of Public Health (ASPPH).

**Global PH Program Outcomes:**

Upon completion of the MPH graduates will be prepared to:

1. Function with competency in the general five pillars of public health (Social & Behavioral Sciences, Biostatistics, Epidemiology, Environmental Health, and Health Policy and Management) as well as other functional competency areas identified by CePH.
2. Collaborate with communities and community-based health care professionals on public health initiatives.
3. Assume beginning leadership roles in public health (specific to tracks) and in organizations and coalitions that advance public health.
4. Critically analyze research evidence and relevant data (e.g. big data) to determine health care trends, best practices, and develop appropriate public health interventions.
5. Manage public health projects through assessment, planning, implementation, evaluation and sustainability to realize best practices.
6. Communicate effectively and efficiently to foster collaboration, teamwork, and achievement of knowledge-practices dissemination and health outcomes for improved wellness, quality of life and optimal intervention

A distinguishing feature of the proposed MPH. The Precision Health concentration elucidates our commitment in providing our students training in an emerging, cutting-edge, and growing area of expertise. US National Institute of Health [NIH (2017)] is promoting the initiative into Precision Health by initiating the "All of Us" research program with the goal of using new technology to create some of the largest and most diverse longitudinal cohorts in history. The Dean of Stanford School of Medicine, Dr. Minor (2016), highlighted the importance of fostering Precision Health as a way to promote new integrations between health and other fields such as engineering, computer science, and business innovation to achieve our biggest common end: making people healthy. Precision Health, as interpreted in the proposed programs, brings together strengths in targeted delivery of nanoformulation (drugs, genes) with the personalized-medical approaches of biomarker diagnostics, pharmaco- and toxicogenomics, and gene-environment interactions. It also takes a holistic systems approach of the "omics" disciplines (genomics, proteomics, metabolomics), internal environment (e.g., microbiome), external environment, in identifying risk and intervention in nervous system disorders and mental wellbeing. It is based on an appreciation of individual differences that impact on intervention and therapy. These programs, built on engagement, are also intimately keyed in to the need for interpretation of risk to the public through health communication. Health communication is essential to motivate healthy behavior and reduce health risk, and the burden of disease in communities, as well as at institutions and agencies throughout the nation and region, including the Ministry of Health and Population, the World Health Organization, US Agency for International Development (USAID), and governorate and local health departments, as well as the media.

**Students**

Students that may be interested in the MPH degree are students with a Bachelor's degrees from an accredited institution with a cumulative GPA of 3.0 in their major or higher including: 1) Current AUC students of Biology, Chemistry, Physics, Math and Actuarial Sciences, Engineering disciplines, Business, Social and Behavioral Sciences, and from majors with concentrations in environment, behavior, management, policy and management; 2) Students from other academic institutions with a wide range of backgrounds who are interested in expanding their career options in public health particularly current employees from local Departments and Ministries of Health and health agencies such as hospitals, physicians, pharmacists, dentists, veterinarians, nurses, safety engineers, agricultural engineers and chemists. The MPH is one of the most sought-after graduate degree by MDs, who account for 15-20% of graduates from PH programs.; and 3) current employees such as professionals working in hospitals, insurance companies, pharmaceuticals, sustainability and other areas seeking to improve their skills and be eligible for a wider range of career options.

**Degree Requirements****Admission**

A Bachelor's degree in the sciences, medicine, dentistry, veterinary medicine, pharmacy, nursing or engineering, with a minimum GPA of 3.0 out of 4.0, or equivalent, is required for admission into the MPH program. Students with backgrounds in the social and behavioral sciences, policy, management and business can be admitted into selected tracks, but are subject to the core curriculum. Admission is also subject to the general university requirements for graduate programs. For those students whose grade records indicate promising ability, but who otherwise may lack adequate preparation in sciences, biomedicine, or engineering, admission may be granted under the requirement that additional probationary courses will be taken.

### **Program Objectives**

The objectives of the Master of Public Health (MPH) are:

- To introduce students to a combination of fundamentals and field implementation research experience with an appreciation for community engagement, communication, and empowerment in affecting change through behavior, best practices, and policy pertinent to Public Health within the local, regional and global communities. It is also aimed at creating a knowledgeable and needed workforce to tackle the challenges and goals of the UN SDGs.
- Train students to function with competency in the general five pillars of public health (Social & Behavioral Sciences, Biostatistics, Epidemiology, Environmental Health, and Health Policy and Management) as well as other functional competency areas identified by the Council on Education for Public Health (CePH). • Prepare and enable students to collaborate with communities and community-based health care professionals on public health initiatives.
- Empower students to assume beginning leadership roles in public health (specific to tracks) and in organizations and coalitions that advance public health.
- Educate students to critically analyze research evidence and relevant data (e.g. big data) to determine health care trends, best practices, and develop appropriate public health interventions
- Prepare and enable students to manage public health projects through assessment, planning, implementation, evaluation and sustainability to realize best practices.
- Train students to communicate effectively and efficiently, in writing and orally, to foster collaboration, teamwork, and achievement of knowledge-practices dissemination and health outcomes for improved wellness, quality of life and optimal intervention.

### **The MPH Requirements**

Depending on the specific track, a minimum of 42 credit hours\* is required for the MPH, as defined by CePH and ASPPH. This consists of 24 credits hours of core courses, inclusive of 9 credits of research seminar and thesis research, and an additional 18 credit hours of coursework in a given track.

### **Advisors, Advisory Committee, and Study Plan for MPH**

During SCI 000/5940 - Graduate Thesis Seminar (3 cr.) , for the MPH students, this is the second full semester, the student will have identified a track and focus of interest. In discussion with faculty and the Program Director, a primary Research Advisor will be identified. A preliminary research proposal draft will be developed during SCI 000/5940 - Graduate Thesis Seminar (3 cr.). The student, together with the Research Advisor, will develop a study and research plan for the remaining year. It is imperative that this be done in a timely manner to insure scheduling of appropriate course work and ensure student success.

### **Concentrations**

The courses of the core and tracks were selected or developed to reflect the themes supported by the association of Schools and Programs of Public Health (ASPPH) (2012) Framing the Future: The Second 100 years of Education for Public Health", the WHO Eastern Mediterranean priority of Human Resources for Health (<http://www.who.int/alliance-hpsr/projects/middleeast-polforum/en/>), and emerging challenges in Public Health, regionally and globally. These include non-communicable diseases (cardiovascular, diabetes, obesity, malnutrition, congenital defects, mental and neurodegenerative disorders), early detection, surveillance and intervention (Precision Health) [The State of Health in

the Arab World, 1990-2010: An Analysis of the Burden of Diseases, Injuries, and Risk Factors. (2014). The Lancet, 383:309-320]. This document outlines the knowledge, skills, and outcomes expected in Public Health programs.

These themes (tracks) are:

- Environmental Health (GHEH):
- Precision Health (GHPH);
- Public Health Policy and Management (GHPM)

## Concentration in Environmental Health

### Core 24 Credits

GHHE 000/5110 - Biostatistics (3 cr.)

GHHE 000/5120 - Introduction to Epidemiology (3 cr.)

GHHE 000/5130 - Environmental & Occupational Health (3 cr.) or GHHE 000/5135 - Environmental Health for the Non-Scientist (3 cr.)

GHHE 000/5140 - Bioethics in Research (3 cr.)

GHHE 000/5150 - Global Health Communication and Society (3 cr.)

SCI 000/5940 - Graduate Thesis Seminar (3 cr.)

GHHE 000/5160 - Thesis Research (repeated to satisfy PhD research requirements)

### Environmental Health Electives (18 Credit hours):

- ENVE 567/5255 - Environmental Chemistry (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.) GREN 502/5202 - Engineering for a Sustainable Environment (3 cr.)
- ENVE 561/5250 - Water Quality Control (3 cr.)
- ENVE 564/5252 - Air Pollution Control Engineering (3 cr.)
- ENVE 566/5254 - Solid and Hazardous Wastes Engineering (3 cr.) GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)
- GREN 501/5201 - Global Changes and Sustainable Development (3 cr.)
- GREN 503/5203 - Core Concepts & Applications for Social & Environmental Policy (3 cr.)
- GREN 505/5205 - Environment and Society (3 cr.)
- GREN 514/5214 - Green Buildings (3 cr.)
- GREN 532/5232 - Greening the Built Environment (3 cr.)
- GHHE 000/5195 - Advanced Good Laboratory Practices and Laboratory Management (3 cr.)
- GHHE 000/5330 - The Earth Lab (3 cr.)
- GHHE 000/5331 - Health Effects of Environmental Agents (3 cr.)
- GHHE 000/5332 - Environmental Exposure Assessment (3 cr.)
- GHHE 000/5333 - Biological Monitoring in Exposure Assessment (3 cr.)
- GHHE 000/5334 - Field Research in Environmental Health and Safety (3 cr.)
- GHHE 000/5335 - Occupational Safety and Ergonomics (3 cr.)
- GHHE 000/5336 - Kinesiology and Biomechanics (3 cr.)
- GHHE 000/5337 - Ergonomics for Injury Prevention and Accommodation (3 cr.)

- GHHE 000/5340 - Principles of Toxicokinetics, Toxicodynamics, and Chemical Classes (3 cr.)
- GHHE 000/5341 - Systemic and Molecular Toxicology (3 cr.)
- GHHE 000/5342 - Case Studies in Pharmaceutical Toxicology (3 cr.)
- GHHE 000/5343 - Chemical Teratogenesis (3 cr.)
- GHHE 000/5344 - Chemical Carcinogenesis (3 cr.)
- GHHE 000/5345 - Autonomic and Autocoid Pharmacology and Toxicology (3 cr.)
- GHHE 000/5346 - Immunopharmacology and Immunotoxicology (3 cr.)
- GHHE 000/5347 - Environmental Cardiopulmonary Diseases (3 cr.)
- GHHE 000/5348 - Nanotoxicology and Safety: From Mechanisms to Regulation (3 cr.)
- GHHE 000/5349 - Neurotoxicology (3 cr.)
- GHHE 000/5350 - Contemporary Issues in Environment, Sustainable Development and Health (3 cr.)
- GHHE 000/5351 - Environmental Health and Sustainability in the Context of Human Geography (3 cr.)
- GHHE 000/5352 - Geography of Health and Healthcare (3 cr.)

## Concentration in Precision Health

### Core 24 Credits

GHHE 000/5110 - Biostatistics (3 cr.)

GHHE 000/5120 - Introduction to Epidemiology (3 cr.)

GHHE 000/5130 - Environmental & Occupational Health (3 cr.)

GHHE 000/5140 - Bioethics in Research (3 cr.)

GHHE 000/5150 - Global Health Communication and Society (3 cr.)

SCI 000/5940 - Graduate Thesis Seminar (3 cr.)

GHHE 000/5160 - Thesis Research (repeated to satisfy PhD research requirements)

### Precision Health Electives (18 Credit hours):

- BIOT 521/5206 - Fundamentals of Bioinformatics (3 cr.)
- NANO 505/5205 - Nanochemistry (3 cr.)
- BIOT 531/5207 - Molecular Diagnosis (3 cr.)
- BIOT 620/6206 - Computational Genomics and Transcriptomics (3 cr.)
- GHHE 000/5410 - Biomarkers: Exposure, Susceptibility, Effects and Efficacy (3 cr.)
- GHHE 000/5420 - Pharmacogenomics and Personalized Medicine (3 cr.)
- GHHE 000/5430 - Integrating Biomarkers in Population-based Research (3 cr.)
- GHHE 000/5440 - Nanotechnology: Scope and Frontiers in Precision Health (3 cr.)
- GHHE 000/5450 - Nanoformulation, Targeting and Applications (3 cr.)
- GHHE 000/5460 - Nanomanufacturing, QC and Regulatory Affairs (3 cr.)
- GHHE 000/5348 - Nanotoxicology and Safety: From Mechanisms to Regulation (3 cr.)
- GHHE 000/5470 - Nano-Enabled Precision Health (3 cr.)
- GHHE 000/5510 - Applied Neuroscience I (3 cr.)
- GHHE 000/5520 - Applied Neuroscience II (3 cr.)
- GHHE 000/5530 - Neuroimmunology (3 cr.)

- GHHE 000/5540 - Genetics and Molecular Basis of Disease (3 cr.)
- GHHE 000/5550 - Systems Neurobiology in Public Health (3 cr.)

## Concentration in Global Public Health Policy and Management

### Core 24 Credits

GHHE 000/5110 - Biostatistics (3 cr.)

GHHE 000/5120 - Introduction to Epidemiology (3 cr.)

GHHE 000/5130 - Environmental & Occupational Health (3 cr.)

GHHE 000/5140 - Bioethics in Research (3 cr.)

GHHE 000/5150 - Global Health Communication and Society (3 cr.)

SCI 000/5940 - Graduate Thesis Seminar (3 cr.)

GHHE 000/5160 - Thesis Research (repeated to satisfy PhD research requirements)

### Global Public Health Policy and Management Electives (18 Credit hours):

- PPAD 515/5202 - Public Policy Theory & Practice (3 cr.)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
- PPAD 516/5132 - Social and Environmental Policy (3 cr.)
- PPAD 520/5133 - Global Health Issues and Policies (3 cr.)
- PPAD 525/5127 - Reforming Delivery of Social Services (3 cr.)
- PPAD 511/5122 - Administrative Environment and Public Policy in Egypt and the Middle East (3 cr.)
- PPAD 512/5114 - Management of Development Programs (3 cr.)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.)
- PPAD 501/5221 - Strategic Management for Government and Nonprofit Organizations (3 cr.)
- PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.)
- PPAD 504/5222 - Fundamentals of Financial Planning and Management for Government and Nonprofit Organizations (3 cr.)
- ECON 530/5217 - Health Economics in Developing Countries (3 cr.)
- GHHE 000/6100 - Contemporary Challenges in Global Health I (3 cr.)
- GHHE 000/6110 - Global Challenges in Environmental Medicine (3 cr.)
- GHHE 000/6120 - Leadership and Professional Development for Public Health Professionals (3 cr.)
- GHHE 000/6130 - Current Issues in Public Health Outcomes (3 cr.)
- GHHE 000/6210 - Public Health Informatics (3 cr.)
- GHHE 000/6220 - Health Informatics and Management (3 cr.)
- GHHE 000/6230 - Health Informatics in Health Surveillance (3 cr.)

### Research Seminar and Thesis Research (9 credits)

## Master in International Management/CEMS (MIM/CEMS)



The Master in International Management/CEMS (MIM/CEMS) is a one-year pre-experience master program that builds on previous knowledge acquired by students in their Bachelor's degree studies. The MIM year is composed of three main terms, whereby students are required to spend one term at AUC, one term at any of the other CEMS member schools around the globe, and one international internship of at least 8 weeks outside the country at which the student applied and was accepted. Students command of at least three (3) languages, including mother tongue, are mandatory to graduate. Upon graduation, the MIM students become alumni of both AUC and CEMS.

The (MIM/CEMS) is the most international pre-experience master program in the world as it combines solid academic education with relevant business practice. The curriculum includes components of the (MIM/CEMS) common curriculum (i.e. offered in all schools member of the CEMS alliance) as well courses and seminars tailored to the specific local and regional context. The curriculum as well as the courses' content are designed, regularly updated, and delivered in collaboration with corporate and social partners to ensure the curriculum is practical and relevant to the local, regional, and global business environment. It represents hence a perfect preparation for the students targeting an international career in business.

### **Admission Requirements**

To be accepted in the AUC- MIM/CEMS applicants shall fulfill the following requirements:

- A Bachelor's degree in business, economics, accounting
- For students holding a bachelor degree in a non-business bachelor degree a minimum of 30 credit hours of business courses is required (60 ECTS).
- High academic records (For example a GPA not less than 3.4 or an equivalent from other systems).
- Provide proof of proficiency in English (if not mother tongue) (Check English Proficiency requirements below)
- A maximum of two years from the graduation date (undergraduate degree) and the date of the start of the MIM program.
- Two (2) letters of references from instructors or employers advocating the student's readiness to the AUC-MIM/CEMS program and including multi-cultural aptitude with emphasis on academic rigor
- One-page letter of motivation. (Check components of letter of motivation below)
- Applicant's updated Curriculum Vitae.
- Command of a second language other than English (this may include Arabic, French, German or any CEMS approved language[RS1] )
- Filled mother tongue declaration form <https://cems.box.com/s/xox7sjjegabkcgms06zbdyo6nplrri> signed by the applicant to be submitted with the rest of the documents.
- Good international exposure, relevant extra-curricular activities and/or community service.
- Selected applicants will go through a rigorous personal interview

### **English Proficiency requirements**

Students applying to Master in International Management / CEMS ( MIM/CEMS) need to provide a proof of English proficiency through any of the following Methods

- IELTS: minimum IELTS Band score: 7.0, minimum IELTS Writing score: 7.0;
- iBT TOEFL: minimum overall iBT TOEFL score: 100, minimum iBT Writing score: 27;
- CPE Grade C(\*): An overall score of 200 or above with a writing score of 200 or above.
- CAE Grade B(\*): An overall score of 193 or above with a writing score of 193 or above.

(\*): No letter grades will be taken into account for the English Language results, only numerical scores.

Exemption from the English language examinations is only allowed for applicants who received a degree solely taught in English from an EQUIS and/or AACSB accredited institution.

### **Additional Notes:**

- While the validity of any of these English language examinations is 2 years from the day of the exam, the results will not be considered for graduate admission if the expiry date is before the first day of registered classes at AUC.
- The American University in Cairo reserves the right to request English proficiency test results from any applicant as deemed necessary.

#### **Components of letter of motivation**

At AUC MIM/CEMS program, we seek a strong sense of international spirit in the candidate's motivation. We also seek strong, convincing written motivation for the program, in the first instance. The letter of motivation should therefore address some of the following topics

1. Why do you apply for MIM CEMS at AUC?
  2. Why do you want to study in Egypt?
  3. Why do you think you are the right person for this program?
- In which way will you contribute to the MIM CEMS program?
  - What knowledge and skills gathered in your previous education/experience will be useful?
  - How do you estimate your own personality? Do you think you are a good leader? Are you somebody who can make a difference? What makes you think so? (Emphasize your strong points, but be realistic.)

#### **Program Details**

The MIM program requires a total of (35 Credits) including required courses, exclusive courses, elective courses, seminars and culminates with a business project and international internship. The program also requires all MIM/CEMS students to graduate with competence in three languages, one of which must be English.

AUC adopts the credit hours system while the (CEMS) adopts the ECTS (European Credit Transfer and Accumulation System). Below is the definition of each of these two systems

- Credit Hour: Coursework is counted in credit hours. In general, a credit hour represents a one-hour class period and at least two hours of individual study each week for one semester. Hence 3 credit hour course represents 3 hours of class work and 6 hours of individual study per week.
- ECTS: workload ranges from 1,500 to 1,800 hours for an academic year, which means that one credit corresponds to 25 to 30 hours of work.

According to the above definitions, the credit conversion of the European ECTS and the credit units at AUC (2 ECTS = 1 credit.).

#### **CEMS Required Courses**

CEMS 000/5201 - Global Strategy (3 cr)

CEMS 000/5202 - Global Management Practice (3 cr)

#### **CEMS Exclusive courses**

##### **TERM 1 (September-December)**

CEMS 000/5203 - Bottom of the Pyramid (BOP) Marketing (3 cr)

CEMS 000/5204 - Advanced Financial Management: Cases from the Middle East (3 cr)

CEMS 000/5205 - Global Supply Chain Management (3 cr)

##### **TERM 2 (February- May)**

CEMS 000/5206 - Economics of Cultural Heritage (3 cr)

#### **Elective Courses (2 required)**

The course offering will depend on the scheduling of each department offering the course, and their capacity to accept additional students.

ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)

PPAD 502/5231 - Economics for Public Policy Analysis (3 cr.)

POLS 535/5235 - Middle East Politics (3 cr.)

ARIC 575-576/5222-5223 - Special Studies in Islamic Art and Architecture (3 cr.)

EGPT 533/5330 - Coptic Art and Architecture (3 cr.)

EGPT 445/5160 - Selected Topics in Coptic Studies (3 cr.)

EGPT 519/5199 - Selected Topics in Ancient Egyptian Art and Culture (3 cr.)

### **Seminars**

The CEMS- MIM program includes a set of seminars in both terms. These seminars grading is based on a pass/fail grade. The number of credit hours for these seminars are distributed according to the following:

#### **TERM 1 (September-December)**

CEMS 000/5200 - Block Seminar (1.5) 5-day seminar delivered before the start of term 1

CEMS 000/5210 - Business Communication Skills Seminar (0.5 cr) 1-day seminar

#### **TERM 2 (February- May)**

CEMS 000/5220 - Responsible Global Leadership Seminar (1 cr)

CEMS 000/5221 - Skill Seminar (0.5 cr)

CEMS 000/5250 - Business Project (7.5 cr)

CEMS 000/5355 - International Internship (0 cr)

### **Language requirements**

All MIM/CEMS students graduate with competence in three languages, one of which must be English (at an advanced level) and another which must be a CEMS language.

The current CEMS Languages are: Arabic, Bengali, Cantonese, Czech, Danish, Dutch/Afrikaans, Farsi/Tajik, Finnish, French, German, Greek, Hebrew, Hindi/Urdu, Hungarian, Indonesian/Malay, Irish, Italian, Japanese, Korean, Mandarin, Norwegian, Polish, Portuguese, Romanian, Russian, Serbo-Croat (Bosnian, Croatian, Serbian, Montenegrin), Spanish, Swedish, Tagalog, Tamil, Thai, Turkish and Vietnamese.

The third language can be a CEMS language or any other language.

It is the students' responsibility to meet these language requirements. The school will be guiding the students to language teaching/testing certified locations.

The minimum language requirements are the following:

Language 1	English
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Mother Tongue or Proficiency ( Fulfilled through entry requirements of the MIM program	
Language 2	A CEMS official language
Mother tongue or B2/oral B1/written	
Language 3	Any Language
Mother Tongue or Elementary Level.	

## International and Comparative Law (LL.M.)

### The Ibrahim Shihata Memorial LL.M Program in International and Comparative Law

Dr. Ibrahim Shihata, in whose memory this LL.M has been established, made significant contributions to the development of international economic law. In addition to his positions of Senior Vice President and General Counsel with the World Bank, Dr. Shihata also served as Secretary-General of the International Center for the Settlement of Investment Disputes; he was principal architect of the Multilateral Investment Guarantee Agency (MIGA); and he was responsible for the World Bank Guidelines for the Legal Treatment of Foreign Investments. Other positions included first Director General of the OPEC Fund for Economic Development and General Counsel of the Kuwait Fund. He was instrumental in establishing the Inter-Arab Investment Guarantee Agency, and he was the founder of the International Development Law Institute in Rome. Indeed the entire career of Dr. Shihata was devoted to the infrastructures that assisted development. The LL.M program itself, as well as individual courses, are directly concerned with law and development. In Dr. Shihata's words: "Law, as the formal instrument of orderly change in society, plays a pivotal role, even though this role has not always been readily recognized."

The Master of Laws (LL.M) Degree in International and Comparative Law is intended for law school graduates who seek to acquire the intellectual and analytical tools to intervene critically and effectively in the global policy debates confronting their societies, as policy makers, practicing lawyers, judges, academics, activists or international civil servants. In the context of constantly changing global economic and political realities, and the crumbling of old regulatory models, the Degree is designed to empower students to adapt, innovate and gain mastery over what they don't know.

The Master of Laws (LL.M.) Degree in International and Comparative Law offers a wide range of courses designed to provide students with the intellectual tools to promote and critically assess economic, social, and legal developments. The curriculum is flexible and allows students to pursue advanced studies in specialized areas (e.g., business regulation, Islamic law and Middle Eastern legal systems, gender studies, and international human rights law). LL.M. students have an invaluable opportunity to benefit from the multidisciplinary offerings of the School of Global Affairs and Public Policy (GAPP). Fulfilling the requirements of the LL.M. degree normally calls for two years of study.

### Admission

The Applicant for admission to the LL.M degree should have an acceptable bachelor's degree in law, political science or a closely related social science (preferably with a minor in political science or law studies) with a grade of *gayyid* (good) or its equivalent for full admission. Students lacking the grade requirement may be eligible to be considered for provisional admission (as specified in the AUC catalog *supra*). Acceptance is by decision of the Law Faculty Committee, which may grant provisional admission pending the fulfillment of certain conditions. English language proficiency is required as per general AUC graduate admission requirements. Admitted degree candidates should normally start their course sequence in the fall semester. Students enrolled in the AUC English Language Institute must

complete all ELI Courses and modules before being allowed to enroll in Law Classes. For these students, spring enrollment is allowed.

For students admitted to the LL.M degree without a first degree in law, the *Equivalent Certificates Committee* (ECC) of the Supreme Council of Universities in Egypt may consider on a case-by-case basis, the equivalence of the LL.M degree.

## Requirements

The LL.M degree requires nine courses (27 credits hours) as well as a thesis of sufficient depth and length as specified below.

Four courses are required:

- LAW 500/5200 - Legal Research and Writing (3 cr.)
  - LAW 527/5227 - Graduate Law Seminar (3 cr.)
- Two out of the following three courses:
- LAW 501/5201 - Jurisprudence (3 cr.)
  - LAW 502/5202 - Comparative Law (3 cr.)
  - LAW 509/5209 - International Law (3 cr.)

## Electives

Students will be able to take up to five courses as electives, three of which have to be law courses. The Law Department's approval is required for electives offered by other Departments.

## Thesis Requirements

The research requirement for the LL.M. is satisfied by writing a thesis of sufficient depth and length for the topic addressed therein and prepared under the supervision of a faculty member of the department. Students are required to register for the following course while fulfilling their thesis requirement.

- LAW 599/5299 - Research Guidance/Thesis (no cr., pass/fail)

## Master of Public Administration

### Master of Public Administration

The Master of Public Administration is administered by the Department of Public Policy and Administration in the School of Global Affairs and Public Policy. The program prepares students for leadership and upper management positions in public service. Students, who are generally mid-career at entry, pursue careers in government, nonprofit organizations, international development agencies, academia, and the private sector.

### Program objectives

The mission of the MPA Program is to support effective and efficient administration of government and nonprofit organizations and better public governance in Egypt and the Middle East by preparing professionals for careers in public service with the highest ethical standards, strong competencies in public governance, excellent leadership and

communication skills, a sound understanding of the use of evidence and analysis in public service settings, and a commitment to building a better future for the people of Egypt and the region.

### **Admission**

All applicants must satisfy the university's graduate admission requirements. Candidates for the MPA or DPA are recommended but not required to have two or more years of relevant professional experience.

### **Courses (33 credit hours)**

Students seeking the degree of Master of Public Administration must complete 33 credit hours plus a thesis or 39 credit hours and a comprehensive examination. The program core, required of all students, consists of 6 courses (18 credits). Students must complete a concentration of 5 courses (15 credits). Students may elect either the concentration in Nonprofit Management, Human Resources Management in the Public and Nonprofit Organizations and Public Sector Reform and Innovation. Students are required to declare their concentration before beginning their second semester of enrolment in the program. In addition to coursework, students must complete a thesis, or opt to sit for a comprehensive examination after taking two additional courses. Students who choose to write a thesis, must do so in accordance with department and university guidelines for theses preparation. Additionally, students have the option to complete at least one enrolment in thesis courses (PPAD 5298 or PPAD 5299, both non-credit).

## **Core Requirement (18 credit hours):**

Students must complete 6 courses in total under the Core requirements.

### **Complete all following five (5) courses:**

- PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)
- PPAD 501/5221 - Strategic Management for Government and Nonprofit Organizations (3 cr.)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
- PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.)
- PPAD 504/5222 - Fundamentals of Financial Planning and Management for Government and Nonprofit Organizations (3 cr.)

### **Group 2: Complete one (1) of the following:**

- PPAD 508/5211 - Qualitative Analysis for Policy and Administration (3 cr.)
- PPAD 509/5212 - Applied Quantitative Analysis (3 cr.)

## **Concentration Requirement (15 credit hours):**

Students must complete 5 courses in one of the following three areas.

### **Concentration One: Nonprofit Management - 5 courses (15 credits) required**

#### **Group 1: Complete three of the following courses:**

- PPAD 512/5114 - Management of Development Programs (3 cr.)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.)
- PPAD 526/5128 - Corporate Social Responsibility and NGO Partnerships (3 cr.)
- PPAD 000/5168 - Proposal Writing and Grant Management for Nonprofit Organizations (3 cr.)
- PPAD 000/5169 - Issues in Social Entrepreneurship (3 cr.)
- PPAD 000/5170 - Volunteer Management (3 cr.)
- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)

Complete any two PPAD courses in consultation with the Department Advisor.

## Concentration Two: Human Resources Management in the Public and Nonprofit Organizations- 5 courses (15 credits) required

Group 1: Complete three of the following courses:

- PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)
- PPAD 000/5171 - International and Comparative Human Resources Management (3 cr.)
- PPAD 519/5124 - Leadership and Communication for Public Affairs (3 cr.)
- PPAD 000/5172 - Compensation Management (3 cr.)
- LAW 509/5209 - International Law (3 cr.)
- PPAD 000/5173 - Public Administration, Technology, and Innovation (3 cr.)

Group 2: Complete any two PPAD courses in consultation with the Department Advisor.

## Concentration Three: Public Sector Reform and Innovation - 5 courses (15 credits) required

Group 1: Complete three of the following courses:

- PPAD 513/5223 - International Models of Public Management (3 cr.)
- PPAD 000/5173 - Public Administration, Technology, and Innovation (3 cr.)
- PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)
- PPAD 511/5122 - Administrative Environment and Public Policy in Egypt and the Middle East (3 cr.)
- PPAD 519/5124 - Leadership and Communication for Public Affairs (3 cr.)
- PPAD 515/5202 - Public Policy Theory & Practice (3 cr.)

Group 2: Complete any two PPAD courses in consultation with the Department Advisor.

## Internship (PPAD 5198): 3 credits Graded Pass-Fail

Students are strongly encouraged to undertake an internship within their concentration, ideally in conjunction with their thesis work. This course is considered as one of the elective courses (Group 2).

## Thesis

Students are required to write a thesis on some aspect of public administration relevant to their concentration. The preparation of the thesis and the thesis itself must comply with Departmental and AUC guidelines with regard to content, format, dates, and the review and supervision process. Students are responsible for familiarizing themselves with these guidelines and meeting formal deadlines. Students preparing the thesis normally develop a preliminary thesis proposal during PPAD 5201, a required core course, but may prepare an alternative thesis proposal if desired. Once the proposal is approved, students may enrol in PPAD 5298 (optional), the thesis research seminar, in the first semester in which they are working on the research component and write-up of their thesis. Thereafter, if additional work is required to complete the thesis, students can enrol each semester in PPAD 5299. Students who choose to enrol in PPAD 5298 (optional) and PPAD 5299 must pay 3 credits of tuition for the first enrolment and thereafter pay 1 credit of tuition each semester, until the thesis is successfully defended and approved by the Dean. PPAD 5298, the thesis research seminar, is optional and is designed to support the applied research required for the thesis and the writing of the thesis itself. Students will be required to read and comment on the work of other students, both orally and in writing, and to present draft thesis chapters.

## Non-Thesis Track

Students who do not wish to undertake a thesis can choose to substitute the thesis with two additional PPAD 3 credit courses, with the approval of the program director, and then sit for a comprehensive examination after completing all program course requirements. A comprehensive examination is usually offered in mid-December and mid-April. Students not registered for courses or thesis credit hours and planning to sit for the comprehensive examination in any semester must register for comprehensives (PPAD 5288) in that semester and pay tuition equivalent to one graduate credit hour.

Comprehensive examination may be repeated once. A student who fails the comprehensive examination a second time would be dismissed from the degree program after the end of the semester in which the examination was retaken.

## Dual Degree Option BSc/CENG-MPA

Students enrolled in the School of Science and Engineering may apply to complete the MPA on an accelerated basis in conjunction with completion of the BSc. in Construction Engineering. At present, this option is open only to students completing the BSc. in Construction Engineering. Students interested in this option should consult with their advisors during the Fall of their fourth year for potential admission to the program in their fifth year. The program is jointly administered by the Department of Public Policy and Administration in the School of Public Affairs and the School of Sciences and Engineering. Admission is based on the recommendation of the student's SSE advisor and review by the PPAD department. Students who wish to be admitted to this dual degree should have a minimum GPA of 3.2. The program prepares students for careers in public service with the highest ethical standards, strong competencies in environmental analysis and management as well as public governance, excellent leadership and communication skills, a sound understanding of the use of evidence and analysis in public service settings, and a commitment to building a better future for the people of Egypt and the region. Students pursue careers in government, nonprofit organizations, international development agencies, academia, and the private sector.

Students electing the dual degree option begin taking graduate courses in their ninth semester and receive both the BSc. and the MPA upon the completion of their coursework and master's thesis, normally at the end of their 6th year. The following course sequence has been developed for this option, but students should consult their advisor in CENG to ensure that all SSE requirements are met:

Students who seek to register in this dual degree should complete four 400-level courses that are related to business or public administration, public policy, economics, political science or global affairs. Courses will need to be approved by the department prior to registration

Additionally, students must take the seven PPAD graduate courses listed below and two thesis registration.

### **SEMESTER X**

PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)

PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)

PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.)

### **SEMESTER XI**

PPAD 501/5221 - Strategic Management for Government and Nonprofit Organizations (3 cr.)

PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)

PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)

PPAD 000/5174 - Internship in Public and Non-Profit Organizations (3 cr.)



**SEMESTER XII**

- PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.) (MPA Credit)
- PPAD 516/5132 - Social and Environmental Policy (3 cr.) (MPA Credit)
- PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.) (MPA Credit)
- PPAD 599/5299 - Research Guidance (0 cr.) (MPA Credit)

**Thesis**

Students are required to write a thesis on some aspect of public administration relevant to their area of study. The preparation of the thesis and the thesis itself must comply with Departmental and AUC guidelines with regard to content, format, dates, and the review and supervision process. Students are responsible for familiarizing themselves with these guidelines and meeting formal deadlines. Students preparing the thesis normally develop a preliminary thesis proposal during PPAD 5201, a required core course, but may prepare an alternative thesis proposal if desired. Once the proposal is approved, students should enroll in PPAD 5298, the thesis research seminar, in the first semester in which they are working on the research component and write-up of their thesis. Thereafter, if additional work is required to complete the thesis, students can enroll each semester in PPAD 5299. Students must pay 3 credits of tuition for the first enrollment in PPAD 5298 and PPAD 5299 and thereafter pay 1 credit of tuition each semester, until the thesis is successfully defended and approved by the Dean.

**Public Policy (MPP)****Master of Public Policy**

The Master of Public Policy is administered by the Department of Public Policy and Administration in the School of Global Affairs and Public Policy. The program prepares students for leadership positions in public service and for careers as policy analysts. Students, who are generally in the early part of their career at entry, pursue careers in government, nonprofit organizations, international development agencies, academia, consulting firms, and the private sector.

**Program objectives**

The mission of the MPP Program is to support evidence-based policy-making and better public governance in Egypt and the Middle East by preparing professionals for careers in public service with the highest ethical standards, strong competencies in public governance, excellent leadership and communication skills, capability to develop and use evidence and analysis in public service settings, and a commitment to building a better future for the people of Egypt and the region.

**Admission**

All applicants must satisfy the university's graduate admission requirements. Candidates for the MPP or DPP should have adequate preparation in quantitative analytic methods. Relevant professional experience is desirable but not required.

**Courses (33 credit hours)**

Students seeking the degree of Master of Public Policy must complete 33 credit hours plus a thesis or 39 credit hours and a comprehensive examination. The program core, required of all students, consists of 6 courses (18 credits). Students must complete a concentration of 5 courses (15 credits). Students may elect either the concentration in Social and Environmental Policy or the concentration in Government Regulation and Promotion of the Private Sector. Students are required to declare their concentration before beginning their second semester of enrollment in the program and to identify an area of professional concentration at that time. In addition to coursework, students must complete a thesis, or opt to sitting for a comprehensive examination after taking two additional courses. Students

writing a thesis, consistent with department and university guidelines, will complete at least one enrollment in the thesis courses (PPAD 5298 or PPAD 5299, all are non-credit).

## Core Requirement (18 credit hours):

Students must complete six (6) courses in group 1

### **Group 1: Complete all six (6) of the following:**

- PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)
- PPAD 502/5231 - Economics for Public Policy Analysis (3 cr.)
- PPAD 503/5232 - Role of Government in a Market-Oriented Economy (3 cr.)
- PPAD 515/5202 - Public Policy Theory & Practice (3 cr.)
- PPAD 508/5211 - Qualitative Analysis for Policy and Administration (3 cr.)
- PPAD 509/5212 - Applied Quantitative Analysis (3 cr.)

## Concentration Requirement (15 credit hours):

Students must complete 5 courses in one of the concentrations below. In addition to the courses shown for each concentration, students may select a course from the core list shown above as a Group 3 concentration course if not taken as a core course (i.e., a course may be counted towards only one requirement). Students may substitute up to two courses for those shown with permission of the department. Students who have completed at least 4 core courses and who have a GPA of 3.5 or better may petition the department to complete a concentration in another policy field, such as urban policy or health policy, which must include at least 3 PPAD courses.

### MPP Concentration 1: Policies for Sustainable Development - 5 courses (15 credits) required

Students should select concentration courses based on their chosen area of specialization, which may include health and social services policy, anti-poverty policy, environmental policy, or an area defined by the student.

#### **Group 1: Complete two (2) of the following**

- PPAD 516/5132 - Social and Environmental Policy (3 cr.)
- PPAD 525/5127 - Reforming Delivery of Social Services (3 cr.)
- PPAD 524/5129 - Globalization and Development (3 cr.)

#### **Group 2: Complete three (3) of the following:**

- PPAD 520/5133 - Global Health Issues and Policies (3 cr.)
- PPAD 541/5136 - Gender in Public Policy and Administration (3 cr.)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
- PPAD 522/5135 - Promotion of Local Economic Development (3 cr.)
- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)

### MPP Concentration 2: Promotion and Regulation of the Private Sector Development – 5 courses (15 credits) required

Students should select concentration courses based on their chosen area of specialization, which may include financial markets; telecommunications, power, and water; private sector development; regional economic development, or a topic identified by the student.

**Group 1: Required for all students in concentration**

- PPAD 521/5134 - Government Regulation of Business and Investment (3 cr.)
- PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)

**Group 2: Complete two (2) courses from the following**

- PPAD 518/5123 - Governance, Accountability, and Stakeholder Negotiations (3 cr.)
- PPAD 524/5129 - Globalization and Development (3 cr.)

## MPP Concentration 3: Media Policy - 5 courses (15 credits) required

**Group 1: Required for all students in the concentration:**

- JPMC 590/5290 - Special Topics (3 cr.)
- JPMC 550/5250 - Seminar in International Communication (3 cr.)
- JPMC 570/5270 - Seminar in Mass Communication and National Development (3 cr.)

**Group 2: Complete two of the following:**

- JPMC 580/5280 - Impact of Television: Issues and Developments (3 cr.)
- PPAD 511/5122 - Administrative Environment and Public Policy in Egypt and the Middle East (3 cr.)
- LAW 510/5210 - Introduction to International Human Rights Law and Critique (3 cr.)
- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)

## MPP Concentration 4: Data Analytics and program Evaluation - 5 courses (15 credits) required

Students should select concentration courses based on their chosen area of specialization, which may include program evaluation and data analysis and survey data analysis, or an area defined by the student.

**Group 1: Required for all students in the concentration:**

- PPAD 000/5180 - Introduction to Data Analytics (3 cr.)
- PPAD 000/5179 - Big Data Analytics for Public Policy (3 cr.)
- PPAD 000/5178 - Program Evaluation (3 cr.)

**Group 2: Complete two (2) Courses from the following:**

- PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)
- PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)
- PPAD 000/5173 - Public Administration, Technology, and Innovation (3 cr.)
- PPAD 000/5174 - Internship in Public and Non-Profit Organizations (3 cr.)

## Practicum (PPAD 5198): 3 credits Graded Pass-Fail

Students are strongly encouraged to undertake a practicum within their concentration, ideally in conjunction with their thesis work. P/F graded.

## Thesis

Students are required to write a thesis on some aspect of public policy relevant to their concentration. The preparation of the thesis and the thesis itself must comply with Departmental and AUC guidelines with regard to content, format, dates, and the review and supervision process. Students are responsible for familiarizing themselves with these guidelines and meeting formal deadlines. Students preparing the thesis normally develop a preliminary thesis proposal during PPAD 5201, a required core course, but may prepare an alternative thesis proposal if desired. Once the proposal is approved, students can enroll in PPAD 5298, the thesis research seminar, in the first semester in which they are working on the research component and write-up of their thesis. Thereafter, if additional work is required to complete the thesis, students must enroll each semester in PPAD 5299. Students must pay 3 credits of tuition for the first enrollment in PPAD 5298 and PPAD 5299 and thereafter pay 1 credit of tuition for each semester, until the thesis is successfully defended and approved by the Dean.

PPAD 5298, the thesis research seminar, is designed to support the applied research required for the thesis and the writing of the thesis itself. Students will be required to read and comment on the work of other students, both orally and in writing, and to present draft thesis chapters.

## Non-Thesis Track

Students who do not wish to undertake a thesis can choose to substitute the thesis with two additional PPAD 3 credit courses, with the approval of the program director, and then sit for a comprehensive examination after completing all program course requirements. A comprehensive examination is usually offered in mid-December and mid-April. Students not registered for courses or thesis credit hours and planning to sit for the comprehensive examination in any semester must register for comprehensives (PPAD 5288) in that semester and pay tuition equivalent to one graduate credit hour.

Comprehensive examination may be repeated once. A student who fails the comprehensive examination a second time would be dismissed from the degree program after the end of the semester in which the examination was retaken.

## Architecture (M.Sc.)

The Department of Architecture offers a Master of Science in Architecture (M Sc) degree. The program intends to provide opportunities for Egyptian and international students to pursue graduate studies at AUC.

The program focuses on finding and building connections between Architecture and other relevant disciplines at AUC. Exploring these connections is inherent in the essence of architecture as a multidisciplinary domain, always seeking new questions and finding alternate paths by bridging with other domains. The new program also capitalizes on the rich cultural and heritage background in Egypt. These can form strong basis for unique architectural investigations that are rooted in Egypt and the Middle-East, and are of interest to many international scholars.

Graduates of the program will become excellent candidates for the local and international graduate architectural studies and architectural design firms. They will be well equipped to pursue their PhD studies and conduct scientific research upon completion of the MSc. Degree.

**The program of study for each student is planned with the faculty advisor and should focus on one (or more) of five areas of study:**

1. Urban Regeneration and Heritage (bridge with Human and Social Sciences, Global and Public Policy, Egyptology, Islamic art and History)
2. Sustainability in Architecture (bridge with Engineering, GREN and GAPP)
3. Architectural Computing (bridge with Sciences and Engineering)
4. Architectural Studies (bridge with Human and Social Sciences, Business, Special Needs, and the Arts)
5. Real Estate Development (bridge with Business, Economics, and Entrepreneurship)

**The objectives of the Master of Science in Architecture are to:**

1. Enable students to learn how to bridge between architecture and other disciplines in order to develop a responsive built environment.

2. Enable students to explore the nature and substance of other field(s) to identify overlaps and value to address architectural issues.
3. Develop an understanding of the interplay of economic, social, psychological and tectonic aspects in shaping the built environment.
4. Develop an understanding of the past, present and future paradigms of Architecture.
5. Reflect on "What's Next", pose relevant questions, explore different directions, paths, or modes of thinking and frames of mind derived from a clear contextual understanding.
6. Develop competence in the formulation of, conduct and pursue of comprehensive research questions integrating other related disciplines.

#### **Learning Outcomes of the Master of Science in Architecture:**

Graduates of the Master of Science in Architecture will be able to:

1. Demonstrate sufficient academic and applied skills in architecture for employment within the architectural international and local firms and/or pursue a PhD degree in Architecture.
2. Demonstrate critical thinking towards architectural current paradigms towards making an impact in the future of the architectural domain.
3. Demonstrate awareness of the issues inherent in the multidisciplinary nature of the built environment and address them in a comprehensive and inclusive way.
4. Demonstrate awareness of the issues inherent in the rich culture and heritage of Egypt and the Middle East with a critical eye to relevant contexts
5. Work individually or within multidisciplinary teams and provide leadership to integrate different specialized groups.

#### **Admission**

A candidate for the Masters of Science program in Architecture must have a B.Sc. degree in Architecture or allied disciplines. Admission is also subject to the general university requirements for the graduate program including English language proficiency. A research proposal assessed by the graduate faculty committee is required for admission to ensure a acceptable level of research capabilities. Students who have some deficiency in their undergraduate training but are well-qualified in other aspects may be admitted provisionally. The Department of Architecture may prescribe a program of noncredit work to make up for the deficiency.

#### **Courses (24 credit hours)**

A minimum of eight courses (24 credit hours) is required. Courses are to be selected from the following categories

### **I. Architectural Core Courses (9 credit hours)**

- ARCH 000/5201 - Philosophy & Theory of Architecture (3 cr.)
- ARCH 000/5202 - Critical Thinking in Architectural Design (3 cr.)
- ENGR 000/5101 - Cross Talk: Implementation Science and Engineering (3 cr.)

### **II. Research Methods Courses (6 credit hours)**

- ARCH 000/5221 - Research Methods in Architecture (3 cr.)  
Research Methods course in another discipline - students select one of the existing courses in another discipline at AUC according to research area of study.

### **III. Elective Courses (9 credit hours)**

Based on the specific 'bridge' and according to the focus of the research, students are directed to take at least 3 non - architecture 4000-/5000-level courses (with a maximum of two 4000-level courses) from other disciplines at AUC that are selected for their relevance and contribution to the research subject. The selected courses could be from

Engineering, Physical Sciences, Social Sciences, Political Sciences, Humanities, Management and other related graduate (or 4000-level courses subject to advisor and chair's approval). Any of those courses should not be from the student's undergraduate major (unless recommended by the advisor and approved by the graduate committee).

## Thesis (9 credit hours)

Graduate thesis work is a required part of the Master of Science in Architecture degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 590/5940 - Graduate Thesis Seminar (3 cr.) . Students must complete ENGR 590/5940 - Graduate Thesis Seminar (3 cr.) before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for ARCH 000/5290 - Research Guidance Thesis (3 cr.) , by the completion of 18 credit hours. Students must register in ARCH 000/5290 - Research Guidance Thesis (3 cr.) for at least two semesters. The first two registrations in ARCH 000/5290 - Research Guidance Thesis (3 cr.) must be for three credit hours, after that ARCH 000/5290 - Research Guidance Thesis (3 cr.) is taken for one credit hour each semester until completion of the program requirements.

## Biotechnology (M.Sc.)

The Master of Science program in biotechnology provides postgraduate education to prepare students for a career in biotechnology through the construction of a firm foundation in the science and engineering of biotechnology and to provide an introduction to bioentrepreneurship.

A total of 33 credit hours is required for the Master of Science degree. This consists of 24 credits hours of courses, 6 credit hours of thesis work, and 3 credit hours of seminar.

### Program Objectives

The objectives of the Master of Science in Biotechnology are:

1. To introduce students to a combination of fundamentals and frontline applications in the field of biotechnology.
2. To introduce students to regulatory affairs, intellectual property issues, and ethics related to different aspects of biotechnology.
3. To introduce students to principles and requirements of bio-entrepreneurship.
4. To provide the students with a deep understanding of the research techniques and data analysis in the area of specialization.
5. To train students to solve biotechnology-related problems, think critically, function well in a team, and communicate effectively.
6. To train students at a high standard of written and oral communication skills on technical matters

### Admission

A Bachelor's degree in sciences or engineering, with a minimum GPA of 3.0 out of 4.0, is required for admission into the biotechnology master's program. Admission is also subject to the general university requirements for the graduate program. For those students whose grade records indicate promising ability, but who otherwise did not have an adequate preparation in sciences or engineering, admission may be granted under the requirement that remedial courses will be taken.

## Courses (24 credits)

The program of study is planned with the faculty advisor, and should include 12 credit hours of core courses and 12 credit hours of elective courses.

## Biotechnology Core Courses (12 credit hours)

To be chosen from the following courses:

- BIOT 501/5201 - Biochemistry (3 cr.)
- BIOT 502/5202 - Cell and Molecular Biology (3 cr.)
- BIOT 503/5203 - Biotechnology (3 cr.)
- BIOT 504/5204 - Experimental Biotechnology (3 cr.)
- BIOT 505/5205 - Basics of Bioentrepreneurship (3 cr.)
- BIOT 521/5206 - Fundamentals of Bioinformatics (3 cr.)

## Biotechnology Electives Courses (12 credit hours)

To be chosen from the following list of courses:

- BIOT 531/5207 - Molecular Diagnosis (3 cr.)
- BIOT 541/5208 - Molecular Genetics (3 cr.)
- BIOT 511/5211 - Bioengineering (3 cr.)
- BIOT 543/5210 - Microbial Biotechnology (3 cr.)
- BIOT 551/5930 - Selected Topics in Biotechnology (3 cr.)
- BIOT 604/6204 - Model Systems in Cancer Research (2 cr. + 1 cr. lab)
- BIOT 620/6206 - Computational Genomics and Transcriptomics (3 cr.)
- BIOT 621/6207 - Systems and Computational Biology (3 cr.)
- BIOT 601/6930 - Current Topics in Biotechnology (3 cr.)

## Notes:

Students may also take a maximum of one 400-level course in sciences or engineering, or other related areas subject to their advisor's approval.

## Thesis (9 credit hours)

Each student must submit a thesis topic that has been approved by a faculty supervisor normally after acquiring 12 credit hours of course work. Various research topics are discussed in SCI 5940 graduate thesis seminar. Students must complete SCI 5940 before registering for thesis credits. To ensure adequate faculty consultation, two semesters of the graduate thesis course (BIOT 5980) are required. After that, the course may be taken for one credit hour each semester until completion of the program requirements.

- BIOT 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)

## Chemistry, with concentration in Food Chemistry and Nutrition (M.Sc.)

### Master of Science in Chemistry

The department of chemistry offers two programs of study leading to either a science degree in chemistry or with concentration in food chemistry and nutrition (M.Sc.). The M.Sc. in chemistry prepares students for a career in

chemistry or related fields through the development of a firm foundation in the fundamental science and applications of chemistry. The specialization degree program is designed to provide students with a broad background in nutrition, food service management, development of necessary analytical skills; and exposure to current nutrition, food service and hospitality management research.

The Master of Science program in Chemistry provides postgraduate education to prepare students for a career in Chemistry or related fields through the development of a firm foundation in the fundamental science and applications of chemistry.

A total of 33 credit hours is required for the Master of Science degree. This consists of 24 credits hours of courses and 9 credit hours of thesis work.

### **Admission**

A Bachelor's degree in Chemistry or a related discipline with a minimum GPA of 3.0 out of 4.0, is required for admission into the Chemistry master of science program. Admission is also subject to the general university requirements for the graduate program. For those students whose grade records indicate promising ability, but who otherwise did not have an adequate preparation in chemistry, admission may be granted under the requirement that remedial courses will be taken.

### **Courses (24 credits)**

The program of study is planned with the faculty advisor, and should include 9 credit hours of core courses, 12 credit hours chosen from the specialization courses, and 3 credit hours of electives.

Students not opting for the Food Chemistry & Nutrition Concentration can fulfill the 12 credits of the concentration requirements with any chemistry 5000 or 6000 level courses. With the consent of the program director, one 5000 or 6000 level course in another science or engineering discipline can be taken and counted towards the concentration requirements.

## **Core Chemistry Courses (9 credit hours)**

To be chosen from the following courses:

- CHEM 000/5200 - Environmental Physical Chemistry (3 cr.)
- CHEM 501/5201 - Biochemistry (3 cr.)
- CHEM 502/5202 - Organometallics (3 cr.)
- CHEM 503/5203 - Advanced Organic Chemistry (3 cr.)
- CHEM 504/5204 - Methods of Structure Determination (3 cr.)
- CHEM 000/5206 - Advanced Food Chemistry (3 cr.)
- CHEM 519/5219 - Food Analysis (3 cr.)

## **Chemistry Specialization Courses (12 credit hours)**

To be chosen from the following courses:

- CHEM 505/5205 - Nanochemistry (3 cr.)
- CHEM 511/5211 - Applied Food Microbiology (3 cr.)
- CHEM 512/5212 - Food Safety Assurance (3 cr.)
- CHEM 513/5213 - Food Packaging (3 cr.)
- CHEM 514/5214 - Nutritional Evaluation of Food during Processing (3 cr.)
- CHEM 515/5215 - Food Additives, Contaminants and Legislation (3 cr.)



- CHEM 516/5216 - Food Fermentation (3 cr.)
- CHEM 517/5217 - Sensory Evaluation of Food Products (3 cr.)
- CHEM 518/5218 - Functional Foods and Nutraceuticals (3 cr.)
- CHEM 519/5219 - Food Analysis (3 cr.)
- CHEM 541/5241 - The Chemistry of Nanostructures (3 cr.)
- CHEM 542/5242 - Nanoelectrochemistry (3 cr.)
- CHEM 603/6103 - Bioseparation Processes for Food and Pharmaceutical Industries (3 cr.)
- CHEM 615/6105 - Principles and Applications of Mass Spectrometry (3 cr.)
- CHEM 000/6107 - Chemistry of Natural and Synthetic Polymers (3 cr.)
- CHEM 640/6240 - Nanoporous Materials (3 cr.)

With the consent of the program director, one 5000 or 6000 level course in another science or engineering discipline can be taken and counted towards the specialization requirements. Students opting for the Food Chemistry Specialization need to fulfill the 12 credits of the specialization requirements from the following Food Chemistry Specialization courses:

## Food Chemistry and Nutrition Specialization Courses (12 credit hours)

To be chosen from the following courses:

- CHEM 511/5211 - Applied Food Microbiology (3 cr.)
- CHEM 512/5212 - Food Safety Assurance (3 cr.)
- CHEM 513/5213 - Food Packaging (3 cr.)
- CHEM 514/5214 - Nutritional Evaluation of Food during Processing (3 cr.)
- CHEM 515/5215 - Food Additives, Contaminants and Legislation (3 cr.)
- CHEM 516/5216 - Food Fermentation (3 cr.)
- CHEM 517/5217 - Sensory Evaluation of Food Products (3 cr.)
- CHEM 518/5218 - Functional Foods and Nutraceuticals (3 cr.)
- CHEM 000/5220 - Life Cycle Nutrition (3 cr.)
- CHEM 000/5221 - Nutrition & Diseases (3 cr.)
- CHEM 000/5222 - Clinical Nutrition (3 cr.)

With the consent of the program director, one 5000 or 6000 level course in another science or engineering discipline can be taken and counted towards the specialization requirements.

## Chemistry Graduate Electives (3 credit hours)

A minimum of one course is selected as elective. No more than one 400-level or higher in sciences or engineering, or other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor's approval. Students may also select from the following list of courses:

- CHEM 551/5930 - Selected Topics in Chemistry (3 cr.)
- CHEM 552/5910 - Independent Study in Chemistry (3 cr.)

## Thesis (9 credit hours)

Each student must submit a thesis topic that has been approved by a faculty supervisor normally after acquiring 12 credit hours of course work. Various research topics are discussed in SCI 5940 , graduate thesis seminar. Students must complete SCI 5940 before registering for thesis credits. To ensure adequate faculty consultation, two semesters of the

graduate thesis course (CHEM 5980) are required. After that, the course may be taken for one credit hour each semester until completion of the program requirements.

- CHEM 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)

## Computer Science (M.Sc.)

### Master of Science

The master of science program in computer science offers students the opportunity to engage in course work, research projects, and other activities designed to develop theoretical background and up-to-date practical skills in the rapidly changing area of Computer Science. The program provides a broad spectrum of study in preparation for careers in advanced computer research areas. The program allows students flexibility in planning their program of study after the initial course requirements are met.

### Admission

The program is open to Computer Science graduates and also to selected students whose preparation is outside Computer Science. However, students entering graduate study from outside the computer science area may be required to go through additional preparation before beginning their graduate program. Those students who have some deficiency in their undergraduate training but are well qualified in other aspects may be admitted provisionally. The department may prescribe a number of prerequisite courses to make up for the deficiency.

## Courses (24 credit hours)

A minimum of eight courses (24 credit hours) is required: three core courses (9 credit hours), and five electives (15 credit hours).

## Core Courses (9 credit hours)

All candidates must take the following three core courses:

- CSCE 525/5221 - Algorithms and Complexity Theory (3 cr.)
- CSCE 545/5241 - Distributed Systems (3 cr.)
- CSCE 565/5261 - Advanced Artificial Intelligence (3 cr.)

## Elective Courses (15 Credit hours)

- CSCE 529/5222 - Design and Analysis of Parallel Algorithms (3 cr.)
- CSCE 530/5231 - Advanced Processor Architecture (3 cr.)
- CSCE 535/5232 - High Speed Networks (3 cr.)
- CSCE 532/5242 - Parallel Computer Architecture (3 cr.)
- CSCE 000/5243 - Information and System Security (3 cr.)
- CSCE 000/5245 - Embedded Real-Time Systems (3 cr.)
- CSCE 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 561/5263 - Knowledge Engineering (3 cr.)
- CSCE 569/5264 - Natural Language Processing and Machine Translation (3 cr.)
- CSCE 564/5265 - Web Mining (3 cr.)
- CSCE 567/5266 - Computer Vision (3 cr.)

- CSCE 563/5267 - Digital Image Processing (3 cr.)
- CSCE 555/5268 - Computer Graphics and Animation (3 cr.)
- CSCE 000/5269 - Pattern Analysis (3 cr.)
- CSCE 541/5271 - Advanced Software Engineering (3 cr.)
- CSCE 543/5272 - Advanced Software Quality (3 cr.)
- CSCE 000/5910 - Independent Studies in Computer Science and Engineering (1-3 cr.)
- CSCE 585/5930 - Selected Topics in Computer Science and Engineering (3 cr.)
- CSCE 642/6231 - Mobile and Pervasive Computing (3 cr.)
- CSCE 664/6261 - Advanced Data Mining (3 cr.)
- CSCE 692/6930 - Advanced Selected Topics in Computer Science (3 cr.)

## Thesis (8 Credit hours)

The graduate thesis work is an important and required part of the master's degree program. Each student must submit a thesis topic that has been approved by a faculty supervisor, normally after 12 credit hours. Various research topics are discussed in the seminar courses. The student must register in the first seminar course before submitting a thesis topic and once during the execution of the thesis research. To ensure adequate faculty consultation on the thesis, the student must register for the graduate thesis for at least two semesters.

The Computer Science seminar is a two-semester course (1 credit hour per semester) designed to prepare students for research in Computer Science. The seminar must be taken by all students. The first seminar will help the student select a topic for his/her thesis and must be taken before submitting a thesis topic. In the second seminar, the student will present a report on his/her thesis progress.

### *Example of a Program Completion Plan:*

Semester 1: 3 graduate courses

Semester 2: 3 graduate courses + seminar P1

Semester 3: 2 graduate courses + Thesis

Semester 4: Thesis + seminar P2

## Construction Engineering (M.Sc.)

The Master of Science program in Construction Engineering is administered by the Construction and Architectural Engineering Department. The Program offers high quality education that prepares students for advanced academic, research and professional careers in construction management & systems and structural engineering & construction materials.

### **Program Objectives**

The objectives of the Master of Science in Construction Engineering are to provide the graduates of the program with:

- A broad knowledge of modern computational and experimental methods in engineering.
- Extensive knowledge in construction management & systems and in structural engineering & construction materials
- In-depth understanding of the research techniques and data analysis in construction engineering
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively

- A high standard of written and oral communication on technical matters

### Admission

A candidate for the master's program in Construction Engineering must have a B.Sc. degree in civil, construction or architectural engineering. Students who have some deficiency in their undergraduate training but are well-qualified in other respects may be admitted provisionally. The Department of Construction and Architectural Engineering may prescribe a program of noncredit work to make up for the deficiency.

## Courses (24 credit hours)

A minimum of eight courses (24 credit hours) is required. The courses are selected from the following categories:

### I- Core Courses (6 credit hours)

All students select two out of the following four **ENGR** core courses:

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### II- Concentration Courses (12 credit hours)

Students should select a minimum of four courses from any of the courses of the following subfields in Construction Engineering:

#### Construction Management and Systems

- CENG 570/5244 - Advanced Construction Management (3 cr.)
- CENG 571/5225 - Advanced Systems Analysis for Construction Engineering (3 cr.)
- CENG 572/5245 - Claims and Disputes in the Construction Industry (3 cr.)
- CENG 574/5226 - Methods and Equipment for Construction (3 cr.)
- CENG 575/5246 - Techniques of Planning, Scheduling and Control (3 cr.)
- CENG 576/5227 - Advanced Systems for Construction (3 cr.)
- CENG 578/5247 - Resource Management for Construction Projects (3 cr.)
- CENG 565/5241 - Infrastructure Asset Management (3 cr.)
- CENG 566/5242 - Simulation Applications in Construction (3 cr.)

#### Structural Engineering and Construction Materials

- CENG 000/5151 - Advanced Design of Steel and Composite Structures (3 cr.)
- CENG 000/5152 - Advanced Composite Materials in Infrastructure Applications (3 cr.)
- CENG 573/5220 - Advanced Construction and Building Materials (3 cr.)
- CENG 577/5210 - The Finite Element Method in Structural Engineering (3 cr.)
- CENG 579/5121 - Assessment, Protection and Repair of Structures (3 cr.)

### III- Elective Courses (6 credit hours)

A minimum of two courses are selected as electives. The courses are selected from a set of graduate courses in engineering, physical sciences, social sciences, management and other related graduate level courses subject to advisor and chair's approval. No more than one 400-level course in engineering, computer science and other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor and chair's approval.

### A minimum of one course must be selected from the concentration courses in Construction Engineering

- CENG 592/5292 - Advanced Topics in Construction Engineering (3 cr.)

#### May include:

- Geotechnical Engineering
- Construction Technology Analysis and Development
- Advanced Structural Design and Construction

### Thesis

Graduate thesis work is an important and required part of the Construction Engineering Master of Science degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 5940 , Graduate Thesis Seminar. Students must complete ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for CENG 5290, Graduate Thesis, by the completion of 18 credit hours. Students must register in CENG 5290 for at least two semesters. The first two registrations in CENG 5290 must be for three credit hours, after that CENG 5290 is taken for one credit hour each semester until completion of the program requirements.

## Electronics and Communications Engineering (M. Sc.)

The name of the Electronics Engineering department has been changed to be the Electronics and Communications Engineering department. This change is effective starting Spring 2014. All degrees offered by the department will reflect the new name starting Spring 2014, and all transcripts issued for students graduating Spring 2014 onwards will bear the new name.

A candidate for the master's program in Electronics and Communications Engineering must have a degree in electrical or computer engineering or related discipline. Students who have some deficiency in their undergraduate training but are well-qualified in other respects may be admitted provisionally. The Electronics and Communications Engineering Department may prescribe a program of noncredit work to make up for the deficiency.

#### 1. Program Objectives

The objectives of the Master of Science Degree in Electronics and Communications Engineering are to provide the graduates of the program with:

- A broad knowledge of modern computational and experimental methods in engineering.
- Extensive knowledge in one of the following specializations: VLSI and nanosystems, communication systems, microwave and RF systems, digital and network systems.
- Deep understanding of the research techniques and data analysis in the area of specialization.
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- A high standard of written and oral communication on technical matters.

## 2. Admission

A candidate for the master's program in Electronics and Communications Engineering must have a degree in engineering. Students who have some deficiency in their undergraduate training but are well-qualified in other respects may be admitted provisionally. The Electronics and Communications Engineering Department may prescribe a program of noncredit work to make up for the deficiency.

## 3. Courses (24 Credit hours)

A minimum of eight courses (24 credit hours) is required.

The courses are selected from the following categories:

### Core Courses (3 credit hours)

All students select one out of the following four ENGR core courses:

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### Concentration Courses\*\* (21 credit hours)

Candidates must select at least five courses out of the following ECNG course list:

- ECNG 510/5210 - Advanced Solid-State Devices (3 cr.)
- ECNG 000/5214 - Advanced ASIC Design (3 cr.)
- ECNG 516/5216 - Analog Integrated Circuit Design (3 cr.)
- ECNG 517/5217 - Digital Integrated Circuit Design (3 cr.)
- ECNG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
- ECNG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
- ECNG 520/5231 - Advanced Digital Communications (3 cr.)
- ECNG 521/5233 - Wireless Communication Systems (3 cr.)
- ECNG 522/5230 - Probability and Stochastic Processes with Applications (3 cr.)
- ECNG 524/5234 - Enabling Technologies for High Data Rate Communications (3 cr.)
- ECNG 525/5225 - Digital Signal Processing (3 cr.)

- ECNG 526/5236 - Information Theory and Coding (3 cr.)
- ECNG 530/5238 - Advanced Computer Networks (3 cr.)
- ECNG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)
- ECNG 547/5247 - RF and Microwave Systems (3 cr.)
- ECNG 548/5248 - RF Integrated Circuit Design (3 cr.)
- ECNG 549/5249 - Antennas Design and Applications (3 cr.)
- ECNG 553/5223 - Fault-Tolerant Computing and Reliability Modeling (3 cr.)
- ECNG 556/5226 - Networked Control Systems Design & Applications (3 cr.)
- ECNG 594/5930 - Advanced Topics in Electronics and Communications Engineering (3 cr.)

**\*\*Note:**

- Up to two PHD ECNG courses (600-level) to be taken for credit towards the above MS/ME degree are allowed

- Subject to the approval of the advisor and the graduate director the candidate is permitted to take six credit hours from the following two options

one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering;

Graduate Independent Study course (ECNG 5910) (1 to 3 credit hours).

However, the student may take a maximum of 3 hours of Graduate Independent Study, and a maximum of one course (3 credit hours) from outside the ECNG department.

## 4. Thesis (9 credit hours)

Graduate thesis work is an important and required part of the Electronics Engineering Master of Science degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 5940 , Graduate Thesis Seminar. Students must complete in ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for ECNG 5980 , Graduate Thesis, by the completion of 18 credit hours. Students must register in ECNG 5980 for at least two semesters. The first two registrations in ECNG 5980 must be for three credit hours, after that ECNG 5980 is taken for one credit hour each semester until completion of the program requirements.

## Environmental Engineering (M.Sc.)

*Director: Associate professor : Ahmed El Gendy (ENVE)*

*Steering Committee:*

Professor: Hassan el fawal (SSE dean and BIOL), Salah el haggar (MENG chair), Emad Imam (CENG)

*Associate professor : Ahmed El Gendy (ENVE)*

*Assistant professor: Sherine el baradei (CENG)*

The Master of Science program in Environmental Engineering is an interdisciplinary engineering degree program that is administered by a director and a steering committee from the engineering departments. Other faculty members from the School of Sciences and Engineering participate in the program. It provides a broad program of study in preparation for careers in advanced engineering areas in addition to in depth knowledge in Environmental Engineering with a

strong research component. Graduates will be prepared for Ph.D. studies or for research and leadership in government, industry and international consulting companies.

### **Program Objectives**

The objectives of the Master of Science in Environmental Engineering graduate program are to provide the graduates of the program with:

- A broad knowledge of modern computational and experimental methods in engineering.
- Extensive knowledge in fundamental environmental engineering science, the interactions of pollutants in water, air, and subsurface environments, and the design of treatment/pollutant remediation systems.
- In-depth understanding of the research methods and data analysis in one of the areas of environmental engineering noted above.
- An ability to solve unstructured engineering problems of social significance, think critically, and function well in a team.
- A high and ethical standard of written and oral communication on technical matters.

### **Admission**

A candidate for the master's program in environmental engineering must have a Bachelor's degree in engineering. Admission is also subject to the general university requirements for graduate study, including English language proficiency. A minimum GPA of 3.0 out of 4.0 is required for full admission into the master's program. Students who have some deficiency in their undergraduate training but are will-qualified in other aspects may be admitted provisionally. The program director may prescribe a program of noncredit work to make up for the deficiency.

## **Courses (24 credit hours)**

A minimum of eight courses (24 credit hours) is required. The courses are selected from the following categories:

### **I- Core Courses (6 credit hours)**

All students select two out of the following four ENGR core courses:

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### **II- Concentration Courses (12 credit hours)**

Students should select a minimum of four courses from the following environmental engineering courses:

- ENVE 561/5250 - Water Quality Control (3 cr.)
- ENVE 562/5251 - Unit Operations in Environmental Engineering (3 cr.)
- ENVE 564/5252 - Air Pollution Control Engineering (3 cr.)
- ENVE 566/5254 - Solid and Hazardous Wastes Engineering (3 cr.)
- ENVE 567/5255 - Environmental Chemistry (3 cr.)
- ENVE 569/5258 - Groundwater Hydrology and Contamination (3 cr.)

### **III- Elective Courses (6 credit hours)**



A minimum of two courses are selected as electives. The courses are selected from a set of graduate courses in engineering, physical sciences, social sciences, management and other related graduate level courses subject to advisor and director's approval. No more than one 400-level course in engineering, computer science and other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor and director's approval

## Thesis

Graduate thesis work is an important and required part of the environmental engineering master's degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 5940, Graduate Thesis Seminar. Students must complete ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for ENVE 5980, Research Guidance Thesis, by the completion of 18 credit hours. Students must register in ENVE 5980 continuously and for at least two semesters. Each of the first two registrations in ENVE 5980 must be for three credit hours, after that ENVE 5980 is taken for one credit hour each semester until completion of the program requirements.

## Finance, with concentrations in Corporate Finance, Investments, and FinTech (M.Sc.)

The MSc in Finance directly targets the expertise required in today's global financial environment. This program gives a clear understanding of practical financial decision-making. Graduates work in investment and merchant banks, insurance and pension funds, and for governments and multinational companies.

### Admission

All applicants must satisfy the university's graduate admission requirements and obtain an acceptable score on the Graduate Management Admission Test (GMAT) or Graduate Record Examinations (GRE). The Applicant must present a bachelor's degree from a regionally accredited college or university with a minimum GPA of 3.0 or very good for non-GPA measured degrees. No previous working experience is needed.

To obtain the MSc in Finance degree, students must complete 42 credit hours of which 33 credit hours of course work and nine credit hours of thesis. Students with relevant background can waive some of the core courses but must complete a minimum of 36 credit hours to be awarded the degree. A research methodology course will be mandatory. The program will consist of 11 for-credit courses plus a thesis designed to be completed in two full years.

## MSc Core Courses (18 credits)

Students must complete six core courses before attempting to take any of the elective courses. Students with relevant background can waive up to two core courses. The core courses are:

- ACCT 501/5201 - Financial Reporting and Analysis (3 cr.)
- FINC 527/5201 - Managerial Economics (3 cr.)
- FINC 535/5204 - Applied Financial Econometrics (3 cr.)
- FINC 540/5202 - Financial Management (3 cr.)
- FINC 541/5203 - Investments and Portfolio Management (3 cr.)
- FINC 000/5230 - Statistical and numerical methods (3 cr.)

## MSc Concentrations (12 credits)

The student must complete all core courses before attempting to take any of the elective courses. The student specializes in one of three concentration fields which are Investments, Corporate Finance and FinTech. The student must take four courses (12 cr.) from his or her concentration field.

## 1. Investments Concentration (12 cr.)

- FINC 512/5313 - Options and Derivatives (3 cr.)
- FINC 513/5331 - Fixed Income Securities (3 cr.)
- FINC 516/5314 - Real Estate Finance (3 cr.)
- FINC 518/5315 - Islamic Finance (3 cr.)
- FINC 542/5311 - International Financial Management (3 cr.)
- FINC 543/5312 - Financial Institutions and Markets (3 cr.)
- FINC 545/5333 - Private Equity and Venture Capital (3 cr.)
- FINC 570/5370 - Selected Topics in Financial Management (3 cr.)
- FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

## 2. Corporate Finance Concentration (12 cr.)

- FINC 512/5313 - Options and Derivatives (3 cr.)
- FINC 514/5353 - Financial Risk Analysis (3 cr.)
- FINC 517/5352 - Financial Modeling (3 cr.)
- FINC 518/5315 - Islamic Finance (3 cr.)
- FINC 542/5311 - International Financial Management (3 cr.)
- FINC 543/5312 - Financial Institutions and Markets (3 cr.)
- FINC 544/5351 - Advanced Corporate Finance (3 cr.)
- FINC 545/5333 - Private Equity and Venture Capital (3 cr.)
- FINC 570/5370 - Selected Topics in Financial Management (3 cr.)
- FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

## 3. FinTech Concentration (12 cr.)

The student must complete the following course:

- FINC 000/5320 - Financial Computing (3 cr.)

In addition the student chooses 3 courses (9 cr.) from the following concentration courses:

- FINC 512/5313 - Options and Derivatives (3 cr.)
- FINC 514/5353 - Financial Risk Analysis (3 cr.)
- MGMT 510/5307 - Entrepreneurship and Innovation (3 cr.)
- FINC 570/5370 - Selected Topics in Financial Management (3 cr.)
- CSCE 565/5261 - Advanced Artificial Intelligence (3 cr.)

## Research Methodology (3 credit hours)

A student must take a research methodology course before starting the thesis.

- FINC 590/5402 - Research Methodology (3 cr.)

## Thesis (9 credit hours)

The thesis is not allowed to be submitted for examination until the student has made a presentation of a major part of it at a department seminar.

- FINC 599/5401 - Thesis (9 cr.)

## Mechanical Engineering (M.Sc.)

The Master of Science program in Mechanical Engineering is administered by the Mechanical Engineering Department. The program offers high quality education that prepares students for advanced academic, research and professional careers in one of the following specializations: Design, Industrial Engineering, Materials and Manufacturing Engineering, Mechatronics and Power.

### Program Objectives

The objectives of the Master of Science Degree in Mechanical Engineering are to provide the graduates of the program with:

- A broad knowledge of modern computational and experimental methods in engineering.
- Extensive knowledge in one of the following specializations: design, industrial engineering, materials and manufacturing or power and mechatronics.
- Deep understanding of the research techniques and data analysis in the area of specialization.
- An ability to solve unstructured engineering problems, think critically, function well in a team, and communicate effectively.
- A high standard of written and oral communication on technical matters.

### Admission

A candidate for the master's program in Mechanical Engineering must have a degree in engineering. Students who have some deficiency in their undergraduate training but are well-qualified in other respects may be admitted provisionally. The Mechanical Engineering Department may prescribe a program of noncredit work to make up for the deficiency.

## Courses (24 credit hours)

A minimum of eight courses (24 credit hours) is required. The courses are selected with the help of the advisor and approval of the chair from the following categories:

### I- Engineering Core Courses (Minimum 3 credit hours)

All students select at least one out of the following four ENGR core courses:

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### II- Mechanical Engineering Core Courses (Minimum 6 credit hours)

Students should select a minimum of two courses from one of the following mechanical engineering courses:

- MENG 517/5251 - Engineering Systems Analysis and Design (3 cr.)
- MENG 522/5222 - Materials in Design and Manufacturing (3 cr.)
- MENG 529/5229 - Failure Analysis and Prevention (3 cr.)
- MENG 542/5242 - Total Quality Management (3 cr.)
- MENG 560/5270 - Applied Control, Vibration and Instrumentations (3 cr.)
- MENG 660/6261 - Sustainability of Thermal Systems (3 cr.)

### III- Technical Elective Core Courses (Minimum 9 credit hours in a given area)

Students should select a minimum of three courses from the following elective courses:

- MENG 521/5221 - Advanced Topics in Mechanical Behavior of Engineering Materials (3 cr.)
- MENG 523/5223 - Physical Metallurgy (3 cr.)
- MENG 524/5224 - Electronic Phenomena in Solids (3 cr.)
- MENG 525/5225 - Deformation and Fracture of Materials (3 cr.)
- MENG 526/5226 - Computer Methods in Materials Engineering (3 cr.)
- MENG 527/5227 - Composite Materials: Mechanics, Manufacturing, and Design (3 cr.)
- MENG 528/5228 - Advanced Testing and Characterization Techniques (3 cr.)
- MENG 530/5230 - Nanostructured Materials (3 cr.)
- MENG 531/5231 - Fabrication of Nanomaterials For Films And Devices (3 cr.)
- MENG 532/5232 - Simulation and Modeling for Nanoscale Materials and Systems (3 cr.)
- MENG 534/5234 - Materials for Energy Conversion and Storage (3 cr.)
- MENG 535/5235 - Biomaterials (3 cr.)
- MENG 541/5241 - Integrated Manufacturing Systems (3 cr.)
- MENG 543/5243 - Systems Modeling and Optimization (3 cr.)
- MENG 545/5245 - Production Systems Design (3 cr.)
- MENG 548/5248 - Facilities Planning and Design (3 cr.)
- MENG 553/5253 - Advanced Computer Aided Design (3 cr.)
- MENG 554/5254 - Advanced Stress Analysis in Design and Manufacturing (3 cr.)
- MENG 555/5255 - Analysis and Design of Dynamic Systems (3 cr.)
- MENG 557/5257 - Engineering Design Methodologies (3 cr.)
- MENG 558/5258 - Applied Finite Element Analysis for Engineers (3 cr.)
- MENG 561/5271 - Robotics: Kinematics, Dynamics and Control (3 cr.)
- MENG 562/5272 - Embedded Real Time Systems (3 cr.)
- MENG 563/5273 - Modern Control Design (3 cr.)
- MENG 564/5274 - Autonomous Robotics: Modeling, Navigation and Control (3 cr.)
- MENG 000/5168 - Nuclear Power Plant Engineering (3 cr.)
- MENG 573/5263 - Cogeneration and Energy Storage (3 cr.)
- MENG 575/5265 - CFD and Turbulence Modeling (3 cr.)
- MENG 000/5266 - Solar Radiation and Energy Conversion (3 cr.)

### IV- General Elective Courses (Maximum 6 credit hours)

The courses are selected from a set of graduate courses in all engineering disciplines, physical sciences, social sciences, management and other related graduate or 400-level courses subject to advisor and chair's approval.

## Thesis

Graduate thesis work is an important and required part of the Mechanical Engineering Master of Science degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 5940 , Graduate Thesis Seminar. Students must complete ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for MENG 5981, Graduate Thesis, by the completion of 18 credit hours. Students must register in MENG 5981 continuously and for at least two semesters. The first two registrations in MENG 5981 must be for three credit hours, after that MENG 5981 is taken for one credit hour each semester until completion of the program requirements.

## Nanotechnology (M.Sc.)

### Masters of Science in Nanotechnology

The Masters of Science in Nanotechnology provides academic excellence in advanced sciences and technologies through an interdisciplinary education in the fields of materials science, physics, chemistry and engineering preparing students for careers in industry, education and research, with the capacity necessary to compete and excel in the ever expanding world of nanotechnology.

This program is facilitated by the available state of the art equipment at the Yousef Jamil Science and Technology Research Center (YJSTRC).

A total of 33 credit hours are required for the Masters of Science degree. This consists of 24 credit hours of courses, 6 credit hours of thesis work, and 3 credit hours of seminar.

### Program Objectives:

#### The Masters of Science in Nanotechnology graduates scientists and engineers who:

1. Have the knowledge of the enabling technologies and the key aspects relevant to application in nanotechnology
2. Foster a strong culture of interdisciplinary research and development at AUC, Egypt and the region
3. Engage in advanced academic and research careers
4. Excel in an interdisciplinary environment both as individuals and within a team
5. Seize and develop commercial opportunities in the fast-advancing nanotechnology field locally and globally.

### Admissions

A bachelor's degree in sciences or engineering, with minimum GPA of 3.0 out of 4.0 is required for admissions into the nanotechnology master's program. Admission is also subject to the general university requirements for graduate program. For those students whose grade records indicate promising ability, but who otherwise are not have adequate

preparation in sciences or engineering, admission may be granted under the requirement that remedial courses will be taken.

## Courses (24 credit hours):

The program of study is planned with the faculty advisor, and should include a minimum of 9 hours of core courses and a minimum of 12 credit hours of electives:

### I. Core Courses (at least 9 credit hours)

- NANO 500/5200 - Nanomaterials, Synthesis, Processing and Applications (3 cr.)
- NANO 502/5202 - Simulation and Modeling for Nanoscale Materials and Systems (3 cr.)
- NANO 503/5203 - Advanced Testing and Characterization Techniques (3 cr.)
- NANO 504/5204 - Fabrication of Nanomaterials For Films And Devices (3 cr.)
- NANO 505/5205 - Nanochemistry (3 cr.)
- NANO 506/5206 - Management and Economics of Nanotechnology (3 cr.)
- NANO 000/5207 - Advanced Nanophysics (3 cr.)

### II. Nanotechnology Elective courses (at least 9 credit hours)

A minimum of 9 credit hours are required from this list of courses.

- NANO 520/5210 - Advanced Quantum Mechanics (3 cr.)
- NANO 521/5221 - MEMS/NEMS Technology and Devices (3 cr.)
- NANO 522/5222 - Advanced Semiconductor Physics (3 cr.)
- NANO 532/5232 - Nanocomposite Science and Technology (3 cr.)
- NANO 533/5233 - Materials for Energy Conversion and Storage (3 cr.)
- NANO 541/5241 - The Chemistry of Nanostructures (3 cr.)
- NANO 542/5242 - Nanoelectrochemistry (3 cr.)
- NANO 551/5251 - Nanotechnology Applications in Construction Materials (3 cr.)
- NANO 552/5252 - Nanotechnology in Studying Damage and Failure in Structures (3 cr.)
- NANO 561/5261 - Advanced Solid-State Devices (3 cr.)
- NANO 562/5262 - Advanced Integrated Circuit Design (3 cr.)
- NANO 571/5271 - Bionanotechnology (3 cr.)
- NANO 592/5930 - Selected Topics in Nanotechnology (3 cr.)

### III. General Elective Courses (Maximum 6 credit hours)

A maximum of two courses are selected as electives. The courses are selected from a set of graduate courses in all engineering disciplines, physical sciences, social sciences, management and other related graduate or 4000-level courses subject to advisor's and chair's approval.

## Thesis (9 credit hours)

Each student must submit a thesis topic that has been approved by a faculty supervisor by the end of the first academic year. Various research topics are discussed in SCI 5940, Graduate Thesis Seminar. Students must complete SCI

5940 before registering for thesis credits. To insure adequate faculty consultation on the thesis, the student must register for the Research Thesis Guidance course (NANO 5980) by the completion of 18 credit hours. The NANO 5980 course must be registered over two consecutive semesters after which the course may be registered for one credit hour each semester until completion of the program requirement.

- NANO 599/5980 - Research Guidance Thesis (3 cr.)

## Petroleum Engineering (M.Sc.)

The Master Degree in Petroleum Engineering prepares graduate students to provide the industry with a workforce equipped with technical skills and research capabilities with the understanding of business, management practices, safety and environment and ethical work habits.

### Program Objectives

The Petroleum Engineering Program Educational Objectives for the Master Programs are:

- Perform an independent petroleum engineering research work that meets the current industry standards and needs
- Provide the students with the optimum design experiences required for graduates to join the industry of petroleum engineering and continue life-long professional development.
- Apply and abide with highest standards of ethics, environmental, and societal requirements in petroleum industry

### Admission Requirements

Full admission may be granted to entering students who have met the minimum criteria for the AUC graduate admission in addition to the following requirements:

- A BSc degree in petroleum engineering or closely related field with an overall grade point average (GPA) of at least 2.75 or its equivalent, and 3.0 or its equivalent in the major.
- The department may prescribe a number of prerequisite courses to make up for any deficiency. The prerequisite will depend on the student background, petroleum industry experience and the formal training obtained in the industry.

## Core Courses

### Engineering Core Courses (Minimum 3 credit hours)

**All students select at least one out of the following four ENGR core courses:**

- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)

### Petroleum Engineering Courses (Minimum 15 credit hours)

**Students select a minimum of five courses from the Petroleum Courses.**

- PENG 000/5211 - Advanced Drilling (3 cr.)
- PENG 000/5112 - Well Control (3 cr.)
- PENG 000/5221 - Advanced Production Engineering (3 cr.)
- PENG 000/5222 - Petroleum Assets Evaluation (3 cr.)
- PENG 000/5131 - Applied PVT and EOS Modelling (3 cr.)
- PENG 000/5232 - Advanced Well Testing (3 cr.)
- PENG 000/5233 - Enhanced Oil Recovery (3 cr.)

- PENG 000/5134 - Reservoir Management (3 cr.)
- PENG 000/5235 - Compositional Simulation (3 cr.)
- PENG 000/5136 - Advanced Reservoir Simulation (3 cr.)
- PENG 000/5141 - Advanced formation evaluation (3 cr.)
- PENG 000/5142 - Cased-hole logging (3 cr.)
- PENG 000/5243 - Applied Techniques in Unconventional Reservoirs (3 cr.)
- PENG 000/5144 - Geostatistics (3 cr.)
- PENG 000/5251 - Selected Topics in Fundamentals of Petroleum Engineering (3 cr.)
- PENG 000/5252 - Selected Advanced Topics in Petroleum Engineering (3 cr.)
- PENG 000/5253 - Independent Study (3 cr.)

## General Elective Courses (Maximum 6 credit hours)

The courses are selected from a set of graduate courses in all engineering disciplines, physical sciences, and other related graduate or 4000 level courses subject to advisor and chair's approval.

## Research Guidance Thesis (9 credit hours)

The thesis work will include 3 credit hours of Graduate Seminar (ENGR 5940) and 6 credit hours of Research Guidance Thesis (PENG 5254).

Research guidance thesis work is an important and required part of the Petroleum Engineering Master of Science degree program. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Students must complete ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for PENG 5254, Research Guidance Thesis, by the completion of 18 credit hours. Students must register in PENG 5254 continuously and for at least two semesters. The first two registrations in PENG 5254 must be for three credit hours, after that PENG 5254 is taken for one credit hour each semester until completion of the program requirements.

## Physics (M.Sc.)

The Master of Science program in physics provides, along with a deep and solid foundation in basic physics, theoretical and experimental skills that are transferable to many professions besides the traditional physics research careers. These skills, acquired within the main stream of study in theoretical and condensed matter physics, include mathematical modeling, instrumentation and experiment design, and general laboratory and research techniques.

A total of 33 credit hours is required for the Master of Science degree. This consists of 24 credit hours of courses and 9 credit hours of thesis work.

### Admission

A Bachelor's degree in physics or a related field, with a minimum GPA of 3.0 out of 4.0, is required for admission into the physics master's program. Admission is also subject to the general university requirements for the graduate program. For those students whose grade records indicate promising ability, but who otherwise did not have an adequate preparation in physics, admission may be granted under the requirement that remedial courses will be taken.

## Courses (24 credit hours)



The program of study is planned with the faculty advisor; and should include 15 credit hours of core courses, 3-6 credit hours of core elective courses, and 3-6 credit hours of Physics electives.

## Core Courses (15 credit hours)

- PHYS 504/5013 - Classical Mechanics (3 cr.)
- PHYS 502/5023 - Classical Electrodynamics I (3 cr.)
- PHYS 506/5043 - Advanced Quantum Mechanics (3 cr.)
- PHYS 501/5061 - Mathematical Physics (3 cr.)
- PHYS 507/5242 - Computational Physics (3 cr.)

## Core Elective Courses (3-6 credit hours)

Choice of courses with consultation of advisor.

- PHYS 509/5032 - Advanced Thermodynamics and Statistical Mechanics (3 cr.)
- PHYS 508/5282 - Advanced Experimental Techniques (3 cr.)
- PHYS 510/5235 - Solid State Physics I (3 cr.)
- PHYS 602/6025 - Classical Electrodynamics II (3 cr.)

## Physics Electives (3-6 credit hours)

A maximum of 3 credit hours of the physics electives can be taken from graduate level courses in other related areas subject to the advisors' approval.

- PHYS 512/5236 - Advanced Semiconductor Physics (3 cr.)
- PHYS 513/5237 - Solid State Physics II (3 cr.)
- PHYS 549/5024 - Fundamentals of Microwaves (3 cr.)
- PHYS 556/5277 - MEMS/NEMS Technology and Devices (3 cr.)
- PHYS 561/5910 - Independent Studies (1-3 cr.)
- PHYS 562/5930 - Selected topics in Physics (3 cr.)
- PHYS 641/6225 - Integrated Photonics (3 cr.)
- PHYS 642/6243 - Computational Electromagnetics (3 cr.)

## Thesis (9 credit hours)

Each student must submit a thesis topic that has been approved by a faculty supervisor, normally after acquiring 12 credit hours of course work. Various research topics are discussed in SCI 000/5940 - Graduate Thesis Seminar (3 cr.). Students must complete SCI 000/5940 - Graduate Thesis Seminar (3 cr.) before registering for thesis credits. To ensure adequate faculty consultation, two semesters of the PHYS 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.) are required. After that, the course may be taken for one credit hour each semester until completion of the program requirements.

- SCI 000/5940 - Graduate Thesis Seminar (3 cr.)
- PHYS 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)

## Robotics, Control and Smart Systems (M.Sc.)

## **Master of Science in Robotics, Control and Smart Systems (RCSS)**

The specialized master program in Robotics, Control and Smart Systems (RCSS) provides interdisciplinary academic and educational excellence in advanced sciences and technologies with unique educational, learning and research environment that advances scientific understanding enabling students to develop innovative and intelligent ideas for autonomous and smart products and systems to meet today's most pressing challenges and prepare them for careers in industry, academia and research.

The Master of Science in Robotics, Control and Smart Systems provides academic excellence through an interdisciplinary education in the fields with the aim to prepare graduate students for careers in industry, academia and research (local, regional and global).

This program is facilitated by the available state of the art equipment at two Mechatronics Laboratories (Mechatronics Design Lab., Mechatronics and Intelligent Systems Lab.) in Mechanical Engineering department and MEM/NEM facilities at Yousef Jameel Science and Technology Research Center (YJSTRC).

### **Program Objectives:**

The Master of Science in Robotics, Control and Smart Systems graduates scientists and engineers who:

1. Have broad knowledge in both the theoretical and the practical skills of RCSS interdisciplinary field.
2. Integrate fundamental and advanced knowledge to solve complex interdisciplinary problems in RCSS field,
3. Undertake interdisciplinary research, find new knowledge, analyze and document results, apply and communicate the results reflecting knowledge depth of the research in RCSS field,
4. Work independently as well as collaboratively within interdisciplinary teams and be prepared to be team leaders,
5. Demonstrate competitive professional advancement, pursue higher graduate degrees and engage in advanced academic and research in areas of their interest within industry, research centers, and academia both in local and global environment.

### **Admissions**

A bachelor's degree in engineering, with minimum GPA of 3.0 out of 4.0 in major area is required as a basic requirement or admissions into the RCSS master's program. Admission is also subject to the general university requirements for graduate programs. For those students whose grade records indicate promising ability, but who otherwise do not have adequate preparation in sciences or engineering, admission may be granted under the requirement that remedial courses will be taken.

### **Program Structure**

A total of 33 credit hours are required for the Master of Science in RCSS. The program of study should include 24 credit hours of courses, 9 credit hours of thesis work.

## **Courses (24 credit hours):**

### **I. Group I (6 credit hours)**

A minimum of 6 credit hours are required from this list of courses:

- RCSS 501/5201 - Robotics: Kinematics, Dynamics and Control (3 cr.)
- RCSS 502/5202 - Embedded Real Time Systems (3 cr.)

- RCSS 503/5203 - Modern Control Design (3 cr.)
- RCSS 504/5204 - Applied Estimation (3 cr.)

## II. Group II (12 credit hours)

A minimum of 12 credit hours are required from this list of courses:

- RCSS 521/5221 - Intelligent and Autonomous Robotic Systems (3 cr.)
- RCSS 522/5222 - Mechatronics Innovations and Experimental Robotics (3 cr.)
- RCSS 523/5223 - Bioinspired Robotics and Multi Robotic Systems (3 cr.)
- RCSS 524/5224 - Robotics and Intelligent Automated Manufacturing (3 cr.)
- RCSS 531/5231 - Teleoperation, Haptic Systems and Collaborative Control (3 cr.)
- RCSS 532/5232 - Robust and Optimal Control (3 cr.)
- RCSS 533/5233 - Nonlinear and Adaptive Control (3 cr.)
- RCSS 534/5234 - Networked Control Systems: Design and Applications (3 cr.)
- RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)
- RCSS 542/5242 - MEMS/NEMS Technology and Devices (3 cr.)
- RCSS 543/5243 - Image Analysis and Computer Vision (3 cr.)
- RCSS 544/5244 - Sensors, Perception and Smart Systems (3 cr.)
- RCSS 545/5245 - Advanced Artificial Intelligence (3 cr.)
- RCSS 592/5930 - Selected Topics in RCSS (3 cr.)

## III. Group III (6 credit hours)

Select (6 credits) from the above two groups or from other graduate courses in engineering, physical sciences, or management subject to advisor and director's approval. No more than one 400-level course in engineering or other related areas, not in the student's undergraduate major, may be taken for graduate credit subject to advisor and director's approval.

## Thesis (9 credit hours)

Graduate thesis work is an important part of the requirements for the Master of Science degree program in RCSS. Each student must submit a thesis topic that has been approved by a faculty advisor by the end of the first academic year. Various research topics are discussed in ENGR 5940 , Graduate Thesis Seminar. Students must complete ENGR 5940 before registering for thesis credits. To ensure adequate faculty consultation on the thesis, the student must register for RCSS 5989, Graduate Thesis, by the completion of 18 credit hours. Students must register in RCSS 5989 continuously and for at least two semesters. The first two registrations in RCSS 5989 must be for three credit hours, after that RCSS 5989 is taken for one credit hour each semester until completion of the thesis requirements.

- RCSS 599/5989 - Research Guidance Thesis (3 cr.)

## **Sustainable Development (M.Sc.) with concentrations in Green Technologies, Entrepreneurship, Sustainable Cities and Sustainable Communities**

Steering Committee: K. Abdelhalim (GAPP), S. El-Hagger (SSE), A. Ismail (BUS), G. Marquis (HUSS), T. Purinton (GSE), A. Ramadan (Dean of Graduate Studies), H. Sewilam (Program Director), and the Associate Deans of the SSE, HUSS, BUS, GAPP and GSE.

### **Master of Science in Sustainable Development**

The MSc program in Sustainable Development is designed to take advantage of sustainable development as an economic growth opportunity. This MSc program aims to create a whole new generation of business and social entrepreneurs with the skills will allow them to start up green businesses, launch innovative ventures and products, and put in place public policy and social entrepreneurship innovations that, together, address society's environmental and natural resource challenges. The program aims to provide students with a sound theoretical and practical understanding of innovation and entrepreneurship in all three sectors-private, governmental and non-profit- in preparation for careers as entrepreneurs and "intrapreneurs" in a range of organizations.

Through this program, students will learn how to identify, assess and shape environmental ideas into real business opportunities and how to support such ventures through entrepreneurial private, government and civil society initiatives. Adopting an interdisciplinary approach, the course work combines a conceptual review of the relationships among business, industry, environment, policy and society, with a much more applied examination of the wide range of initiatives that relate to environmental management and sustainable economic development.

The MSc is facilitated by the available state-of-the-art equipment and facilities available at the SSE, BUS and GAPP. A minimum of 33 credit hours is required for the MSc. The degree to be awarded is an "AUC MSc in Sustainable Development."

### **Objectives**

#### **The graduates of the MSc in Sustainable Development will**

1. Have the multi-disciplinary knowledge of green innovation and the key aspects and dimensions of sustainable development.
2. Foster a strong culture of green entrepreneurship and business in Egypt and the region
3. Engage in advanced green industry careers
4. Excel in an interdisciplinary environment both as individuals and within a team
5. Seize and develop commercial opportunities in the fast advancing green technologies field locally and globally.

### **Admissions**

A candidate for the program must have a bachelor's degree in Engineering, policy, business or social background. Admission is also subject to the general university requirements for graduate study, including English language proficiency. A minimum GPA of 3.0 out of 4.0 is required for full admission into the program. Students who have some deficiency in their undergraduate training but are well-qualified in other aspects maybe admitted provisionally. The program director and track coordinators may prescribe a program of non-credit work to make up for the deficiency.

### **Courses (24 credit hours)**

The program of study is planned with the program director, and should include a minimum of 9 credit hours of core courses and a minimum of 15 credit hours of electives from three of the four sustainable development sub-modules. A maximum of 3 credits hours may be taken as independent study ( GREN 000/5910 - Independent Study in Sustainable

Development (3 cr.)) with prior approval of the program director. Students might be asked to take additional non-credit courses from the balance module to qualify them for this program.

## I. Core Module- M1 (9 Credit Hours)

All students must take GREN 5201 Global Changes and Sustainable Development and select two more courses out of GREN 5202 , GREN 5203 ,GREN 5204 and GREN 5205 .

- GREN 502/5202 - Engineering for a Sustainable Environment (3 cr.)
- GREN 503/5203 - Core Concepts & Applications for Social & Environmental Policy (3 cr.)
- GREN 504/5204 - Entrepreneurship and Innovation (3 cr.)
- GREN 505/5205 - Environment and Society (3 cr.)

## II. Balance Module- M2 (0 Credit Hours)

Students might be asked to take one or more courses from a list of courses approved by the GREN advisory committee and selected with their advisor to upgrade their knowledge and qualify them for this program.

## III. Sustainable Development Concentration Module M3- Electives (15 Credit Hours)

Students should take five courses (15 cr.) in the Sustainable Development Concentration Module to cover three of the four sub-modules. These courses are to include three courses (9 cr.) from the sub-module the student wants to concentrate in. All students must take at least one course (3 cr.) out of these five courses from the Green Technologies sub-module M3-A. A maximum of 3 credit hours can be taken as an independent study course or as a 4000-level course of a topic of relevance with prior approval of the program director.

### Green Technologies Concentration Module (M3-A):

- GREN 511/5211 - Water Desalination (3 cr.)
- GREN 000/5215 - Sustainability of Thermal Systems (3 cr.)
- GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)
- GREN 514/5214 - Green Buildings (3 cr.)
- GREN 000/5219 - Selected Topics in Green Technologies (3 cr.)

### Entrepreneurship Concentration Module (M3-B):

- GREN 521/5221 - Marketing Management (3 cr.)
- GREN 522/5222 - Strategic Management of Innovation (3 cr.)
- GREN 523/5223 - Managing in a Dynamic Environment (3 cr.)
- GREN 524/5224 - Financial Management (3 cr.)

### Sustainable Cities Concentration Module (M3-C):

- GREN 531/5231 - Policy for Sustainable Cities (3 cr.)

- GREN 532/5232 - Greening the Built Environment (3 cr.)
- GREN 533/5233 - Urban Infrastructure Development for Sustainability (3 cr.)
- GREN 000/5235 - Corporate Social Responsibility and NGO Partnerships (3 cr.)

### Sustainable Communities Concentration Module (M3-D):

- GREN 544/5244 - Cities: Structure and Dynamics (3 cr.)
- GREN 000/5245 - Community Assessment and Program Evaluation (3 cr.)
- GREN 000/5246 - Community Psychology and Systems Theory (3 cr.)
- GREN 000/5247 - Prevention and Intervention in Communities (3 cr.)
- GREN 000/5248 - Consultation to Non-Profit Organizations (3 cr.)

### Thesis (9 Credit Hours)

Each student must submit a thesis topic that has been approved by a faculty supervisor by the end of the first academic year. Various research topics are discussed in GREN 5251 and GREN 5252, Graduate Thesis Seminar I and II, respectively. Students must register for Graduate Thesis Seminar I (GREN 5251) before submitting a thesis topic while Graduate Thesis Seminar II (GREN 5252) should be taken during the execution of the thesis research work. To ensure adequate faculty consultation on the thesis, the student must register for the Research Thesis Guidance Course (GREN 5253) by the completion of 18 credit hours. The GREN 5253 course must be registered over two consecutive semesters after which the course may be registered for one credit hour each semester until completion of the program requirement. The Thesis seminar will be developed and offered by all the schools involved in the program.

- GREN 571/5251 - Graduate Thesis Seminar I (2 cr.)
- GREN 572/5252 - Graduate Thesis Seminar II (1 cr.)
- GREN 573/5253 - Research Guidance Thesis (3 cr. + 3 cr.)

Students are encouraged to "twin" in the thesis work. At least two students can agree on submitting a topic for a "twinning thesis" that has to be approved by their faculty supervisors from at least two different schools by the end of the first academic year. The twinning thesis does not mean reducing the workload, since each student should complete minimum 33 credits to be awarded a twinning MSc degree. Students work on one topic from different perspectives and submit two theses.

### Arabic Studies (Graduate Diploma)

An opportunity for students who do not plan to pursue doctoral research or academic careers to study the history, culture, religion, literature, and material culture of the Arab and Islamicate worlds.

An opportunity for students with a background in history, literature, art history, etc. to complement their knowledge with specific study pertaining to the Arab and Islamicate worlds.

#### Requirements:

Students will take six (6) courses from at least two different disciplinary specializations taught in the department of Arab & Islamic Civilizations.

Two (2) of the six (6) courses should be chosen from the following list:

ARIC 504/5210 - Seminar on a Selected Work or Author in Classical Arabic Literature (3 cr.)

ARIC 507/5211 - Seminar on Modern Arabic Literature: Nineteenth Century (3 cr.)

ARIC 508/5212 - Seminar on Modern Arabic Literature: Twentieth Century (3 cr.)

ARIC 575-576/5222-5223 - Special Studies in Islamic Art and Architecture (3 cr.)

ARIC 530/5230 - Seminar on a Selected Topic in Medieval Arab/Islamic History, 600-1800 A.D. (3 cr.)

ARIC 560 - 561/5233-5234 - Special Studies in Middle Eastern History (3 cr.)

ARIC 524/5240 - Seminar on Selected Topics in Qur'anic Studies (3 cr.)

ARIC 527/5243 - Selected Topics in Islamic Theology, Sufism or Philosophy (3 cr.)

### **Admission Requirements:**

Same as for existing MA programs taught in the department. If a student in good standing decides during the course of their diploma that they would like to transfer to an MA program, they may apply via the standard procedure for graduate admissions.

## **Community Psychology (Graduate Diploma)**

The Community Psychology diploma places its graduates at the forefront of advancing global trends towards multicultural and systemic community psychology practice. Courses prepare students to work with communities, schools, governments, international or multilateral organizations and/or nongovernmental organizations to develop, implement, and evaluate psychological interventions that promote social, psychological, and physical health and well-being. The program exposes students to methods of community psychology practice that are ethically responsible and culturally appropriate to Egypt and the region.

The diploma aims to complement students' existing knowledge and disciplinary specializations by providing training in understanding communities from a psychological and systems perspective while preparing students to intervene in communities on issues of importance.

### **Admission**

At a minimum, applicants must meet at least one of two requirements: a) have at least two years relevant full-time work experience, or b) have completed or be near completion a Master's degree in a related discipline. It is expected that candidates have a minimum GPA of 3.0 out of 4.0 in previous academic studies and current academic studies if currently enrolled in a graduate program. Admission is competitive, and dependent on successful interview.

### **Language Requirement**

The applicant should demonstrate proficiency in the English language in accordance with AUC standards.

## **Courses (18 credit hours)**

Course work for the Graduate Diploma requires the completion of 18 credits as follows:

### **Required Courses**

12 credits Required / 4 courses

- PSYC 502/5210 - Community Psychology and Systems Theory (3 cr.)
- PSYC 525/5253 - Consultation to Non-Profit Organizations (3 cr.)
- PSYC 530/5233 - Community Assessment and Program Evaluation (3 cr.)
- PSYC 535/5243 - Prevention and Intervention in Communities (3 cr.)

## Electives

6 credits Required / 2 courses

Students should take two additional electives that best meet their professional goals, with approval from the graduate advisor and the department in which the course is offered. Students will be encouraged to take a course related to research methodology if they have not already completed a graduate-level research course.

## Notes

Students will be encouraged to complete the diploma in one year.

## Comparative Literary Studies (Graduate Diploma)

The Diploma is administered by the Department of English and Comparative Literature. It offers a program in Literature and Literary Studies, that is both multi-cultural and interdisciplinary, for students from Egypt and abroad. There is a demand-both intellectual and vocational-in our intertwined world to understand how different cultures and linguistic traditions represent themselves and imagine their world. The Program is designed to familiarize the students with the comparative approach to literature and the interdisciplinary nature of literary studies while highlighting how comparative literary studies contribute to new directions in professional and academic developments. It brings the tools and insights of literary and cultural criticism to bear on contemporary concerns from human rights to gender issues, particularly as influenced by, and in, the "global south." The program requires students to take eighteen credit hours of courses and seminars. The Diploma can be completed in two semesters by full-time students, but the Program can accommodate part-time students. Should the Diploma student in good standing decide during or after completion of the requirements to work towards an MA degree, the student may apply to transfer to the MA degree but must then meet the requirements of the MA program.

### Admission

Applicants seeking admission to the Graduate Diploma in Comparative Literary Studies must have completed an undergraduate degree in any field. They are required to meet the graduate admission standards of AUC and meet the English language requirements of the Department of English and Comparative Literature. Information concerning these can be found in the AUC catalog and the Office of Graduate Admission.

### Curriculum

Students take a total of six courses and sit for an examination in a language of their choice other than English. Each diploma student is assigned a faculty advisor who will recommend courses and seminars, taking into consideration the vocational and intellectual interest of the student. Students can take up to six ECLT courses with at least four courses in ECLT and up to two graduate courses in specified departments and programs of HUSS/GAPP. These two basic models would allow one course to vary in kind:

- 6 ECLT courses. 18 cr.

Or



- 4 ECLT courses. 12 cr.
- 2 Humanities/Social Sciences courses relevant to comparative and interdisciplinary studies, approved by the student advisor and by the instructor of the course, from the following fields:

Arabic Literature (either in Arabic or in translation)

Gender and Women's Studies

Forced Migration and Refugee Studies

International Human Rights Law

Sociology/Anthropology

## **Computer Science (Graduate Diploma)**

### **Admission**

Admission requirements are the same as those for the M.Sc.

### **Courses (18 credit hours)**

Course work for the diploma in Computer Science is directed at providing the student with background in subjects relevant to the designated Computer Science discipline.

### **Total Requirements**

A total of six 500-level CSCE courses (18 credit hours) is required for the diploma.

### **Notes:**

The courses which have been successfully completed in the diploma program can be considered as part of the master's degree requirements for students who are admitted to the master's degree studies. The diploma may be completed in one academic year; no thesis is required.

## **Economics in International Development (Graduate Diploma)**

This graduate diploma is designed for students who wish to gain a basic understanding and knowledge of development, but who may not intend to proceed to obtain a Master's Degree. This Diploma program is also interdisciplinary to provide a broader and more integrated perspective of development issues.

The Diploma should be of interest to those who plan to seek a position or a career with development-related institutions or with government departments directly concerned with development planning and evaluation.

### **Admission**

The applicant for admission to this program should have a good knowledge of the concepts and analytical tools of economics. An applicant whose bachelor's degree is in a discipline other than economics may be admitted provisionally, but in such cases, the applicant must either display competence in economics by passing required examinations or develop the necessary competence by completing additional undergraduate courses.

The department uses as reference for admission, minimum acceptable scores on the Graduate Record Exam (GRE) of 150 verbal, 150 quantitative, and 3.0 analytical (which is equivalent to 450 verbal, 600 quantitative, and 3.0 analytical

for exams taken prior to September 1, 2011). Prior to full admission, students must have reported their GRE examination scores.

## Courses

A minimum of 15 credit hours is required. All students must:

### 1. Take two core courses

- ECON 500/5251 - The Economic Setting for Development (3 cr.)
- ECON 507/5282 - Quantitative Methods (3 cr.)

### 2. Choose three electives

One from each of the following groups of courses as indicated below:

#### Group 1

- ECON 505/5231 - Advanced International Trade (3 cr.)
- ECON 508/5271 - Labor Economics (3 cr.)
- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- ECON 512/5254 - Economic Growth & Development (3 cr.)
- ECON 519/5213 - Project Evaluation (3 cr.)
- ECON 530/5217 - Health Economics in Developing Countries (3 cr.)

#### Group 2

- POLS 525/5225 - International Political Economy (3 cr.)
- POLS 535/5235 - Middle East Politics (3 cr.)
- POLS 536/5236 - Contemporary Issues in Political Islam (3 cr.)
- POLS 561/5261 - Public Policy and Development (3 cr.)
- POLS 562/5262 - International Development Organizations (3 cr.)

#### Group 3

- SOC/ANTH 500/5201 - Classical Social Thought (3 cr.)
- SOC/ANTH 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)
- SOC/ANTH 535/5235 - Maintaining Systems of Global Inequality (3 cr.)
- SOC/ANTH 560/5260 - Population Dynamics (3 cr.)
- PSYC 525/5253 - Consultation to Non-Profit Organizations (3 cr.)

## Note

Students awarded the Diploma may apply for admission to the M.A. in Economics International Development.

## Educational Leadership (Graduate Diploma)

The Graduate Diploma in Educational Leadership is offered by the Department of International & Comparative Education, Graduate School of Education. This Diploma is designed as a one-year (two semesters) program for students who wish to enhance their qualifications or pursue an academic interest in the field of educational leadership.

### Admission

Applicants must meet the same admissions requirements as those for the MA in Educational Leadership. Should a student in good standing decide during or within one semester after completion of the requirements for the Diploma that he/she wishes to work towards the MA degree, he/she may apply to transfer to the MA degree.

### Courses (18 credit hours)

Course work for the Graduate Diploma requires the completion of 18 credits as follows:

#### Required Courses

12 credits Required / 4 courses

EDUC 521/5202 - Social Foundations of Education (3 cr.)

EDUC 541/5204 - Human Development & Learning Theory (3 cr.)

EDUC 542/5221 - Transformative Leadership (3 cr.)

EDUC 546/5223 - Organizational Theory and Educational Institutions (3 cr.)

#### Electives

6 credits Required / 2 courses

Students should take two additional electives from among the 500-level courses in Educational Leadership offered by the Department that best meet their professional goals, with approval from their academic advisor.

## Food Chemistry and Nutrition (Graduate Diploma)

The department of chemistry offers a Graduate Diploma in Food Chemistry and Nutrition upon the successful completion of 6 courses (18 credit hours). To receive the Graduate Diploma in Food Chemistry, students should complete 6 credit hours of core chemistry courses and 12 credit hours from the food chemistry & nutrition specialization courses.

### Admission

A bachelor's degree in chemistry or a related discipline with a minimum GPA 3.0 out of 4.0, is required for admission into the program. Admission is also subject to the general university requirements for the graduate program. For those students whose grade records indicate promising ability, but who otherwise did not have an adequate preparation in chemistry, admission may be granted under the requirement that remedial courses will be taken.

## Gender and Women's Studies in the Middle East and North Africa (Graduate Diploma)

### Course Requirements

Six courses (18 credit hours) are required for the diploma. Diploma students must take two required courses (GWST 5100 and GWST 5205) and four GWST elective courses.

The diploma option allows students to pursue a disciplinary M.A. at AUC and at the same time acquire gender studies qualifications.

## **Global Affairs (Graduate Diploma)**

The Diploma Program requires the completion of 18 credit hours of coursework in the Public Policy and Administration Department, including at least 12 credit hours from the courses making up the MGA degree.

## **Inclusive Education (Graduate Diploma)**

The Graduate Diploma in Inclusive Education is offered by the Departments of Psychology (HUSS) and International & Comparative Education (GSE). This Diploma is designed as a one-year (two semester) program. This proposed graduate diploma focuses on inclusive education, which is about how schools, classrooms, programs, and activities are developed and designed so that all students of different abilities and backgrounds can effectively learn and participate together. Students with learning difficulties and other challenges should not be segregated, stigmatized, or excluded from educational opportunities, and students who are gifted and talented should not have their potential constrained by the academic system. Relevant and adequate education for all learners is a human right, under the Convention for the Rights of Disabled Persons and the Universal Declaration of Human Rights (both of which Egypt has ratified). In addition, the Egyptian Constitution also guarantees access to appropriate educational opportunities for students with learning disabilities and those who are gifted (Articles. 81 & 82, 2014). The proposed program is unique in the region because it is jointly offered by the Departments of International & Comparative Education and Psychology, with interdisciplinary perspectives enhancing the theory and methods taught. This will provide students with broader well-rounded skills, attract students from both education and psychology sectors, and open up diverse job and educational pathways for graduates. This Graduate Diploma could be a stepping stone towards a future masters or doctorate for educators who wish to develop a more specialized level of expertise.

### **Admission**

All applicants must have a bachelor's degree. Applicants should have at least two years relevant fulltime work experience. Admission is competitive, and dependent on a successful interview.

### **Courses (18 credit hours)**

Course work for the Graduate Diploma requires the completion of 18 credits as follows:

#### **Required Courses**

18 credits Required / 6 courses

#### **Semester 1**

PSYC 520/5205 - Psychology in the Schools (3 cr.)

EDUC 541/5204 - Human Development & Learning Theory (3 cr.)

EDUC 557/5234 - Reaching Diverse and Underserved Learners (3 cr.)

#### **Semester 2**

PSYC 000/5255 - Assessment and Evaluation for Learning Enrichment (3 cr.)

EDUC 000/5238 - Programs and Environments for Inclusive Education (3 cr.)

PSYC 000/5265 - Applied Projects in Inclusive Education (3 cr.)

## **International & Comparative Education (Graduate Diploma)**

The Graduate Diploma in International & Comparative Education is offered by the Department of International & Comparative Education, Graduate School of Education. This Diploma is designed as a one-year (two semesters) program for students who wish to enhance their qualifications or pursue an academic interest in the field of education.

### **Admission**

Applicants must meet the same admissions requirements as those for the MA in International & Comparative Education. Should a student in good standing decide during or within one semester after completion of the requirements for the Diploma that he/she wishes to work towards the MA degree, he/she may apply to transfer to the MA degree.

Courses (18 credit hours)

Course work for the Graduate Diploma requires the completion of 18 credits as follows:

### **Required Courses**

12 credits Required / 4 courses

EDUC 521/5202 - Social Foundations of Education (3 cr.)

EDUC 531/5203 - Introduction to International & Comparative Education (3 cr.)

EDUC 541/5204 - Human Development & Learning Theory (3 cr.)

EDUC 575/5215 - Educational Policy Analysis (3 cr.)

### **Electives**

6 credits Required / 2 courses

Students should take two additional electives from among the 500-level courses in International & Comparative Education offered by the Department that best meet their professional goals, with approval from their academic adviser.

## **International and Comparative Law (Graduate Diploma)**

The Graduate Diploma in International and Comparative Law is intended for law school graduates seeking to update their knowledge in international and comparative law and to acquire the intellectual tools to advance academically and professionally. The Graduate Diploma in International and Comparative Law offers the possibility to explore in depth a range of topics in international and comparative law. With a flexible curriculum, students may shape their schedules to focus on the topics of their interest. The Fulfillment of the requirements of the Graduate Diploma, normally calls for two semesters of study.

### **Admission**

The applicant for admission to the Graduate Diploma in International and Comparative Law should have an acceptable bachelor's degree in law, political science or a closely related social science (preferably with a minor in political science or law studies) with a grade of *guyyid* (good) or its equivalent for full admission. Students lacking the grade requirement may be eligible to be considered for provisional admission (as specified in the AUC catalog *supra*).

Acceptance is by decision of the Law Faculty Committee, which may grant provisional admission pending the fulfillment of certain conditions. English language proficiency is required as per general AUC graduate admission requirements. Admitted degree candidates should normally start their course sequence in the fall semester. Students enrolled in the AUC English Language Institute must complete all ELI Courses and modules before being allowed to enroll in Law Classes. For these students, spring enrollment is allowed.

Following admission to the Diploma in International and Comparative Law, students may apply for admission to the LLM program in International and Comparative Law. As a minimum enabling condition, students need to achieve a B+ grade average at the end of their Diploma studies. The application may be submitted at the end of the fulfillment of the Diploma requirements. If the application is successful, credits earned during the diploma will count towards the LLM, given that the Diploma curriculum is identical with the curriculum of the first year of the LLM program. Upon completion of the LLM requirements the student will receive *only* the LLM degree and therefore *not* the Diploma.

## Requirements

The Graduate Diploma requires 18 credit hours.

### **Two courses are required:**

- LAW 500/5200 - Legal Research and Writing (3 cr.)

### **One out of the following two courses:**

- LAW 502/5202 - Comparative Law (3 cr.)
- LAW 509/5209 - International Law (3 cr.)

## Electives

Students will be able to take up to four courses as electives. The Law Department's approval is required for electives offered by other departments.

## **International Human Rights Law and Justice (Graduate Diploma)**

The Graduate Diploma in International Human Rights Law and Justice is intended for graduate students seeking to update their knowledge in human rights law and to acquire the intellectual tools to advance academically and professionally. The Graduate Diploma in Human Rights Law and Justice offers the possibility to explore in depth a range of topics in human rights and humanitarian law. With a flexible curriculum, students may shape their schedules to focus on the topics of their interest. The fulfillment of the requirements of the Graduate Diploma, normally calls for one year of study.

## Admission

The applicant for admission to the IHRL diploma should have an acceptable bachelor's degree in law, political science or a closely related social science (preferably with a minor in political science or legal studies) with a grade of gayyid giddan (very good) or a grade point average of 3.0. Applicants with deficiencies in their preparation may be required to take appropriate course at the undergraduate level. English language proficiency is required as per general AUC graduate admission requirements. Admitted degree candidates should normally start their course sequence in the fall semester. Students enrolled in the AUC English Language Institute must complete all ELI Courses and modules before being allowed to enroll in Law Classes. For these students, spring enrollment is allowed.

Following admission to the Diploma in International Human Rights Law, students may apply for admission to the MA degree in International Human Rights Law. As a minimum enabling condition, students need to achieve a B+ grade average at the end of their Diploma studies. The application may be submitted following fulfillment of the Diploma requirements. If the application is successful, credits earned during the Diploma will count towards the MA, given that the Diploma curriculum is identical with the curriculum of the first year of the MA program. Upon completion of the MA requirements the student will receive *only* the MA Degree and therefore *not* the Diploma.

## Requirements

The Graduate Diploma requires 18 credit hours.

### **There are four required courses:**

- LAW 509/5209 - International Law (3 cr.)
- LAW 510/5210 - Introduction to International Human Rights Law and Critique (3 cr.)
- LAW 000/5221 - Law and Patriarchy (3 cr.)

### **And one out of the following three courses:**

- LAW 511/5211 - International Humanitarian Law (3 cr.)
- LAW 514/5214 - Human Rights in the Middle East (3 cr.)
- LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.)

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The remaining two courses are electives. The Law Department's approval is required for electives offered by other departments.

## Degree Time Framework

Fulfilling the Graduate Diploma in International Human Rights Law normally calls for one year of study.

## Middle East Studies (Graduate Diploma)

The diploma program in Middle East Studies is designed to fill the need for familiarity with modern Middle Eastern culture and society, particularly for students who have not been exposed to an intensive study of the Middle East at the undergraduate level.

Students are expected to finish the program in two semesters, though they may take up to four semesters to complete their requirements.

### **Admission**

An applicant should have an undergraduate degree of high standing (a GPA of 3.0 or above). Prerequisites may be assigned depending on the applicant's academic background.

### **Language**

To obtain the diploma each candidate must demonstrate, in addition to the normal university requirements in English, proficiency in Modern Standard Arabic up to the completion of ALNG 1101-1102-1103.

### **Courses**

Five courses are required for the Diploma, from at least three departments. Students can take a maximum of two courses at the 400 level. Students must take three of the following courses:

ARIC 451/5133 - Islamic Institutions (3 cr.)

ARIC 543/5232 - Seminar on the Twentieth-Century Middle East (3 cr.)

or

HIST 5223

ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)

MEST 569/5201 - A Critical Introduction to Middle East Studies (3 cr.)

POLS 535/5235 - Middle East Politics (3 cr.)

SOC/ANTH 503/5290 - Middle Eastern Societies and Cultures (3 cr.)

The remaining two courses must be related to the Middle East, from Arab & Islamic Civilizations, Economics, Gender and Women's Studies, History, Law, Middle East Studies, Political Science, Anthropology/Sociology, Migration & Refugee Studies or Public Policy & Administration.

## **Migration and Refugee Studies (Graduate Diploma)**

Specialized Graduate Diploma in Migration and Refugee Studies

### **Admission**

Applicants seeking admission to the Graduate diploma should have an undergraduate degree of high standing (equivalent of a B grade or higher) within the field of humanities and or Social Sciences and meet the university's language proficiency exam.

## **Course Requirements**

The Graduate Diploma requires the successful completion of 6 courses (18 credit hours). These include four required core courses plus two elective courses.

### **All students must take:**



- MRS 500/5102 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)
- MRS 501/5103 - International Migration & Development (3 cr.)
- MRS 507/5100 - Introduction to Migration and Refugee Studies (3 cr.)
- MRS 518/5101 - International Refugee Law (3 cr.)

Two electives are to be chosen from the CMRS list of electives offered each semester.

## Time Line

Completion of the Graduate Diploma in Migration and Refugee Studies will normally take 1 year. It does not require the completion of a thesis. Students who finish the diploma can develop it into an MA by taking the two extra required courses of the MA program and complete a thesis.

## Physics (Graduate Diploma)

The graduate diploma in physics is directed at providing the student with advanced background in areas such as computational physics, mathematical modeling, laboratory techniques, instrumentation, experiment design, and research techniques. A total of 18 credit hours (6 courses) is required for the diploma.

### Admission

Admission requirements are the same as those for the M. Sc. program.

## Courses (18 credits)

The courses may be selected from the 500-level physics courses. No more than two 400-level courses, not previously taken, may be considered for credit. Successfully completed 500-level courses in the diploma program will fulfill master's degree requirements should the student subsequently be admitted into the master's degree program. The diploma program may be completed in one academic year, and no thesis or qualifying examination is required.

## Political Science (Graduate Diploma)

The Diploma in Political Science is designed as a one-year (two semesters) program for students who wish to enhance their professional qualifications or pursue an academic interest in the field of politics. The Diploma Program requires the completion of any six courses chosen from the graduate offerings in Political Science, which include Middle East Politics, International Relations, Development Studies, Political Economy, and Comparative Politics.

### Admission

Requirements for admission to the Diploma program are the same as those for admission to the graduate degree program of the department. Should a student in good standing decide during or after completion of the requirements for the Diploma that he/she wishes to work towards the MA degree he/she may apply to transfer to one of the degree specializations

## Psychosocial Interventions for Forced Migrants and Refugees (Graduate Diploma)

**Specialized Graduate Diploma in Psychosocial Intervention for Forced Migrants and Refugees**

*The diploma is offered by the Center for Migration and Refugee Studies (CMRS) in collaboration with the Psychology unit of the SAPE department.*

### Admission

Applicants seeking admission to the Graduate diploma in - Psychosocial Intervention for forced migrants and refugees should have an undergraduate degree of high standing (no less than a GPA of 3.00) within the field of humanities and/or Social Sciences and meet the university's language proficiency exam. Pre-requisites may be assigned, depending on the student's academic background. Students with related work, research or volunteer experience will be given priority.

Applicants must display through a written personal statement in their applications the following traits: leadership, compassion, cultural sensitivity, social responsibility, emotional maturity, good mental health, and ethical standards. Recommendation letters will be required.

Graduates of this new specialized diploma will acquire core competencies that qualify them to think critically and analytically about migration and refugee issues and plan and implement holistic culturally sensitive interventions that minimize or alleviate the psychosocial issues affecting forced migrants and refugees at individual, family, group, community and societal levels. They will learn to plan, manage and implement state-of-the-art interventions that make an impact on the psychosocial well-being of refugee adults and children without discrimination due to ethnicity, gender, religion or capacities. These interventions can be implemented during and after emergencies in urban, rural or camp locations. They will include but not be limited to the provision of humanitarian relief that supports human rights and dignity, provision of basic psychological first aid and psychosocial support, facilitation of psycho-education and support for families and groups, community and child focused activities in support of psychosocial well-being, advocacy, referral, protection, psycho-education and peace building.

## Course Requirements

The specialized graduate diploma in applied psychosocial intervention requires the successful completion of 6 courses with 19 credit hours. These will consist of 5 core courses, plus one elective. The practicum course:

- MRS 513/5213 - Practicum in Psychosocial Interventions for Forced Migrants and Refugees (2 cr.) will be taken twice, once in the Fall and once in Spring; each semester will count for 2 credit hours.

**The remaining four core courses are:**

- MRS 507/5100 - Introduction to Migration and Refugee Studies (3 cr.)
  - MRS 512/5112 - Psychosocial Issues in Forced Migration (3 cr.)
  - PSYC 502/5210 - Community Psychology and Systems Theory (3 cr.)
  - MRS 514/5214 - Psychosocial Interventions for Forced Migrants and Refugees (3 cr.)
- The one elective can be selected based on student interests, with approval from the Director of the psychosocial program.

## Time Line

The Graduate Diploma in Psychosocial Intervention can be finished in one year of full time study or two years of part-time study. It does not require the completion of a thesis. Students who finish the diploma can develop it into an MA by taking the MA required courses and completing a thesis.

On the other hand, following completion of the Graduate Diploma in Psychosocial Intervention for forced migrant and refugees, if a student wants to undertake the FMRS Diploma in refugee studies, he/she will need to take one or two courses only of the four core courses depending on the electives taken in the psychosocial diploma plus two electives of the FMRS diploma.

## **Public Administration (Graduate Diploma)**

### **Program Requirements**

The Diploma Program requires the completion of 18 credit hours of coursework in the PPAD department, including at least 12 credit hours from the courses making up the MPA core.

## **Public Policy (Graduate Diploma)**

### **Program Requirements**

The Diploma Program requires the completion of 18 credit hours of coursework in the PPAD department, including at least 12 credit hours from the courses making up the MPP core.

## **Sociology - Anthropology (Graduate Diploma)**

The program seeks to provide a thorough foundation in the principles of Sociology and Anthropology while also developing critical skills for a wide range of real world professional situations.

### **Requirements**

Students take 6 courses (18 credits) in a single two-semester year. All students must take:

SOC/ANTH 500/5201 - Classical Social Thought (3 cr.)

SOC/ANTH 501/5202 - Contemporary Social Thought

Either SOC/ANTH 505/5203 - Ethnographic Fieldwork (3 cr.) or SOC/ANTH 506/5204 - Survey Research (3 cr.)

The remaining three courses can be chosen from among 5000 level SOC/ANTH courses:

- SOC/ANTH 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- SOC/ANTH 508/5208 - Special Topics in Migration and Refugee Issues (3 cr.)
- SOC/ANTH 000/5209 - Migration, Integration and Citizenship (3 cr.)
- SOC/ANTH 510/5210 - Problems in Sociology-Anthropology (3 cr.)
- SOC/ANTH 515/5215 - Kin, Friends and Neighbors (3 cr.)
- SOC/ANTH 520/5220 - Gender and Sexuality (3 cr.)
- SOC/ANTH 525/5225 - Religion, Ideology and Society (3 cr.)
- SOC/ANTH 530/5230 - Theorizing the State (3 cr.)
- SOC/ANTH 535/5235 - Maintaining Systems of Global Inequality (3 cr.)
- SOC/ANTH 540/5240 - Revisiting the Rural (3 cr.)
- SOC/ANTH 545/5245 - Cities: Structure and Dynamics (3 cr.)
- SOC/ANTH 550/5250 - Sociology of Knowledge (3 cr.)
- SOC/ANTH 555/5255 - Comparative Health and Healing Systems (3 cr.)
- SOC/ANTH 560/5260 - Population Dynamics (3 cr.)
- SOC/ANTH 565/5265 - Ethnicity, Identity and Nationalism (3 cr.)
- SOC/ANTH 570/5270 - Environment and Society (3 cr.)
- SOC/ANTH 575/5275 - Modern Social Movements (3 cr.)
- SOC/ANTH 580/5280 - History and Memory (3 cr.)
- SOC/ANTH 502/5285 - Social and Cultural Dynamics in Contemporary Egypt (3 cr.)
- SOC/ANTH 503/5290 - Middle Eastern Societies and Cultures (3 cr.)

- SOC/ANTH 591/5297 - Independent Study and Readings (3 cr.)
- SOC-ANTH 000/5295 - Reading Capital (3 cr.)

### **Admission Requirements**

Requirements for admission to the Graduate Diploma program are the same as those for admission to the MA Sociology - Anthropology. Graduating diploma students may apply to transfer to MA status; however, transfer to such status is not guaranteed and applications are evaluated according to the standard selection criteria (including academic merit, statement of purpose and recommendation letters).

## **Sustainable Development (Graduate Diploma)**

*Director:* H. Sewilam

### **Graduate Diploma in Sustainable Development**

The Diploma in Sustainable Development considers the concept of sustainable development as an economic growth opportunity. The Diploma is designed for candidates who desire to make a contribution to the emerging field of sustainable development. The Diploma is directed at providing the student with multi-disciplinary background in areas such as innovation and entrepreneurship, sustainable technologies, social and environmental policy. It aims at preparing students for careers in green industry with the capacity necessary to lead sustainable development in Egypt and the Middle East. Adopting an interdisciplinary approach, the course work combines a conceptual review of the relationships between business, industry, environment, policy and society, with a much more applied examination of the wide range of initiatives that relate to environmental management and sustainable economic development.

The Diploma is facilitated by the available state-of-the-art equipment and facilities available at the SSE, BUSS, GAPP, HUSS, GSE and DDC.

A minimum of 18 credit hours (6 courses) are required for the diploma. The degree to be awarded is a "Graduate Diploma" as an AUC Degree.

### **Objectives:**

#### **The graduates of the Diploma in Sustainable Development will**

1. Have the multi-disciplinary knowledge of green innovation and the key aspects and dimensions of sustainable development
2. Foster a strong culture of green entrepreneurship and business development in Egypt and the region
3. Engage in advanced green industry careers
4. Excel in an interdisciplinary environment both as individuals and within a team
5. Seize and develop commercial opportunities in the fast-advancing green technologies field locally and globally.

### **Admissions**

A candidate for the program must have a Bachelor's in Engineering, policy, business or social sciences. Admission is also subject to the general university requirements for graduate study, including English language proficiency. A minimum GPA of 3.0 out of 4.0 is required for full admission into the program. Students who have some deficiency in their undergraduate training but are well-qualified in other aspects may be admitted provisionally. The program director and tract coordinators may prescribe a program of noncredit work to make up for the deficiency.

**Courses (18 credit hours)**

The program of study is planned with the program director, and should include a minimum of 9 credit hours of core courses and a minimum of 9 credit hours of electives from two of the four sustainable development sub-modules. A maximum of 3 credit hours may be taken as independent study ( GREN 000/5910 - Independent Study in Sustainable Development (3 cr.)) with prior approval of the program director. Students might be asked to take additional non-credit courses from the balance module to qualify them for this program.

**I. Core Module- M1 (9 Credit Hours)**

All students must take GREN 5201 and select two more courses out of GREN 5202 ,GREN 5203 ,GREN 5204 and GREN 5205 .

- GREN 501/5201 - Global Changes and Sustainable Development (3 cr.)
- GREN 502/5202 - Engineering for a Sustainable Environment (3 cr.)
- GREN 503/5203 - Core Concepts & Applications for Social & Environmental Policy (3 cr.)
- GREN 504/5204 - Entrepreneurship and Innovation (3 cr.)
- GREN 505/5205 - Environment and Society (3 cr.)

**II. Balance Module- M2 (0 Credit Hours)**

Students might be asked to take one or more courses from a list of courses approved by the GREN advisory committee and selected with their advisor to upgrade their knowledge and qualify them for this program.

**III. Sustainable Development Module M3- Electives (9 Credit Hours)**

Students should take a total of three courses (9 cr.) in the Sustainable Development Module to cover two of the four sub-modules. These courses are to include two courses (6 cr.) from the sub-module the student wants to concentrate in. All students must take at least one course (3 cr.) out of these three courses from the Green Technologies sub-module M3-A. A maximum of three credit hours can be taken as an independent study course or as a 4000-level course of a topic of relevance with prior approval of the program director.

**Green Technologies Module (M3-A):**

- GREN 511/5211 - Water Desalination (3 cr.)
- GREN 000/5215 - Sustainability of Thermal Systems (3 cr.)
- GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)
- GREN 514/5214 - Green Buildings (3 cr.)
- GREN 000/5219 - Selected Topics in Green Technologies (3 cr.)

**Entrepreneurship Module (M3-B):**

- GREN 521/5221 - Marketing Management (3 cr.)

- GREN 522/5222 - Strategic Management of Innovation (3 cr.)
- GREN 523/5223 - Managing in a Dynamic Environment (3 cr.)
- GREN 524/5224 - Financial Management (3 cr.)

### **Sustainable Cities Module (M3-C):**

- GREN 531/5231 - Policy for Sustainable Cities (3 cr.)
- GREN 532/5232 - Greening the Built Environment (3 cr.)
- GREN 533/5233 - Urban Infrastructure Development for Sustainability (3 cr.)
- GREN 000/5235 - Corporate Social Responsibility and NGO Partnerships (3 cr.)

### **Sustainable Communities Module (M3-D):**

- GREN 544/5244 - Cities: Structure and Dynamics (3 cr.)
- GREN 000/5245 - Community Assessment and Program Evaluation (3 cr.)
- GREN 000/5246 - Community Psychology and Systems Theory (3 cr.)
- GREN 000/5247 - Prevention and Intervention in Communities (3 cr.)
- GREN 000/5248 - Consultation to Non-Profit Organizations (3 cr.)

## **TAFL (Graduate Diploma)**

### **Complete the following six TAFL courses:**

The diploma program in TAFL is designed for qualified teachers of Arabic who meet the same admission requirements as those for the masters degree. The diploma is awarded to those who successfully complete the following six TAFL courses:

- APLN 516/5102 - The Linguistics of Arabic (3 cr.)
- APLN 510/5203 - Methods of Teaching a Foreign Language I (3 cr.)
- APLN 511/5204 - Methods of Teaching Arabic to Non-native Speakers II (3 cr.)
- APLN 507/5210 - Computer Assisted Language Learning (CALL)/Computer Operations Techniques (3 cr.)
- APLN 502/5305 - Assessment in Language Learning (3 cr.)

## **Notes**

One three-hour elective course to be decided upon by the student

A maximum of one appropriate course may be accepted, with departmental approval, as transfer credit toward the diploma in lieu of APLN 5305 , APLN 5203, APLN 5102, or an acceptable elective.

## **TESOL (Graduate Diploma)**

The Diploma program is designed for qualified teachers of English who meet the same admission requirements as those for the Master of Arts degree.

The Diploma is awarded to those who successfully complete the following six TESL courses:

- Two three-hour additional courses to be decided upon by the student in consultation with the academic adviser
- APLN 500/5303 - English Grammar (3 cr.)
- APLN 501/5301 - Principles of Linguistic Analysis (3 cr.)
- APLN 503/5304 - Second Language Acquisition (3 cr.)
- APLN 510/5300 - Methods of TESOL I (3 cr.)

A maximum of one appropriate course may be accepted

With departmental approval, as transfer credit toward the Diploma in lieu of the following:

- APLN 501/5301 - Principles of Linguistic Analysis (3 cr.)
  - APLN 503/5304 - Second Language Acquisition (3 cr.)
  - APLN 510/5300 - Methods of TESOL I (3 cr.)
  - APLN 511/5397 - Methods of TESOL II (3 cr.)
- or an acceptable elective

## **Applied Sciences, with specializations in Biotechnology, Chemistry, Computer Science, Global Public Health and Nanotechnology (Ph.D.)**

Director: A. Essawi

Steering Committee: M. Arafa, H. El Fawal, M. Habib, T. Shoeib

Associate professor: K. Addas, A. Amleh, A. El Gendy, M. Moustafa, K. Seddik

### **Doctor of Philosophy in Applied Sciences**

The Ph.D. in Applied Sciences is an interdisciplinary program that applies modern approaches from the experimental, natural and life sciences in conjunction with theoretical and computational methods from the disciplines of engineering, mathematics and computer science to the solution of advanced problems of fundamental importance. The Ph.D. program in Applied Sciences emphasizes the application of research methods and procedures to advanced areas of importance in the sciences and technology. The program builds on the premise that advancing the applied sciences and technology must be based on fundamental comprehension of the various disciplines, while continually being responsive to the needs of new technologies, and the interdisciplinary nature of the modern scientific enterprise. This program will be administered by a committee which has a representation of faculty from various graduate programs in the School of Sciences and Engineering.

This program offers a Ph.D. degree in Applied Sciences with specializations in:

- Biotechnology,
- Chemistry,
- Computer Science,
- Global Public Health,
- Nanotechnology.

### Admission Requirements

- M.Sc. in an Engineering or Science discipline
- Demonstrated proficiency in English language as determined by AUC graduate admissions
- Obtain an acceptable score in the Graduate Record Exam (GRE)

### Program Objectives

The mission of the Ph.D. program in Applied Sciences and Engineering is to provide in-depth training to students in the natural sciences, modern engineering, and computer science and in the conduct of original research leading to a doctoral dissertation.

The primary goal of the program is to provide students with an opportunity to contribute to the advancement of knowledge in the field of applied sciences and engineering. The program is aimed at providing students with the opportunity to develop their professional knowledge and expertise to a high calibre and to qualify for leadership positions in teaching, in research, in administration and management and in policy analysis and program development. The program caters to demands of industry and research institutes and places a strong emphasis on original thinking, professional behavior and ethical conduct. The objectives of the program are for students to acquire

1. A broad analytic understanding of advanced experimental, theoretical and computational methods in the applied sciences and engineering
2. Substantive knowledge of some field or area of practice (e.g., nanotechnology, biotechnology, computer science, environmental engineering, etc.).
3. Competence to conduct independent, empirical research that extends the knowledge base of the field of interest.
4. Ability to generate new ideas, convince others that their ideas are worth pursuing, do the necessary research to demonstrate that their ideas are viable, and communicate the results of their research in the public domain.

### Program Outcomes

Upon completing the degree requirements for the Ph.D. Program in Applied Sciences and Engineering graduating students should have the ability to:

1. Pursue a career in academia in teaching and/or research.
2. Pursue a career in industrial research and development (R&D).
3. Identify well-defined science and/or engineering problems of importance to the profession or the community, as well as generate new ideas and approaches to resolve such problems.
4. Apply advanced experimental, analytical and computational techniques to solve complex science problems.
5. Convince others that their ideas are worth pursuing and explore funding opportunities for their research.
6. Initiate scientific collaborations schemes that advance their research endeavors.
7. Successfully communicate their results to constituencies of various technical backgrounds and fields of specialty.
8. Make significant contributions to their field of specialization and profession through their own continued research, writing, teaching, and practice.
9. Implement the code of ethics within the study and work environments.

### Doctoral of Philosophy Degree Requirements:

Students going through this program are expected to successfully complete the following requirements:

1. **Pass the required course work with a GPA 3.0 or higher:** This ensures the breadth of knowledge of the Ph.D. student.
2. **Pass a Qualifying Examination:** This signifies that course work is completed and that the student has sufficient background knowledge in her/his field of specialization.
3. **Present and defend a proposal of the intended research work:** This demonstrates that the candidate has defined her/his research problem and is capable of identifying the research methodology that she/he will adopt.
4. **Submit a written Dissertation and defend it in a final Oral Defense:** This marks the completion of the requirements for the Ph.D. degree.



**Doctoral Coursework:**

As part of the process of achieving candidacy, a doctoral student must complete a set of courses known as the doctoral candidacy coursework. It includes at least thirty-six (36) credit hours of relevant graduate coursework beyond the bachelor's degree, of which at least eighteen (18) credit hours must be earned at AUC. Students who change their major specialization from that used for their master's degree to a new specialization for their Ph.D. degree may have to take more than thirty-six (36) hours to fulfill the course requirements. Because of the interdisciplinary nature of the program and in order to ensure sufficient breadth of study, the program is designed to include required core coursework in areas outside one's main specialization. In addition, the student must complete 3 credit hours of Seminar courses and register for thirty-three (33) credit hours of Dissertation research work. Courses for each specialization will be listed at the 5000 and 6000 levels in addition to remedial courses to be taken at the 4000 level whenever deemed necessary.

**The Academic Advisor and the Research Advisory Committee:**

The academic advisor is determined by the specialization of the student, and is particularly important for assistance in the preliminary course planning of a student's Ph.D. program. Each specialization has at least one faculty member advisor (usually the Graduate Program Director of the discipline). The academic advisor will be available to the student to help in her/his preliminary choice of the courses. As the student progresses in the program she/he chooses the members of the Research Advisory Committee, which consists of the Chair of the Committee (Dissertation supervisor) and at least two other members. This committee plays a greater role in finalizing the courses for the student's Plan of Study and in advising her/his research work. It is the responsibility of the student to find an AUC faculty member willing to serve as the Chair of the Research Advisory Committee and to choose in consultation with her/him the other members.

**Ph.D. Plan of Study for Qualification and Candidacy:**

The Ph.D. Plan of Study is intended to help the student select courses and will ensure that she/he has an academic program that meets the Ph.D. coursework requirements. The Plan of Study will also allow the students to identify a sequence of courses that meets her/his professional objectives. A preliminary Plan of Study will be drafted in consultation with the student's academic advisor and should be submitted before the student signs up to take the Ph.D. Qualifying Examination.

As the student advances in the program, she/he should choose the members of her/his Research Advisory Committee. The final plan of Study will be drafted in consultation with the Research Advisory Committee. A final up-to-date copy must be submitted before the student applies to take the qualifying exam.

The Plan of Study must contain a listing of the courses the student has taken or intends to take to satisfy the qualification coursework requirements and must constitute a coherent program within the scope of the chosen specialization. It is the student's responsibility to make sure that all requirements are met. Any departure from the requirements must be requested by written petition, which should normally flow starting from the supervisor, to the director of the specialization area, then the Associate Dean for Graduate Studies and Research for final approval.

**Doctoral Qualifying Examination:**

The purpose of the Ph.D. Qualifying Examination is to evaluate the student's ability to analyze problems and to synthesize solutions. It should demonstrate the ability of the student to interrelate basic concepts and ideas in her/his field of study. At least twelve (12) weeks prior to the examination, the student must submit a request indicating her/his intention to take the examination. The Ph.D. Qualifying Examination will be administered by an Examining Committee in each specialization. Following the examination, the Examining Committee will submit an evaluation of the student's performance to Office of the Associate Dean for Graduate Studies and Research. The qualifying examination is typically taken in the semester immediately following the completion of the coursework credit hours, but no later than during the fourth semester since admission into the program. Any deviation from this schedule must be made by written petition and subsequent approval as indicated earlier.

**The Proposal Defense:**

Typically in the semester immediately after the successful completion of the qualifying examination, the student has to write a research proposal under the guidance of the Dissertation supervisor and will give a Proposal Presentation in front of the Research Advisory Committee. Upon the acceptance of the proposal by the Research Advisory Committee, the student makes an oral presentation of the research proposal, including relevant background material. During and after the presentation, the committee will explore the research project with the student in order to provide guidance and make an evaluation of its suitability. They will report their recommendation to the Office of the Associate Dean for Graduate Studies and Research. In case the student does not present an acceptable proposal, the student must take immediate steps to refine the proposal in consultation with the dissertation supervisor. The Proposal Presentation requirement are completed when the Research Advisory Committee chair reports a successful proposal presentation to the office of the associate dean for graduate studies and research at the School of Sciences and Engineering.

Following acceptance of the proposal, the Dissertation Defense Committee is finalized. This consists of the three members of the Research Advisory Committee in addition to an external examiner. The external examiner should be a high calibre scholar in the field. The external examiner will be selected in consultation with the supervisor, the Research Advisory Committee and the director of the specialization area and approved by the PhD program director and the associate dean for graduate studies and research at the School of Sciences and Engineering.

#### **The Dissertation and Its Defense --- Final Oral Defense:**

Upon completion, the dissertation will be sent to the external examiner for evaluation. The examiner will be contacted by the PhD program director two months before the final oral defense and will be asked to provide a detailed written evaluation of the dissertation. The examiner's analysis and recommendation will inform the decision of the PhD program director and the associate dean for graduate studies and research on whether the student proceeds to final oral defense or whether major revisions - including additional work - are needed. Copies of the external examiner's report will be shared with the student before the defense in order to have them addressed. The student will defend the dissertation in an open examination before the committee. The participation of the external examiner in the final oral defense is expected. Each member of the Dissertation Defense Committee will submit a written evaluation of the dissertation after the Oral Defense. Following the successful oral defense, the student must consult with the dissertation supervisor about any changes required by the committee, and must address these changes before final submission of the dissertation to the school dean.

#### **Course and Research Requirements**

Minimum number of credit hours beyond the B.Sc. degree: 72

Dissertation hours 33 (BIOT 6980, CHEM 6980, CSCE 6980, NANO 6980)

Seminar hours 3

Course hours 36 (See below)

The required number of semester credit hours of coursework to be taken for the Ph.D. degree is dependent upon the M.Sc. degree and is determined by the academic advisor or program director of the student at the time of admission. At least eighteen (18) credit hours of course work must be earned at AUC.

#### **Case 1: M.Sc. from AUC**

**Case 1A:** M.Sc. in the same Applied Sciences discipline from AUC.

A candidate may receive up to 24 hours of credit to be counted towards the Ph.D. degree

**Case 1B:** M.Sc. in a different Applied Sciences or Engineering discipline from AUC.

A candidate may receive up to 18 hours of credit to be counted towards the Ph.D. degree

#### **Case 2: M.Sc. achieved outside of AUC**

**Case 2A:** M.Sc. in the same Applied Sciences discipline achieved outside AUC.

A candidate may receive up to 18 hours of credit to be counted towards the Ph.D. degree

**Case 2B:** M.Sc. in a different Applied sciences or Engineering discipline achieved outside AUC.

A candidate may receive up to 12 hours of credit to be counted towards the Ph.D. degree

A plan of study will be developed under guidance of the academic advisor of the student at the time of admission and may be modified later on by her/his Research Advisory Committee. Courses are to be selected from the following, noting that at least eighteen credit hours of course work must be earned at AUC as earlier indicated:

## I. Core Courses

Core courses are selected from an area outside of the specialization of the student.

**Admission Case 1A and 1B:** at least 3 credit hours.

**Admission Case 2A and 2B:** at least 6 credit hours.

- BIOT 501/5201 - Biochemistry (3 cr.)
- BIOT 521/5206 - Fundamentals of Bioinformatics (3 cr.)
- CHEM 502/5202 - Organometallics (3 cr.)
- CHEM 503/5203 - Advanced Organic Chemistry (3 cr.)
- CHEM 504/5204 - Methods of Structure Determination (3 cr.)
- CSCE 565/5261 - Advanced Artificial Intelligence (3 cr.)
- CSCE 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 561/5263 - Knowledge Engineering (3 cr.)
- CSCE 664/6261 - Advanced Data Mining (3 cr.)
- ECNG 510/5210 - Advanced Solid-State Devices (3 cr.)
- ECNG 520/5231 - Advanced Digital Communications (3 cr.)
- ENGR 000/5101 - Cross Talk: Implementation Science and Engineering (3 cr.)
- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENVE 562/5251 - Unit Operations in Environmental Engineering (3 cr.)
- NANO 502/5202 - Simulation and Modeling for Nanoscale Materials and Systems (3 cr.)
- NANO 503/5203 - Advanced Testing and Characterization Techniques (3 cr.)
- NANO 504/5204 - Fabrication of Nanomaterials For Films And Devices (3 cr.)
- MACT 604/6111 - Advanced Numerical Methods (3 cr.)
- MACT 605/6121 - Advanced Probability with Engineering Applications (3 cr.)
- MENG 543/5243 - Systems Modeling and Optimization (3 cr.)
- MENG 681/6241 - Stochastic Simulation (3 cr.)
- PHYS 502/5023 - Classical Electrodynamics I (3 cr.)
- RCSS 504/5204 - Applied Estimation (3 cr.)
- RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)
- BIOT 621/6207 - Systems and Computational Biology (3 cr.)
- PHDS/PHDE 612/6216 - Design and analysis of Experiments (3 cr.)

## II- Specialization Courses

Dependent on the admission status, the student will take the following number of credit hours in their relevant area of specialization:

**Admission case 1:**

Case 1A: at least 6 credit hours.

Case 1B: at least 12 credit hours.

**Admission case 2:**

Case 2A: at least 9 credit hours.

Case 2B: at least 12 credit hours.

5000-level masters courses offered by the graduate programs of Biotechnology (BIOT), Chemistry (CHEM), Computer Science (CSCE), Nanotechnology (NANO) and Physics (PHYS) are considered specialization courses. At least one of the courses taken in the specialization must be a 6000-level course relevant to the student's specialization from the following list:

- BIOT 601/6930 - Current Topics in Biotechnology (3 cr.)
- BIOT 602/6931 - Reading and Conference Course (3 cr.)
- BIOT 604/6204 - Model Systems in Cancer Research (2 cr. + 1 cr. lab)
- BIOT 620/6206 - Computational Genomics and Transcriptomics (3 cr.)
- CHEM 603/6103 - Bioseparation Processes for Food and Pharmaceutical Industries (3 cr.)
- CHEM 615/6105 - Principles and Applications of Mass Spectrometry (3 cr.)
- CHEM 000/6107 - Chemistry of Natural and Synthetic Polymers (3 cr.)
- CHEM 000/6910 - Independent Study in Chemistry (3 cr. max.)
- CHEM 000/6930 - Advanced Selected Topics in Chemistry (3 cr.)
- CSCE 642/6231 - Mobile and Pervasive Computing (3 cr.)
- CSCE 692/6930 - Advanced Selected Topics in Computer Science (3 cr.)
- ECNG 661/6211 - Nanoscale CMOS (3 cr.)
- NANO 621/6121 - Nanophotonics (3 cr.)
- NANO 630/6230 - Biomaterials (3 cr.)
- NANO 642/6242 - Nanocatalysis (3 cr.)
- NANO 505/5205 - Nanochemistry (3 cr.)
- NANO 640/6240 - Nanoporous Materials (3 cr.)
- PHYS 602/6025 - Classical Electrodynamics II (3 cr.)
- PHYS 641/6225 - Integrated Photonics (3 cr.)
- PHYS 642/6243 - Computational Electromagnetics (3 cr.)
- PHYS 662/6930 - Advanced Selected Topics in Physics (3 cr.)

### III - Dissertation and Seminars (Minimum of 36 credit hours)

Dissertation work includes completion of:

- Graduate Thesis Seminar 3cr.

Research Dissertation Guidance, a minimum of 33 cr. (BIOT 6980, CHEM 6980, CSCE 6980, or NANO 6980)

A student may register for up to 12 research dissertation guidance credits while conducting research at an entity outside AUC. Conducting research outside AUC is subject to recommendation from the research advisory committee of the student, and an approval of the PhD program director, as per the latest PhD guidelines. The dissertation supervisor must be fully involved in any such research. Additionally, evidence of demonstrable collaboration between the dissertation supervisor and the entity outside AUC where this research is to be conducted, as well as the contribution of this external entity to this research, must be provided by the dissertation supervisor to the PhD program director prior to the proposal defense.

After completing 33 credit hours of dissertation, the course may be taken for one credit hour each semester until completion of the program requirements.

A PhD guidelines manual will detail advising, the qualifying examination, the proposal defense, and the dissertation defense.

## **Engineering, with specializations in Construction Engineering, Electronics and Communications Engineering, Environmental Engineering, Mechanical Engineering and Robotics, Control & Smart Systems (Ph.D.)**

Director: A. Essawi

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### **Doctor of Philosophy in Engineering**

The Ph.D. in Engineering is an interdisciplinary program that applies modern approaches from the experimental, natural and life sciences in conjunction with theoretical and computational methods from the disciplines of engineering, mathematics and computer science to the solution of advanced problems of fundamental importance. The Ph.D. program in Engineering emphasizes the application of research methods and procedures to advanced areas of importance in the sciences and technology. The program builds on the premise that advancing the applied sciences and technology must be based on fundamental comprehension of the various disciplines, while continually being responsive to the needs of new technologies, and the interdisciplinary nature of the modern scientific enterprise. This program will be administered by a committee which has a representation of faculty from various graduate programs in the School of Sciences and Engineering.

This program offers a Ph.D. degree Engineering with specializations in:

- Mechanical Engineering,
- Construction Engineering,
- Electronics and Communications Engineering,
- Robotics, Control and Smart Systems,
- or Environmental Engineering.

### **Admission Requirements**

- M.Sc. in an Engineering discipline.
- Demonstrated proficiency in English language as determined by AUC graduate admissions
- Obtain an acceptable score in the Graduate Record Exam (GRE)

### **Program Objectives**

The mission of the Ph.D. program in Applied Sciences and Engineering is to provide in-depth training to students in the natural sciences, modern engineering, and computer science and in the conduct of original research leading to a doctoral dissertation.

The primary goal of the program is to provide students with an opportunity to contribute to the advancement of knowledge in the field of applied sciences and engineering. The program aims at providing students with the opportunity to develop their professional knowledge and expertise to a high calibre and to qualify for leadership positions in teaching, in research, in administration and management and in policy analysis and program development. The program caters to demands of industry and research institutes and places a strong emphasis on original thinking, professional behavior and ethical conduct. The objectives of the program are for students to acquire

1. A broad analytic understanding of advanced experimental, theoretical and computational methods in the applied sciences and engineering
2. Substantive knowledge of some field or area of practice (e.g., electronics engineering, environmental engineering, etc.).
3. Competence to conduct independent, empirical research that extends the knowledge base of the field of interest.
4. Ability to generate new ideas, convince others that their ideas are worth pursuing, do the necessary research to demonstrate that their ideas are viable, and communicate the results of their research in the public domain.

#### **Program Outcomes**

Upon completing the degree requirements for the Ph.D. Program in Engineering, graduating students should have the ability to:

1. Pursue a career in academia in teaching and/or research.
2. Pursue a career in industrial research and development (R&D).
3. Identify well-defined science and/or engineering problems of importance to the profession or the community, as well as generate new ideas and approaches to resolve such problems.
4. Apply advanced experimental, analytical and computational techniques to solve complex science and/or engineering problems.
5. Convince others that their ideas are worth pursuing and explore funding opportunities for their research.
6. Initiate scientific collaborations schemes that advance their research endeavors.
7. Successfully communicate their results to constituencies of various technical backgrounds and fields of specialty.
8. Make significant contributions to their field of specialization and profession through their own continued research, writing, teaching, and practice.
9. Implement the code of ethics within the study and work environments.

#### **Doctoral of Philosophy Degree Requirements:**

Students going through this program are expected to successfully complete the following requirements:

1. **Pass the required course work with a GPA 3.0 or higher:** This insures the breadth of knowledge of the Ph.D. student.
2. **Pass a Qualifying Examination:** This signifies that course work is completed and that the student has sufficient background knowledge in her/his field of specialization.
3. **Present and defend a proposal of the intended research work:** This demonstrates that the candidate has defined her/his research problem and is capable of identifying the research methodology that she/he will adopt.
4. **Submit a written Dissertation and defend it in a final Oral Defense:** This marks the completion of the requirements for the Ph.D. degree.

#### **Doctoral Coursework:**

As part of the process of achieving candidacy, a doctoral student must complete a set of courses known as the doctoral candidacy coursework. It includes at least thirty-six (36) credit hours of relevant graduate coursework beyond the bachelor's degree, of which at least eighteen (18) credit hours must be earned at AUC. Students who change their major

specialization of their master's degree to a new specialization for their Ph.D. degree may have to take more than thirty-six (36) hours to fulfill the course requirements.

Because of the interdisciplinary nature of the program and in order to ensure sufficient breadth of study, the program is designed to include required course work in areas outside one's main specialization. In addition the student must complete 3 credit hours of Seminar courses and register for thirty-three (33) credit hours of Dissertation research work. Courses for each specialization will be listed at the 500 and 600 levels in addition to remedial courses to be taken at the 400 level whenever deemed necessary.

### **The Academic Advisor and the Research Advisory Committee:**

The academic advisor is determined by the specialization of the student, and is particularly important for assistance in the preliminary course planning of a student's Ph.D. program. Each specialization has at least one faculty member advisor (usually the Graduate Program Director of the discipline). The academic advisor will be available to the student to help in her/his preliminary choice of the courses. As the student progresses in the program she/he chooses the members of the Research Advisory Committee, which consists of the Chair of the Committee (Dissertation supervisor) and at least two other members. This committee plays a greater role in finalizing the courses for the student's Plan of Study and in advising her/his research work. It is the responsibility of the student to find an AUC faculty member willing to serve as the Chair of the Research Advisory Committee and to choose in consultation with her/him the other members.

### **Ph.D. Plan of Study for Qualification and Candidacy:**

The Ph.D. Plan of Study is intended to help the student select courses and will ensure that she/he has an academic program that meets the Ph.D. coursework requirements. The Plan of Study will also allow the student to identify a sequence of courses that meets her/his professional objectives. A preliminary Plan of Study will be drafted in consultation with the student's academic advisor and should be submitted before the student signs up to take the Ph.D. Qualifying Examination.

As the student advances in the program, she/he should choose the members of her/his Research Advisory Committee. The final Plan of Study will be drafted in consultation with the Research Advisory Committee. A final up-to-date copy must be submitted before the student applies to take the qualifying exam.

The Plan of Study must contain a listing of the courses the student has taken or intends to take to satisfy the qualification coursework requirements and must constitute a coherent program within the scope of the chosen specialization. It is the student's responsibility to make sure that all requirements are met. Any departure from the requirements must be requested by written petition, which should normally flow starting from the supervisor, to the director of the specialization area, then the Associate Dean for Graduate Studies and Research for final approval.

### **Doctoral Qualifying Examination:**

The purpose of the Ph.D. Qualifying Examination is to evaluate the student's ability to analyze problems and to synthesize solutions. It should demonstrate the ability of the student to interrelate basic concepts and ideas in her/his field of study. At least twelve (12) weeks prior to the examination, the student must submit a request indicating her/his intention to take the examination. The Ph.D. Qualifying Examination will be administered by an Examining Committee in each specialization. Following the examination, the Examining Committee will submit an evaluation of the student's performance to the Office of the Associate Dean for Graduate Studies and Research. The qualifying examination is typically taken in the semester immediately following the completion of the coursework credit hours, but no later than during the fourth semester since admission into the program. Any deviation from this schedule must be made by written petition and subsequent approval as indicated earlier.

### **The Proposal Defense:**

Typically in the semester immediately after the successful completion of the qualifying examination, the student has to write a research proposal under the guidance of the Dissertation supervisor and will give a Proposal Presentation in front of the Research Advisory Committee. Upon the acceptance of the proposal by the Research Advisory Committee, the student makes an oral presentation of the research proposal, including relevant background material. During and after the presentation, the committee will explore the research project with the student in order to provide guidance and make an evaluation of its suitability. They will report their recommendation to the Office of the Associate Dean for Graduate Studies and Research. In case the student does not present an acceptable proposal, the student must take immediate steps to refine the proposal in consultation with the dissertation supervisor. The Proposal Presentation requirement are completed when the Research Advisory Committee chair reports a successful proposal presentation to the office of the associate dean for graduate studies and research at the School of Sciences and Engineering.

Following acceptance of the proposal, the Dissertation Defense Committee is finalized. This consists of the three members of the Research Advisory Committee in addition to two external examiners. The external examiners should be well qualified and highly-established experts in the candidate's field of study. The external examiners will be selected in consultation with the supervisor, the Research Advisory Committee and the director of the specialization area and approved by the PhD program director and the associate dean for graduate studies and research at the School of Sciences and Engineering.

### **Publications Requirement:**

The candidate is expected to have as a minimum two accepted peer-reviewed international research publications before the dissertation defense, one of which must be a journal publication. The publications should be originating from the PhD (not from a previous MSc).

### **The Dissertation and Its Defense - Final Oral Defense:**

Upon completion, the dissertation will be sent to the external examiners for evaluation. The examiners will be contacted by the PhD program director two months before the final oral defense and will be asked to provide detailed written evaluation of the dissertation. The examiners recommendations will inform the decision of the PhD program director and the associate dean for graduate studies and research on whether the student proceeds to final oral defense or whether major revisions - including additional work - are needed. Copies of the external examiners reports will be shared with the student before the defense in order to have them addressed. The student will defend the dissertation in an open examination before the committee. The remote attendance of an international external examiner residing abroad in the final oral defense is permitted. Each member of the Dissertation Defense Committee will submit a written evaluation of the dissertation after the Oral Defense. Following the successful oral defense, the student must consult with the dissertation supervisor about any changes required by the committee, and must address these changes before final submission of the dissertation to the school dean.

### **Course and Research Requirements**

Minimum number of credit hours beyond the B.Sc. degree: 72

Dissertation hours 33 (CENG 6290 , ECNG 6980 , ENVE 6980 , MENG 6980 )

Seminar hours 3

Course hours 36 (See below)

The required number of semester credit hours of coursework to be taken for the PhD degree is dependent upon the M.Sc. degree and is determined by the academic advisor or program director of the student at the time of admission. At least eighteen (18) credit hours of course work must be earned at AUC.



**Case 1: M.Sc. from AUC**

**Case 1A:** M.Sc. in the same Engineering discipline from AUC.

A candidate may receive up to 24 hours of credit to be counted towards the Ph.D. degree

**Case 1B:** M.Sc. in a different Engineering discipline from AUC.

A candidate may receive up to 18 hours of credit to be counted towards the Ph.D. degree

**Case 2: M.Sc. achieved outside of AUC**

**Case 2A:** M.Sc. in the same Engineering discipline achieved outside of AUC.

A candidate may receive up to 18 hours of credit to be counted towards the Ph.D. degree

**Case 2B:** M.Sc. in a different Engineering discipline achieved outside of AUC.

A candidate may receive up to 12 hours of credit to be counted towards the Ph.D. degree

A plan of study will be developed under guidance of the academic advisor of the student at the time of admission and may be modified later on by her/his Research Advisory Committee. Courses are to be selected from the following, noting that at least eighteen credit hours of course work must be earned at AUC as earlier indicated:

## I - Core Courses

Core courses are selected from an area outside of the specialization of the student.

Admission Cases 1A and 1B: at least 3 credit hours.

Admission Cases 2A and 2B: at least 6 credit hours.

- BIOT 521/5206 - Fundamentals of Bioinformatics (3 cr.)
- CSCE 565/5261 - Advanced Artificial Intelligence (3 cr.)
- CSCE 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 561/5263 - Knowledge Engineering (3 cr.)
- CSCE 664/6261 - Advanced Data Mining (3 cr.)
- ECNG 510/5210 - Advanced Solid-State Devices (3 cr.)
- ECNG 522/5230 - Probability and Stochastic Processes with Applications (3 cr.)
- ENGR 000/5101 - Cross Talk: Implementation Science and Engineering (3 cr.)
- ENGR 511/5202 - Computational Methods in Engineering (3 cr.)
- ENGR 518/5204 - Engineering Statistics (3 cr.)
- ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)
- ENVE 562/5251 - Unit Operations in Environmental Engineering (3 cr.)
- NANO 502/5202 - Simulation and Modeling for Nanoscale Materials and Systems (3 cr.)
- NANO 503/5203 - Advanced Testing and Characterization Techniques (3 cr.)
- NANO 504/5204 - Fabrication of Nanomaterials For Films And Devices (3 cr.)
- MACT 604/6111 - Advanced Numerical Methods (3 cr.)

- MACT 605/6121 - Advanced Probability with Engineering Applications (3 cr.)
- MENG 543/5243 - Systems Modeling and Optimization (3 cr.)
- MENG 681/6241 - Stochastic Simulation (3 cr.)
- PHYS 502/5023 - Classical Electrodynamics I (3 cr.)
- RCSS 504/5204 - Applied Estimation (3 cr.)
- RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)
- BIOT 621/6207 - Systems and Computational Biology (3 cr.)
- PHDS/PHDE 612/6216 - Design and analysis of Experiments (3 cr.)

## II- Specialization Courses

Dependent on the admission status, the student will take the following number of credit hours in their relevant area of specialization:

### Admission Case 1:

Case 1A: at least 6 credit hours.

Case 1B: at least 12 credit hours.

### Admission Case 2:

Case 2A: at least 9 credit hours.

Case 2B: at least 12 credit hours.

5000-level masters courses offered by the graduate programs of Construction Engineering (CENG), Environmental Engineering (ENVE), Electronics and Communications Engineering (ECNG), Mechanical Engineering (MENG) and Nanotechnology (NANO) are considered specialization courses. At least one of the courses taken in the specialization must be a 6000-level course relevant to the student's specialization from the following list:

- ECNG 619/6219 - Design and Analysis of High-Performance Integrated Circuits (3 cr.)
- ECNG 625/6235 - Detection, Classification, and Estimation Theory (3 cr.)
- ECNG 661/6211 - Nanoscale CMOS (3 cr.)
- ECNG 694/6930 - Advanced Selected Topics in Electronics and Communications Engineering (3 cr.)
- ENVE 662/6250 - Advanced Treatment Processes (3 cr.)
- ENVE 680/6910 - Independent Study in Environmental Engineering (3 cr. Max.)
- ENVE 692/6930 - Advanced Selected Topics in Environmental Engineering (3 cr.)
- CENG 611/6211 - Structural Stability (3 cr.)
- CENG 612/6212 - Structural Dynamics (3 cr.)
- CENG 613/6213 - Earthquake Engineering and Seismic Design (3 cr.)
- CENG 631/6222 - Specialty Materials for Construction (3 cr.)
- CENG 632/6231 - Highways Pavement Systems and Design (3 cr.)
- CENG 679/6223 - Preserving, Repair and Sustainability of Structures (3 cr.)
- CENG 680/6291 - Independent Study in Structural and Material Engineering (3 cr. max.)
- CENG 692/6292 - Advanced Selected Topics in Structural and Material Engineering (3 cr.)
- MENG 615/6255 - Continuum Mechanics (3 cr.)
- MENG 620/6270 - Nonlinear and Adaptive Control (3 cr.)
- MENG 660/6261 - Sustainability of Thermal Systems (3 cr.)
- MENG 670/6262 - Advanced Transport Phenomena (3 cr.)
- MENG 000/6263 - Advanced Measurements in Thermofluids (3 cr.)

- NANO 621/6121 - Nanophotonics (3 cr.)
- NANO 642/6242 - Nanocatalysis (3 cr.)
- RCSS 692/6930 - Advanced Selected Topics in Robotics, Control and Smart Systems (RCSS) (3 cr.)

Environmental Engineering students can also register for online graduate course offerings through a cooperative program between AUC's Department of Construction and Architectural Engineering and Iowa State University's Department of Civil, Construction and Environmental Engineering. A maximum of six credit hours can be earned as such. Sample courses are as follows:

- CE 521: Environmental Biotechnology
- CE 522: Water Pollution Control Processes
- CE 569: Environmental Geotechnology
- CE 571: Surface Water Hydrology

### III - Dissertation and Seminars (Minimum of 36 credit hours)

Dissertation work includes completion of:

- Graduate Thesis Seminar 3cr.

Research Dissertation Guidance, a minimum of 33 cr. (CENG 6290, ECNG 6980, ENVE 6980, MENG 6980 or RCSS 6980)

A student may register for up to 12 research dissertation guidance credits while conducting research at an entity outside AUC. Conducting research outside AUC is subject to recommendation from the research advisory committee of the student, and an approval of the PhD program director, as per the latest PhD guidelines. The dissertation supervisor must be fully involved in any such research. Additionally, evidence of demonstrable collaboration between the dissertation supervisor and the entity outside AUC where this research is to be conducted, as well as the contribution of this external entity to this research, must be provided by the dissertation supervisor to the PhD program director prior to the proposal defense.

After completing 33 credit hours of dissertation, the course may be taken for one credit hour each semester until completion of the program requirements.

A PhD guidelines manual will detail advising, the qualifying examination, the proposal defense, and dissertation defense.

## Development Studies at AUC (Graduate)

**School of Business**

**School of Humanities and Social Sciences**

Development Studies is a rapidly growing area of study concerned with the long-term social, political and economic changes taking place in the Global South. The field is interdisciplinary and multidisciplinary within the social sciences, drawing on the perspectives of anthropology, economics, gender and women's studies, political science, public policy and administration, and sociology in order to understand the complexities of poverty and inequality, population growth, political economy, globalization, international division of labor, structural adjustment, war and human rights, democratization, civil society and NGOs, social justice, and sustainable and alternative forms of development.

Examining questions of development in the Middle East and Africa, in particular, and the Global South more broadly is an AUC strength. Several departments and research centers at AUC offer students opportunities to pursue advanced degrees and to participate in collaborative applied projects and scholarly research in development studies.

### **Graduate Programs:**

- Economics in International Development (MA and graduate diploma)
- Gender and Women's Studies (MA and graduate diploma)
- Gender and Development in the Middle East/North Africa Track
- Migration and Refugee Studies (MA and graduate diploma)
- Political Science (MA and graduate diploma)  
Professional Development Specialization
- Public Policy and Administration (MPPA and graduate diploma)
- Sociology-Anthropology (MA)

### **Research Centers:**

- The Cynthia Nelson Institute for Gender & Women's Studies
- Desert Development Center
- Migration and Refugee Studies Center
- John D. Gerhart Center for Philanthropy and Civic Engagement
- Social Research Center

## **Premedical Track**

*Coordinator:* A. Abdellatif (Biology)

The Biology department is coordinating the premedical track. The Biology degree incorporates all premedical courses while leading to a Bachelor of Science in Biology.

The Premedical track is open to all AUC undergraduate students. The track provides basic biological and physical science courses that prepare students for admission into medical schools abroad. Most US and Canadian medical schools require completion of a Bachelor degree that includes the required courses for admission. The liberal art education at AUC provides the well-rounded education required by medical schools.

Premedical students will have to fulfill all requirements for a degree in their major and those of the premedical track. Premedical students are assigned an advisor from the Department of Biology to guide with course requirements for medical school admissions, Medical College Admission Test (MCAT), medical school applications and extracurricular activities.

## **Biology**

- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)
- BIOL 211/2230 - Molecular and Cell Biology (3 cr. + 1 cr. lab)
- BIOL 315/3280 - Biochemistry (3 cr.)

## General/Inorganic Chemistry

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CHEM 106/1006 - General Chemistry II (3 cr.)
- CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)

## Organic Chemistry

- CHEM 203/2003 - Organic Chemistry I (3 cr.)
- CHEM 306/3006 - Organic Chemistry II (3 cr.)
- CHEM 310L/3010 - Organic Chemistry I Laboratory (1 cr.)
- CHEM 316L/3016 - Organic Chemistry II Laboratory (1 cr.)

## Mathematics

- MACT 131/1121 - Calculus I (3cr.)
- MACT 132/1122 - Calculus II (3 cr.)

## Physics

- PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)
- PHYS 123L/1012 - General Physics Laboratory I (1 cr.)
- PHYS 112/1021 - Electricity and Magnetism (3 cr.)
- PHYS 124L/1022 - General Physics Laboratory II (1 cr.)

## English

Any two Rhetoric and Composition core curriculum requirement may be used to satisfy the English requirement.

## Social Sciences

- PSYC 201/1000 - Introduction to Psychology (3 cr.)
  - SOC 240/2201 - Introduction to Community Development (3 cr.)
- One of these courses can be counted as a "Humanities and Social Sciences" core requirement.

## Notes:

Students applying for admission into certain medical schools may be required to take additional courses.

## Rhetoric and Composition

**Core Curriculum Requirements for students entering before Fall 2013.**

**For students entering Fall 2013 and after, please click [here](#) for current core curriculum requirements.**

## Core Curriculum Requirements

Students must fulfill 9 credits in **Rhetoric and Composition**, in two ways:

- RHET 101/1000 - Approaches to Critical Writing (3 cr.)
- RHET 102/1100 - Effective Argument (3 cr.)
- RHET 201/2010 - Research Writing (3 cr.)

Or

- A 300 or 400 level writing course (3 cr.) (e.g., RHET 3210, RHET 3230, RHET 3320, RHET 4360, or RHET 4260)
- and:
- RHET 102/1100 - Effective Argument (3 cr.)
- RHET 201/2010 - Research Writing (3 cr.)

## Course Prefix Identification and coding rational

- Courses are identified by a prefix, which refers to the department offering the course, a four-digit number, a decimal point, and a two-digit number indicating the section number. Not all departmental prefixes represent fields in which a degree is offered; some represent minors and others only courses. This system is consistent across the university.
- - 1000-level courses are intended for Freshmen (full-time, credit-earning students in their first year of coursework at AUC).
  - 2000-level courses are intended primarily for Sophomore students.
  - 3000-level courses are normally designed for Juniors.
  - 4000-level courses are designated for Seniors, although superior students of Sophomore or Junior standing may be admitted with permission of the department offering the course.
  - 5000 and 6000-level courses are designed and intended for graduate and post-graduate students.
- However, when the 5000-level courses have 1 as the second digit, (i.e. 51XX) this indicates that the course may be taken by advanced (Senior and, in exceptional cases approved by the instructor, Junior level) undergraduate students as well. The same applies to 6000-level courses, which are generally intended for PhD level students. When 6000-level courses have 1 as the second digit (i.e. 61XX), this indicates that the course may be taken by advanced Masters-level students as well.
- The second, third, and fourth digits are used by individual departments and programs to indicate the subarea, concentration or specialization within a degree offered, or proper sequence of courses within a particular subarea.
- Courses ranging from 52XX-59XX are open to graduate students; however, a senior student who has a B average may take two graduate courses, not exceeding six credits, either for graduate credit or for completion

of requirements for the bachelor's degree. In this case the chair of the department concerned must notify the registrar's office.

- The departmental prefixes used in labeling courses are given below:

<b>Schools/Departments</b>	<b>PREFIX</b>	<b>Descriptive</b>
<b>Core Curriculum</b>	CORE SEMR	Core Curriculum Seminar
<b>Graduate School of Education</b>	EDUC	Education
Department of International and Comparative Education	TEAL	Teaching and Learning
<b>The Academy of Liberal Arts</b>		
Department of Arabic Language Instruction	ALNG ALIN ALIS ALWT AIAS	Arabic Language Credit Courses Arabic Language Intensive Arabic Language Intensive Summer Arabic Writing Courses Center for Advanced Arabic Studies in Cairo
Department of English Language Instruction	ELIN ENGL	Intensive English English
Department of Rhetoric and Composition	RHET	Rhetoric and Composition
<b>Office of the Dean of Graduate Studies</b>	GREN	Sustainable Development
<b>School of Business</b>		
Department of Accounting	ACCT	Accounting
Department of Economics	ECON	Economics
Department of Management	ENTR FINC INTB MGMT MKTG MOIS OPMG	Entrepreneurship Finance International Business Management Marketing Management of Information Systems Operations Management
	BADM	Business Administration
	CEMS	International Management
Executive Master in Business Administration Program	EMBA	Executive Master in Business Administration

**School of Global Affairs and Public Policy**

Department of Journalism & Mass Communication	JRMC	Journalism and Mass Communication
Department of Law	LAW	Law
Department of Public Policy and Administration	PPAD	Public Policy and Administration
Center for Migration and Refugee Studies	MRS	Migration and Refugee Studies
The Cynthia Nelson Institute for Gender and Women's Studies	GWST	Gender and Women's' Studies
Kamal Adham Center for Television and Digital Journalism	TVDJ	Television and Digital Journalism
Middle East Studies Program	MEST	Middle East Studies
Prince Alwaleed Bin Talal Bin Abdulaziz Alsaud Center for American Studies and Research	AMST	American Studies

**School of Humanities and Social Sciences**

Department of Applied Linguistics	LING APLN	Linguistics Applied Linguistics
Department of Arab and Islamic Civilizations	ARIC	Arab and Islamic Civilizations
	TRST	Translation
Department of the Arts	ARTV DSGN MUSC FILM THTR	Visual Arts Graphic Design Music Film Theatre
Department of English & Comparative Literature	ECLT	English and Comparative Literature
Department of History	HIST CREL	History Comparative Religion
Department of Philosophy	PHIL	Philosophy
Department of Political Science	POLS	Political Science
Department of Sociology, Egyptology and Anthropology	ANTH EGPT SOC SOC/ANTH	Anthropology Egyptology Sociology Anthropology/Sociology
Department of Psychology	PSYC	Psychology



European Studies	EUST	European Studies
<b>School of Sciences and Engineering</b>		
Department of Architectural Engineering	ARCH	Architectural Engineering
Department of Biology	BIOL	Biology
Department of Chemistry	CHEM SCI	Chemistry Science
Department of Computer Science and Engineering	CSCE	Computer Science and Engineering
Department of Construction Engineering	CENG	Construction Engineering
Department of Electronics and Communications Engineering	ECNG	Electronics and Communications Engineering
Department of Mathematics and Actuarial Science	MACT	Mathematics, Actuarial Science
	DSCI	Data Science
Department of Mechanical Engineering	MENG	Mechanical Engineering
Department of Petroleum and Energy Engineering	PENG	Petroleum Engineering
Department of Physics	PHYS	Physics
Biotechnology Program	BIOT	Biotechnology
Doctorate of Philosophy (Ph.D.) Program	All 600 level courses in:	
	BIOT	Biotechnology
	CENG	Construction Engineering
	CHEM	Chemistry
	CSCE	Computer Science and Engineering
	ECNG	Electronics and Communications Engineering
	ENVE	Environmental Engineering
	MACT	Mathematics and Actuarial Science
	MENG	Mechanical Engineering
	NANO	Nanotechnology
	PHDE	Ph.D. in Engineering
	PHDS	Ph.D. in Applied Sciences
	PHDS/PHDE	Ph.D. in Engineering and Ph.D. in Applied Sciences
Environmental Engineering Program	ENVE	Environmental Engineering
Nanotechnology Program	NANO	Nanotechnology
Robotics, Control and Smart Systems Program	RCSS	Robotics, Control and Smart Systems

Engineering Steering Committee for ENGR Courses	ENGR	Engineering
Global Public Health Program	GHHE	Global Public Health
<b>Libraries and Learning Technologies</b>	LALT	Libraries and Learning Technology

### Note Concerning Course Schedules

Most course descriptions indicate the semester that each course is usually offered, but this information is subject to change and some courses are not taught every year. The registrar's office publishes a detailed schedule of courses offered at the beginning of each semester which contains accurate information on which courses are offered, at what time and by whom they are taught. Please check the Registrar's Schedule of Classes webpage.

For long-term planning, students should consult their advisers and/or individual departments for help designing their programs of study. Students coming from the United States, especially year-abroad students, should contact the university's office in New York for current information about specific course offerings.

## Courses

For the current year, when searching for courses by code, enter the first digit of the course number followed by an asterisk, for example 3\*

### ACCT 201/2001 - Financial Accounting (3 cr.)

#### Description

The course introduces accounting as a discipline and the various uses of accounting information. It covers the accumulation, processing, and communication of accounting information. The measurement of assets, liabilities, equities and income are emphasized.

#### When Offered

Offered in fall and spring.

#### Notes

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

### ACCT 202/2002 - Managerial Accounting (3 cr.)

#### Prerequisites

ACCT 2001

**Description**

Introduction to management accounting in terms of modern cost accounting and budgetary systems. The course emphasizes management uses of accounting information in the planning and controlling of business operations in the manufacturing and services sectors.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**ACCT 301/3001 - Intermediate Accounting I (3 cr.)****Prerequisites**

ACCT 2001

**Description**

An in-depth coverage of accounting valuation processes, accounting income measurement, and disclosure issues in financial reports.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**ACCT 302/3002 - Intermediate Accounting II (3 cr.)****Prerequisites**

ACCT 3001

**Description**

A continuation of Intermediate Accounting I (ACCT 3002), focusing on the liabilities and equity sections in various types of ownership.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**ACCT 303/3003 - Advanced Accounting (3 cr.)****Prerequisites**

## ACCT 3002

### **Description**

This course focuses on accounting aspects of equity investments, mergers and acquisitions, and intercompany transactions. Topics include the preparation and analysis of consolidated financial statements and other advanced accounting issues such as special purpose entities (SPEs) and foreign currency transactions and translations.

### **When Offered**

Offered in fall and spring.

### **Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **ACCT 304/3004 - Cost Accounting (3 cr.)**

### **Prerequisites**

ACCT 2002

### **Description**

Analysis of management accounting reports for decision making purposes. Cost analysis techniques, budgeting and performance evaluation and cost data for quantitative models and control systems.

### **When Offered**

Offered in fall and spring.

### **Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **ACCT 305/3005 - Auditing (3 cr.)**

### **Prerequisites**

ACCT 3002

### **Description**

The course introduces the basics of assurance and attestation services and the role of auditing in enhancing the credibility of financial statements. Topics covered will include factors affecting the auditing profession, auditor's characteristics, types of audit evidence, the audit process and the auditor's report.

### **When Offered**

Offered in fall and spring.

### **Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **ACCT 306/3006 - Principles of Taxation (3 cr.)**

**Prerequisites**

ACCT 302/3002 - Intermediate Accounting II (3 cr.)

**Description**

The main objective of this course is to present an in-depth analysis of how tax laws and regulations affect a business enterprise. The course introduces theoretical tax concepts that support the understanding of taxation in general and the Egyptian tax system in particular. Tax implications on both individuals and businesses are examined.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**ACCT 000/4000 - Automated Financial Accounting (3 cr.)****Prerequisites**

MOIS 2101 and ACCT 3002

**Description**

This course focuses on the application of financial accounting in businesses using Enterprise Resource Planning (ERP) systems as a platform to manage the financial resources and controls of a business entity. It starts with the conceptual foundations of accounting information systems, internal controls and auditing with a focus on the computerization of core accounting cycles. The course requires students to utilize their knowledge in accounting to analyze and use ERP systems through a complete cycle of transaction processing and reporting. The course emphasizes the application of information technology in financial accounting.

**ACCT 401/4001 - Contemporary Issues in Auditing and Forensic Accounting (3 cr.)****Prerequisites**

ACCT 3005

**Description**

This course highlights the practical and governance aspects of the auditing function and its role in promoting financial transparency. Topics covered will include professional ethics, materiality and risk, fraud auditing, sampling techniques, auditing in IT environment, auditing some operational cycles and forensic accounting techniques.

**When Offered**

Offered in fall and spring.

**ACCT 402/4002 - Special Topics in Tax Accounting (3 cr.)****Prerequisites**

ACCT 3006

**Description**

This course builds on its prerequisite Principles of Taxation (ACCT 3006). The course focuses on advanced topics such as the effects of taxation on investment, business planning and decision-making within an Egyptian corporate setting. International taxation concepts and applications are also introduced.

**When Offered**

Offered in fall and spring.

**ACCT 403/4003 - Contemporary Issues in Financial Reporting (3 cr.)**

**Prerequisites**

Graduating Senior.

**Description**

This is a capstone course that will engage students in analysis of a wide range of contemporary issues in financial accounting and reporting by expanding and integrating students' knowledge of the Egyptian Accounting Standards and International Financial Reporting Standards (IFRS) in a rigorous study of the current and advanced financial reporting issues that relate to Assets, Liabilities, Equity, Income and Disclosures.

**When Offered**

Offered in fall and spring.

**ACCT 470/4070 - Special Topics in Accounting (3 cr.)**

**Prerequisites**

Prerequisite: Consent of Instructor.

**Description**

Considers selected topics of current relevance in Accounting.

**When Offered**

Offered occasionally.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**ACCT 475/4075 - Independent Study in Accounting (1-3 cr.)**

**Prerequisites**

Prerequisites: Senior standing and consent of ACCT unit head and chair.

**Description**

Guided readings, research, and discussions on specific selected topic in Accounting.

**When Offered**

Offered occasionally.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the

Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

### **ACCT 501/5201 - Financial Reporting and Analysis (3 cr.)**

#### **Description**

This is a basic course in financial accounting covering financial reporting by business entities. It develops the framework for the analysis, classification, reporting, and disclosure of business transactions. The preparation and interpretation of financial statements and reports, and ethical issues are emphasized.

#### **When Offered**

Offered in fall and spring.

### **ACCT 502/5301 - Managerial Accounting for Decision Making (3 cr.)**

#### **Prerequisites**

BADM 5310

#### **Description**

This course focuses on corporate decision-making skills for managers by concentrating on the concepts and practices of managerial accounting. The emphasis is on building a general framework for choosing among alternative cost systems for operational control and product cost and profitability measurement. The course covers recent conceptual and analytical developments in the area of management accounting, including study of modern and relevant planning, control techniques and their underlying concepts as applied to various functional areas within the firm, and performance evaluation.

#### **When Offered**

Offered in fall and spring

### **ACCT 570/5370 - Selected Topics in Accounting (3 cr.)**

#### **Prerequisites**

BADM 5310

#### **Description**

It considers offering contemporary topics of current relevance in Accounting.

#### **When Offered**

Offered occasionally.

### **ACCT 575/5375 - Independent Study in Accounting (1-3 cr.)**

#### **Prerequisites**

Consent of the Instructor and Director of the program.

**Description**

Guided readings, research, and discussions on specific selected topic in Accounting.

**When Offered**

Offered occasionally.

**AMST 000/1090 - What is America?****Description**

The course examines key themes and major issues in American history and society that gives freshmen students an insight and a deeper understanding of the United States of America. The course also examines a number of themes in American history, including isolationism versus interventionism, conflicts over slavery, consumerism, the end of the cold war and the U.S. rise to a sole superpower.

**AMST 199/1099 - Selected Topics for Core Curriculum (3 cr.)****Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**AMST 299/2096 - Selected Topics for Core Curriculum (3 cr.)****Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**AMST 000/2190 - Is America Still a Superpower? (3 cr.)****Description**

Is the U.S. still a superpower? This course examines the rise of the U.S. to become the sole superpower in less than 250 years. Students will study some of the most important documents in American history: The Declaration of Independence, the Constitution and the Bill of Rights. But also understand the US voting system, some of the main presidential doctrines that reflect the evolution of U.S. foreign policy. Students will also investigate how today's economic system is of the U.S. making.

**AMST 310/3010 - American Literature to 1900 (3 cr.)****Description**

Selected readings of literary works beginning with pre-Columbian oral traditions and moving from the colonial era to the early national period through to the late nineteenth century.

**Cross-listed**

Same as ECLT 3010 .



### **AMST 311/3011 - Modern American Literature (3 cr.)**

#### **Description**

Works of twentieth-century American writers. The reading list may be chosen to reflect changing ethnic and cultural phenomena and will vary from year to year.

#### **Cross-listed**

Same as ECLT 3011 .

### **AMST 356/3016 - American Philosophy (3 cr.)**

#### **Description**

The course examines philosophy in North America, focusing on the central themes of democracy and pragmatism. A guiding question of the course will be: How is the democratic process embedded in the philosophic enterprise? The views of major thinkers such as Peirce, James, Royce, Santayana, Dewey, Quine, and Hartshorne will be examined.

#### **Cross-listed**

Same as PHIL 3016 .

### **AMST 301/3100 - The US and the World Economy (3 cr.)**

#### **Prerequisites**

Sophomore Standing or Higher

#### **Description**

The course will look at the relationship between the U.S. and the global monetary, financial and trading systems. From a historical perspective, the course will examine how the U.S. power has evolved in the post-World War Two as well as the emergence of the Bretton Woods institutions (IMF and World Bank) and the World Trading Organization (WTO). Current issues include but not restricted to the role and weight of the newly emerging industrialized countries. (BRICS: Brazil, Russia, India, China, and South Africa), the continued reliance on the U.S. dollar as the predominant reserve currency, and the impact of the growing American indebtedness on the world economy.

### **AMST 400/4001 - Selected Topics in American Studies (3 cr.)**

#### **Description**

Examination of specific topics and themes related to the field of American Studies. May be repeated for credit if content changes.

### **AMST 444/4444 - Media Law and Policy (3 cr.)**

#### **Prerequisites**

JRMC 2203

**Description**

An explanation of communication law and regulation with its major segments libel, privacy and news-gathering together with journalists' rights and defenses against libel suits. Issues of national and international topics are covered together with media law cases.

**Cross-listed**

Same as JPMC 4444

**ANTH 199/1099 - Selected Topics for Core Curriculum (3 cr.)****Description**

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.

**ANTH 210/2005 - Arab Society (3 cr.)****Prerequisites**

RHET 2010 or concurrent.

**Description**

Description and analysis of social and cultural characteristics and problems of contemporary Arab Society, taking into consideration the specific historical, economic, and ideological forces that shape it. The social basis for Arab unity and identity. Introduction to basic concepts and principles for understanding social phenomena.

**Cross-listed**

Same as SOC 2005.

**When Offered**

Offered in fall and spring.

**ANTH 000/2006 - Youth Cultures (3 cr.)****Description**

This course explores the conceptual and methodological approaches to the study of youth cultures over the last one hundred years in order to be able to interpret and understand youth cultures in the Arab world. The course covers literature on youth cultures, subcultures and countercultures in the 20th and 21st centuries, covering domains such as music, arts, ideas and politics of young people from a range of cultural settings. The course also examines generational conflict, social inequality and authoritarianism, a globalizing economy and mass media, and continuity and change in the way young people experience self, group and social structures.

**ANTH 000/2007 - Anthropology of the Occupied: Palestine/ Israel (3 cr.)****Description**

What does it mean to be occupied? How do those who are occupied experience their worlds? In this course we look at the experience of being occupied in Palestine/ Israel. Specifically, we look at the everyday lives of Palestinians through the eyes, ears, and words of Palestinians through a series of media, including ethnography, literature and poetry, documentary, cinema, visual and video art, each offering a valuable insight into the social, cultural, historical and political conditions of being occupied. Our objective across these readings and different media is to consider the

Palestinian experience of being occupied with the goal of acquiring the analytic and critical tools for thinking about other experiences of being occupied.

### **ANTH 299/2099 - Selected Topics for Core Curriculum (3 cr.)**

#### **Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

#### **When Offered**

Offered occasionally.

### **ANTH 202/2101 - Cultural Anthropology (3 cr.)**

#### **Description**

Cultural anthropology is an exploration of human diversity and what we have in common. It is a journey of questioning, understanding, and respecting the rich and complex tapestry of human practices, beliefs, and expressions we call "culture." In this course we will encounter a wide variety of practices and beliefs, including our own, and we will examine how these are related to global power relations; also, we will explore how anthropologists, with their own particular ideological and theoretical perspectives, attempt to understand these matters.

#### **When Offered**

Offered in fall and spring.

### **ANTH 240/2201 - Introduction to Community Development (3 cr.)**

#### **Description**

Introduces the students to the different concepts and approaches to community development as well as to community organizing. Utilizes a critically reflective framework as part of the curriculum to overcome the potential division between theory and practice. Identifies the key issues that the students are likely to confront in community development and organizing work.

#### **Cross-listed**

Same as SOC 2201/PSYC 2201.

#### **When Offered**

Offered in fall.

### **ANTH 302/3015 - Global Families: Kinship and Relatedness in Late Modernity (3 cr.)**

#### **Prerequisites**

Three hours of Social Sciences.

#### **Description**

Transformation of family and kin structures and relations in present-day globalization. Impacts of urbanization, international migration, consumerism, economic and other factors on families and kin groups. Why and how people legitimize their kin relationships in the eyes of their community, their state, and their religion, and how different family structures are tied to naturalizing certain forms of power. Comparative perspectives from the Middle East and other world areas.

**When Offered**

Offered in alternate years.

**ANTH 303/3020 - Social Movements (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**

Basic processes by which societies initiate, consolidate, transform, and change their basic institutions and social structures. Anatomy of reform and revolutionary social movements, especially those affecting Arab and Third World societies.

**Cross-listed**

Same as SOC 3303.

**When Offered**

Offered in spring

**ANTH 320/3040 - States, Capital and Rural Lives (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**

Analysis of dynamics of expanding state and capital relations into rural and pastoral communities, with special focus on property and labor relations, the social organization of production and exchange, politics and power relations, and the organization and practice of everyday life. The course draws on comparative ethnographic case studies from around the world.

**When Offered**

Offered in alternate years.

**ANTH 321/3045 - The Urban Experience (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**

This course will explore a variety of approaches for the study of life in cities, providing students with tools to think critically about the meaning of urban life in the new century. Are cities the vibrant, vital centers of all that is exciting, new and provocative in modern life or are they the decaying, decadent and dangerous remnants of an industrial age whose time has past? How do we link the lives of corporate elites and pop icons with crack dealers and shanty town dwellers? How do we place migration, world capital flows, transnational media, and global consumption in our studies of city life?

**Cross-listed**

Same as SOC 3045.

**When Offered**

Offered in spring.

**ANTH 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**

The course will first introduce students to the vast theoretical literature on the concepts of race, ethnicity and class from sociology and anthropology. Second, the course will expect students to shift focus away from looking at different cultures to analyzing cultural productions of difference. In the course we will be concerned with how racial, ethnic and class identities are shaped by diverse hegemonic systems, modes of resistance, and the structuring of social relations in different societies.

**Cross-listed**

Same as SOC 3060.

**When Offered**

Offered occasionally.

**ANTH 341/3070 - Anthropology and Film (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**

The history and practice of film in anthropology; film as ethnography; comparison of films and analytical ethnographies. Additional Mandatory Lab Sessions for Film Screening.

**Cross-listed**

Same as FILM 3041 .

**When Offered**

Offered occasionally.

**ANTH 352/3075 - Language in Culture (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**

The role played by language in humankind's symbolic relation to the world. Emphasis on linguistic analysis, ethnosemantics, sociolinguistics, expressive speech and language and socialization as these elucidate patterns of cognitive orientation.

**Cross-listed**

Same as LING 3075 .

**When Offered**

Offered occasionally.

### **ANTH 360/3080 - Gender, Sexuality and Social Change (3 cr.)**

**Prerequisites**

ANTH 2101 or consent of instructor.

**Description**

An introduction to the study of gender ideologies, including a cross-cultural comparison of how genders are constructed to create different norms of masculine, feminine, and other categories linked to various forms of sexuality. Focus on analyzing how inequalities are maintained and contested over time through gendered discourses and practices at home, at work, and at local, national and international levels. Special emphasis on the uses of gender in justifying and challenging development agendas in the Global South.

**When Offered**

Offered in alternate years.

### **ANTH 370/3085 - Environmental Issues in Egypt (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**

The technical aspects of environmental issues in Egypt are examined taking into account the cultural, social, and political dimensions upsetting the balance of the environment. Major issues such as water scarcity, global warming, desertification, urban pollution, tourism, and demographic pressures are presented and analyzed.

**Cross-listed**

Same as SOC 3085.

**When Offered**

Offered in alternate years.

### **ANTH 372/3090 - Public Anthropology (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**

Cultural dynamics involved in social and economic change with special reference to Egypt and the Middle East. Community development, cooperatives, population studies, resettlement, health and education are some of the problems that may be discussed. Case studies and fieldwork.

**When Offered**

Offered in alternate years.

### **ANTH 309/3102 - History of Social Theory (3 cr.)**

**Prerequisites**

Prerequisites: 9 hours of social sciences and junior or senior standing, or consent of instructor.

**Description**

The nature and function of social theory and its development especially since the Enlightenment. Emphasis on the cumulative insights and ideas which have contributed to modern social theory. The essential aspects of the philosophy of social science, especially epistemological problems in the sciences of sociology and anthropology.

**Cross-listed**

Same as SOC 3102.

**When Offered**

Offered in fall.

**ANTH 311/3104 - Contemporary Anthropological Theory (3 cr.)****Prerequisites**

ANTH 3102 or consent of instructor.

**Description**

.Introduces major theories and theorists in the recent history of anthropology and provides a broad vision of the development of the discipline and of contemporary anthropological thought. The course also covers the development of the ethnographic method, important paradigms such as structural-functionalism, and recent critical theory.

**When Offered**

Offered in spring

**ANTH 380/3105 - Fieldwork Methods (3 cr.)****Prerequisites**

ANTH 2101 and 6 credit hours of social sciences.

**Description**

Logic and philosophy of qualitative methodology in anthropology and other social sciences. The process of research design, data collection, analysis and interpretation of results and final write-up is elaborated with specific reference to research conducted in Egypt, the wider Arab and Middle Eastern worlds and elsewhere. Discussion of the politics and ethics of fieldwork, including protection of the rights of human participants in research projects.

**When Offered**

Offered in fall and spring.

**ANTH 340/3202 - Participatory Action Research in Community Settings (3 cr.)****Description**

This course will introduce students to the appropriate research methodologies when dealing with community organizing and development, particularly the participatory action research approach to community development.

**Cross-listed**

Same as PSYC 3202 / SOC 3202 .

**When Offered**

Offered in fall.

**ANTH 312/3301 - Anthropologies of Middle East and North Africa (3 cr.)**

**Prerequisites**

3 hours of Social Sciences.

**Description**

Analysis of contemporary debates in anthropological engagements with and in the Middle East and North Africa. The course explores the histories of ethnographic research in the Middle East and North Africa, colonialism and post-independence experiences, power and representation, performance and the arts, religious sensibilities, gender and kinship networks.

**When Offered**

Offered occasionally

**ANTH 382/3302 - Anthropologies of Africa (3 cr.)****Prerequisites**

Three hours of Social Sciences.

**Description**

Analysis of contemporary debates in anthropological engagements with and in Africa. The course explores the histories of ethnographic research in Africa, colonialism and post-independence experiences, power and representation, performance and the arts, religious sensibilities and kinship networks.

**When Offered**

Offered occasionally

**ANTH 384/3303 - Anthropologies of Latin America (3 cr.)****Prerequisites**

Three hours of Social Sciences

**Description**

Analysis of contemporary debates in anthropological engagements with and in Latin America. The course explores the histories of ethnographic research in Latin America, colonialism and post-independence experiences, power and representation, performance and the arts, religious sensibilities, gender and kinship networks.

**When Offered**

Offered occasionally

**ANTH 386/3304 - Anthropologies of Asia (3 cr.)****Prerequisites**

Three hours of Social Sciences

**Description**

Analysis of contemporary debates in anthropological engagements with and in Asia. The course explores the histories of ethnographic research in Asia, colonialism and post-independence experiences, power and representation, performance and the arts, religious sensibilities, gender and kinship networks.



**When Offered**

Offered in alternate years.

**ANTH 390/3305 - Selected People and Culture Areas (3 cr.)****Prerequisites**

Three hours of Social Sciences.

**Description**

Areas to be chosen according to specific interest and faculty expertise. Examples of possible areas are: peoples and cultures of the ancient world, of the Mediterranean, and of the United States.

**When Offered**

Offered occasionally.

**Repeatable**

May be taken for credit more than once if content changes.

**ANTH 407/4015 - Psychological Anthropology (3 cr.)****Prerequisites**

Three hours of Anthropology, 6 hours of Social Sciences, and junior or senior standing.

**Description**

Interdisciplinary and cross-cultural approach to the study of the reciprocal relations of culture and personality; special focus on themes of identity, socialization and the emergence of self in various cultural settings.

**Cross-listed**

Same as PSYC 4015.

**When Offered**

Offered occasionally.

**ANTH 000/4020 - Anthropology of Violence (3 cr.)****Prerequisites**

9 hours of social science

**Description**

This course examines the analytical object "violence" in its differentiated dimensions. What we think of as violence encompasses multiple phenomena that cannot only be understood as forces of destruction: violence must be grasped as also generative of life-worlds. The course inquires into the nature of violence, explores its epistemological and existential, sensual and structural, exceptional and ordinary dimensions, and forms.

**ANTH 422/4025 - Religion in a Global World (3cr.)****Prerequisites**

Prerequisites: 9 hours of social sciences and junior or senior standing.

**Description**

Comparative study of religion in culture and society. The course will explore a variety of theories and controversies in the anthropological understanding of religion. Emphasis is on how religion may restrict but also empower believers, inform their social identities, and intersect with political and economic practices and institutions in a globalizing world.

**Cross-listed**

Same as SOC 4025.

**When Offered**

Offered in fall.

**ANTH 425/4030 - Women, Islam and the State (3 cr.)**

**Prerequisites**

9 hours of Social Sciences and Junior or Senior standing.

**Description**

An anthropological perspective on the politics of gender in Muslim societies, with an emphasis on the Middle East. The relationship between religion and society, especially the cultural construction of gender hierarchies within the discourses of Islam and the realities of Muslim women's lives. The articulation of the impact of modern states on gender hierarchies.

**When Offered**

Offered annually.

**ANTH 450/4050 - Critical Approaches to Development (3 cr.)**

**Prerequisites**

Prerequisites: 9 hours of social sciences and junior or senior standing.

**Description**

Contemporary theories of development as they apply to and illuminate the problems of development in underdeveloped countries. The approach will be interdisciplinary.

**Cross-listed**

Same as SOC 4106 .

**When Offered**

Offered in fall and spring.

**ANTH 455/4055 - Seminar in African Studies (3 cr.)**

**Prerequisites**

9 hours of Social Sciences and Junior or Senior standing.

**Description**

Through the examination of a contemporary topic in African Studies, this interdisciplinary seminar examines epistemological and methodological issues in African Studies such as transformation, resistance, power, technology, and women and development. Original sources will be used to examine the theoretical assumptions, data and methods underlying the literature. Prior course work in African Studies is recommended.

**Cross-listed**

Same as SOC 4055

**When Offered**

Offered occasionally.

**ANTH 462/4065 - Culture, Economy and the Everyday (3 cr.)**

**Prerequisites**

9 hours of social sciences and junior or senior standing.

**Description**

Examination of how anthropology has approached the study of economic practices, ideas and institutions in different cultural contexts. By following the main theoretical paradigms in economic anthropology, the course will address the cultural assumptions and power dynamics in defining what an economy is and how people go about producing, consuming and exchanging goods, commodities, gifts, services, as well as social relationships. Ethnographic case studies will explicate the power relations underlying the pursuit of economic lives, the centrality of gender, class, race, kinship and ethnic relations in shaping production, consumption and exchange, and the ramifications of global markets on peoples' livelihoods and identities.

**When Offered**

Offered in alternate years.

**ANTH 492/4070 - Political Anthropology (3 cr.)**

**Prerequisites**

9 hours of Social Sciences and Junior or Senior standing.

**Description**

This course examines the contribution of anthropology to the comparative study of political organization and the exercise of power. It reviews classical anthropological approaches to politics in non-state and non-Western state societies. The course also examines political organization in postcolonial and global contexts, including such topics as nationalism, migration, transnational mobilization, ethnic identity and flexible citizenship, and the use of media technologies in developing political subjectivities. There is an emphasis on theoretical perspectives.

**When Offered**

Offered in alternate years.

**ANTH 000/4075 - Migrants and Transnationals (3 cr.)**

**Prerequisites**

9 hours of Social Sciences and Junior or Senior standing.

**Description**

The course examines the experiences and relationships of people who move across states and national boundaries and whose identifying labels range from migrants, transnationals, guest-workers, exiles, refugees, and diaspora, among others. One underlying thread is that of dislocation and movement, while maintaining connections - real, symbolic and imagined - between disparate places and peoples.

**ANTH 400/4099 - Selected Topics in Anthropology (3 cr.)**

**Prerequisites**

Prerequisites: 9 hours of social sciences, and junior or senior standing.

**Description**

.Topics to be chosen according to specific interest, such as: agrarian transformation, desert development, sex roles, cognitive anthropology, anthropology and education; nationalism, colonialism and postcolonialism; tourism in social science; and anthropology of the city.

**When Offered**

Offered occasionally

**Repeatable**

May be taken for credit more than once if content changes.

**ANTH 495/4107 - Senior Seminar (3 cr.)****Prerequisites**

Senior standing and SOC 3105 or ANTH 3105 or 12 hours of Social Sciences.

**Description**

Emphasis on current methodological trends in anthropology and sociology reflecting the research interests of the faculty and students, and drawing on the experience of the undergraduate career.

**Cross-listed**

Same as SOC 4107.

**When Offered**

Offered in spring.

**Notes**

Content may therefore vary from year to year. The student will be required to write a methodologically sound senior paper, preferably based on field research.

**ANTH 440/4203 - Practicum in Community Development (3 cr.)****Prerequisites**

Six hours of social sciences or consent of the instructor.

**Description**

One semester, field experience in an approved international development agency, local NGO or other professional setting approved by faculty supervisor. Supervised by a faculty supervisor.

**Cross-listed**

Same as PSYC 4203 and SOC 4203.

**When Offered**

Offered in spring.

**ANTH 402/4405 - Independent Study (1-3 cr.)****Prerequisites**

Prerequisites: a minimum B average, consent of the instructor, and approval by the unit head and the department chair.

**Description**

In exceptional circumstances some senior majors with departmental approval may arrange to study beyond the regular course offerings.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be repeated for credit more than once if content changes.

**ANTH 445/4499 - Selected Topics in Coptic Studies (3 cr.)****Description**

This course allows instructors to offer a topic in Coptic Studies. The topic will be chosen from year to year in coordination with the departments concerned and the dean of the School of HUSS, and according to the individual interests and areas of expertise of the instructors. Topics chosen may include various aspects of Coptic art and history, monasticism, folklore, or other subjects..

**Cross-listed**

Same as ARIC 5132 , EGPT 5160 , HIST 4905 , SOC 4499 .

**When Offered**

Offered in fall.

**Repeatable**

The course may be taken more than once if the topic changes

**Notes**

Students in these majors may petition preferably before registration to have the course included in their major requirements.

**ANTH 460/4560 - Development Studies Seminar (3 cr.)****Prerequisites**

12 hours of social science.

**Description**

Interdisciplinary and comparative analysis of development as a process and as a historical phenomenon. Critical evaluation of economic, political, social and cultural technological and managerial factors that structure developmental change.

**Cross-listed**

Same as POLS 4560/SOC 4560.

**When Offered**

Offered occasionally.

**APLN 515/5101 - The Phonetics of Arabic (3 cr.)****Description**

Phonetics of Arabic as it is spoken at various levels in Egypt, studied in light of modern phonetic theory. Reference is made to the phonetics of both Egyptian colloquial Arabic and the Arabic of the early Islamic era as described by the early Arab phoneticians. Taught in Arabic and/or English.

**When Offered**

Offered in the fall.

**APLN 516/5102 - The Linguistics of Arabic (3 cr.)**

**Description**

History and development of the Arabic Language and Linguistics. Particular attention will be given to topics such as: Major events that shaped Arabic throughout History, the codification of the language, Arab linguistics theory and its contributions to the study of syntax. Morphology, and lexicography, the various schools of thought among Arab philologists in the light of modern linguistic theory and language situation in Arabic society. Taught in Arabic and/or English.

**When Offered**

Offered in alternate years.

**APLN 551/5103 - Advanced Arabic Grammar (3 cr.)**

**Description**

An examination of the basic concepts in traditional Arabic grammar using modern linguistic theories with the aim of suggesting alternative methods of analysis and formalization. Taught in Arabic.

**When Offered**

Offered in fall and spring.

**APLN 000/5124 - Introduction to Computational Linguistics (3 cr.)**

**Prerequisites**

APLN 5021

**Description**

An introduction to the fundamental concepts of computational linguistics, which is an interdisciplinary field at the nexus of linguistics and computer science. Topics include: publicly available language processing tools and resources, finite state automata, probability theory and frequency distributions, classification, clustering, and semi-supervised machine learning. Hands-on experience with using and developing regular expressions, morphological analyzers, part-of-speech taggers, syntactic parsers, and semantic interpreters.

**APLN 000/5132 - Language and Politics (3 cr.)**

**Prerequisites**

APLN 501/5301 - Principles of Linguistic Analysis (3 cr.)

**Description**

This course explores how language reflects and makes political thought and ideologies. It will also shed light on issues of language and national identity.

By drawing on linguistic theories, the course will cover areas as diverse as education and politics, discourses related to racism and exclusion in political contexts, and colonial history and its impact on language ideologies and linguistic choices.

## **APLN 501/5201 - Principles of Linguistic Analysis (3 cr.)**

### **Description**

Concepts fundamental to linguistic analysis in the areas of syntax, semantics, phonology, historical linguistics, sociolinguistics, and language acquisition.

### **Cross-listed**

Same as APLN 5301 .

### **When Offered**

Offered in fall.

## **APLN 503/5202 - Second Language Acquisition (3 cr.)**

### **Prerequisites**

APLN 5201 or permission of the department. Recommended prerequisite: APLN 5302 .

### **Description**

Relationship between first and second language acquisition. Aspects of acquisition from a psycholinguistic perspective. Cognitive, linguistic, personality and classroom factors influencing SLA. Applications for teaching.

### **Cross-listed**

Same as APLN 5304 .

### **When Offered**

Offered in fall and spring.

## **APLN 510/5203 - Methods of Teaching a Foreign Language I (3 cr.)**

### **Description**

Survey of learning theories, individual learning styles and strategies as they relate to the teaching and learning processes. Examination and critical analysis of major approaches and methods of teaching foreign languages. The course includes classroom observations and limited practice teaching.

### **Cross-listed**

Same as APLN 5300 .

### **When Offered**

Offered consecutively with APLN 5204 .

## **APLN 511/5204 - Methods of Teaching Arabic to Non-native Speakers II (3 cr.)**

### **Prerequisites**

APLN 5203

### **Description**

Survey of teaching practices and pedagogical concerns pertaining to teaching of Arabic to non-native speakers with focus on how the language system and its diglossic nature affect the process of teaching the various language skills. The teaching practicum includes observation of classrooms, material development and supervised teaching of Arabic to speakers of other languages.

### **APLN 553/5205 - Sociolinguistics (3 cr.)**

#### **Description**

The effect of social phenomena on linguistic form. Languages, dialects, and speech communities. Multilingual societies, diglossia, code choice. Regional, social and linguistic variation. Terms of address. Language attitudes. Language and ethnicity. Language maintenance and shift. Language and gender. Language planning and standardization. Sociolinguistic aspects of education.

#### **Cross-listed**

Same as APLN 5331 .

#### **When Offered**

Offered once a year.

### **APLN 555/5206 - Seminar on Challenges Facing AFL Teachers (3 cr.)**

#### **Prerequisites**

APLN 5205

#### **Description**

The course provides the intellectual basis, as distinct from methods of teaching, for the design of curriculum and the teaching of the different language skills of Arabic to speakers of other languages. Special attention is given to four areas: The Alphabet's historical development and variation; vocabulary scope, the root system and Arabic derivational system; syntax, historical development and recent attempts for simplifications; language levels, diglossia, multiglossia and language continuum in Egypt.

### **APLN 507/5210 - Computer Assisted Language Learning (CALL)/Computer Operations Techniques (3 cr.)**

#### **Prerequisites**

APLN 5203.

#### **Description**

Description, analysis and evaluation of CALL software. Integration of CALL into AFL learning. Guided practical experience in producing AFL software using authoring programs. Using the Internet as a resource for learning AFL.

#### **When Offered**

Offered once a year.

### **APLN 563/5211 - Language Variation and Change (3 cr.)**

#### **Description**

This course investigates Arabic language variation and change within the framework of variation theories and with respect to the particularities of Arabic as a multiglossic language. Both written and spoken discourse is analyzed with special attention to formal spoken or educated spoken Arabic. The course provides a practical approach to dealing with Arabic language corpora and trains students to analyze linguistic data.



### **APLN 540/5270 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)**

**Description**

Special topics and current issues in linguistics and language teaching with special reference to Arabic.

**Cross-listed**

Same as APLN 5370 .

**Repeatable**

May be taken more than once if content changes.

### **APLN 560/5271 - Supervised Study in TAFL (3 cr.)**

**Prerequisites**

Prerequisite: consent of instructor.

**Description**

Individual research on specific area of interest to the student.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be taken a second time if content changes.

### **APLN 588/5298 - Comprehensives (no cr.)**

**Description**

Individual consultation for students preparing for the comprehensive examination.

**When Offered**

Offered occasionally.

### **APLN 599/5299 - Research Guidance and Thesis (no cr.)**

**Description**

Consultation for students on matters related to their thesis.

**When Offered**

Offered in fall and spring.

### **APLN 510/5300 - Methods of TESOL I (3 cr.)**

**Description**

Survey of learning theories, individual learning styles and strategies as they relate to the teaching and learning processes. Examination and critical analysis of major approaches and methods of teaching foreign languages. The course includes classroom observations and limited practice teaching.

**Cross-listed**

Same as APLN 5203 .

**APLN 501/5301 - Principles of Linguistic Analysis (3 cr.)**

**Description**

Concepts fundamental to linguistic analysis in the areas of syntax, semantics, phonology, historical linguistics, sociolinguistics, and language acquisition.

**Cross-listed**

Same as APLN 5201 .

**APLN 520/5302 - Research Methods in Applied Linguistics (3 cr.)**

**Description**

Provides TESOL/TAFL MA candidates with the knowledge and skills to read and understand various types of research in applied linguistics, to have a basic grasp of the issues currently being studied in the field, and be able to critically distinguish between good and poor research. Ability to write in appropriate technical fashion is emphasized.

**APLN 500/5303 - English Grammar (3 cr.)**

**Description**

A descriptive overview of the structure of English. Detailed analysis of the major grammatical constructions. Implications for language teaching and learning.

**APLN 503/5304 - Second Language Acquisition (3 cr.)**

**Prerequisites**

APLN 5301 or permission of the department. Recommended prerequisite: TAFL/APLN 5302 .

**Description**

Relationship between first and second language acquisition. Aspects of acquisition from a psycholinguistic perspective. Cognitive, linguistic, personality and classroom factors influencing SLA. Implications for teaching.

**Cross-listed**

Same as APLN 5202 .

**APLN 502/5305 - Assessment in Language Learning (3 cr.)**

**Description**

A practical course that will enable the student to develop valid and reliable assessment procedures, analyze results, and evaluate the procedures.

**Cross-listed**

Same as TAFL 5305 .

### **APLN 507/5310 - Computer Assisted Language Learning (CALL) (3 cr.)**

#### **Prerequisites**

APLN 5300

#### **Description**

Description, analysis and evaluation of CALL software. Integration of CALL into EFL syllabus. Guided practical experience in producing EFL software using authoring programs. Using the Internet as a resource for teaching and learning EFL.

### **APLN 570/5311 - Thesis Proposal Writing (3 cr.)**

#### **Prerequisites**

APLN 5302

#### **Description**

A seminar specially designed for thesis track candidates and others who wish to pursue research in TESOL. Students will explore their specific research interests and are expected to share their ideas and constructive criticism with other members of the class. The aim of this course is to guide the student towards the production of a proposal for a possible thesis or future research.

### **APLN 531/5312 - Second Language Reading and Writing: Theory and Practice (3 cr.)**

#### **Prerequisites**

APLN 5300 .

#### **Description**

This course will survey research and theory in EFL/ESL reading and writing and explore pedagogical applications. We will consider a number of reader/writer and text factors that play a role in second language (L2) reading and writing. As second language reading encompasses top-down, bottom-up, and interactive approaches, we will investigate how these approaches function interactively. We will further explore how the field of L2 writing has been influenced by L1 writing but has also become a distinct area of inquiry in its own right. We will examine students' writing and observe them in their classes, design activities and evaluate materials and textbooks.

### **APLN 000/5313 - Second Language Listening and Speaking: Theory and Practice (3 cr.)**

#### **Prerequisites**

APLN 5300.

#### **Description**

Drawing on previous research in second language acquisition, this course will examine pedagogical applications of various theories of language learning to the teaching of ESL listening and speaking. The main topics emphasized in the course are the following: designing and constructing listening and speaking tasks at different levels of difficulty while achieving a balance between accuracy and fluency, criteria for selecting authentic vs. pedagogically- designed listening tasks, teaching macro- and micro- listening strategies, analyzing the linguistic and pragmatic skills required for spoken

interaction, and developing assessment criteria and contexts for the language classroom. Ways to integrate listening and speaking activities into other language classes and learning contexts will also be considered.

### **APLN 521/5320 - English Syntax (3 cr.)**

#### **Prerequisites**

APLN 5301

#### **Description**

A study of contemporary syntactic theories of generative grammar with particular reference to the choice of formalism, universal grammar and the claims they make about the nature of language, linguistic descriptions and implications for language teaching.

### **APLN 548/5321 - Corpus Linguistics (3 cr.)**

#### **Prerequisites**

APLN 5301

#### **Description**

An introduction to the analysis of large collections of computer-readable texts (corpora) using concordance software. Focus on analytic techniques at the levels of morphology, lexicography, grammar, pragmatics and discourse. Pedagogical applications for English for academic purposes and in data-driven learning.

#### **Cross-listed**

Cross-listed with LING 4211

### **APLN 550/5322 - Language Pragmatics (3 cr.)**

#### **Prerequisites**

APLN 5301

#### **Description**

Definition of pragmatics. Relation of pragmatics to semantics, syntax and sociolinguistics. Speech act theory. Directness and indirectness. The Cooperative Principle, principles of politeness, Relevance Theory. Cross-linguistic/cultural application. Relevance to language teaching.

### **APLN 551/5323 - Discourse of Analysis for Language Teachers (3 cr.)**

#### **Prerequisites**

APLN 5301

#### **Description**

Discourse analysis is typically thought of as studying language use above the sentence level. The central focus is on "how real people use real language, as opposed to studying artificially created sentences" (McCarthy, 1991, p.1). This course will provide an overview of the theories and methods of discourse analysis. We will explore various approaches to the analysis of both spoken and written texts and examine practical implications for language teachers and students. The course will be beneficial for students who are interested in conducting discourse based research and who would

like to know how to use discourse analysis methods in their language classes.

### **APLN 525/5330 - Language Transfer, Contrastive Analysis, and Error Analysis (3 cr.)**

#### **Prerequisites**

APLN 5301

#### **Description**

The study of language contact and language transfer phenomena. Contrastive analysis and error analysis within and beyond the sentence level. Models, procedures and theoretical underpinnings. Discourse function and organization. Implications for second/foreign language teaching and learning.

### **APLN 553/5331 - Sociolinguistics (3 cr.)**

#### **Description**

The effect of social phenomena on linguistic form. Languages, dialects, and speech communities. Multilingual societies, diglossia, code choice. Regional, social, and linguistic variation. Terms of address. Language attitudes. Language and ethnicity. Language maintenance and shift. Language and gender. Language planning and standardization. Sociolinguistic aspects of education.

#### **Cross-listed**

Same as APLN 5205 .

### **APLN 000/5332 - Intercultural Communication (3 cr.)**

#### **Prerequisites**

APLN 5300.

#### **Description**

This course will raise language professionals' awareness of their own cultural assumptions, sensitize them to the multiplicity of other world views, and equip them with the means to assess and respond to their students' cultural orientation. The course includes theoretical readings, analysis of critical incidents, values clarification, and experiential intercultural activities and field observations leading to an ethnography of communication which analyzes a given speech community's communicative norms. The course has four main areas of concentration: a theoretically-grounded conceptualization of intercultural communication, an overview of variations in pedagogical traditions across cultures and ways these can affect language learning effectiveness, a practical component focusing on developing teachers' own intercultural communicative competence, and a methodological component which explores ways of promoting intercultural communicative competence among language learners.

Among the concepts covered are macro-level cultural dimensions, cultures within cultures, cross-cultural variability in relationships, transmitting and interpreting verbal and non-verbal messages, managing conflict and face threats, intergroup attitudes, identity negotiation, acculturation, assimilation and ethical considerations in intercultural communication.

### **APLN 540/5370 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)**

**Description**

Special topics and current issues in linguistics and language teaching.

**Cross-listed**

Same as APLN 5270 .

**Repeatable**

May be taken more than once if content changes.

**APLN 530/5371 - Supervised Study in TESOL (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

Individual research on a specific area of interest to the student in consultation with the instructor.

**Repeatable**

May be taken a second time if content changes.

**APLN 511/5397 - Methods of TESOL II (3 cr.)****Prerequisites**

APLN 5300

**Description**

Survey of approaches to the design and implementation of foreign language curricula and teaching materials. This teaching practicum is a capstone course and as such must be taken during a student's final semester in the program. It includes foreign language classroom observations, supervised practice teaching, and materials development, selection, and adaptation.

**APLN 588/5398 - Comprehensives (no cr.)****Description**

Consultation for students preparing for the comprehensive examination.

**APLN 599/5399 - Research Guidance and Thesis (no cr.)****Description**

Consultation for individual students on matters related to their theses.

**LING 000/3340 - Language Assessment (3 cr.)****Description**

This is an introductory course in language testing which aims at providing students with tools needed to assess language proficiency. The first section of the course focuses on basic terminology in language testing, such as

reliability, validity, and stages of test development. The second section addresses issues related to testing different language skills and features including assessment of reading, writing, listening, speaking, grammar, and vocabulary. The final part of the course deals with issues related to assessing young kids, alternative methods of assessment, using technology in language testing, and ethics in assessment. During the course, students will be given the opportunity to write and review test items

### **ARIC 199/1099 - Selected Topics for Core Curriculum (3cr.)**

#### **Description**

Selected topic in Arab and Islamic Civilizations for the core curriculum.

### **ARIC 101/1101 - Children's Literature and Cultural Representations (3 cr.)**

#### **Description**

This course introduces students in simplified form and content to contemporary literary and cultural theories pertinent to reading and analyzing children's literature. Topics for discussion will include historical constructions of childhood and the socio-historical contexts for the production of children's literary canon(s). Through readings to familiar classics we will explore how representations in texts for children (both written and visual) have shaped the different ideologies of identity, race, gender, and nation.

### **ARIC 000/1102 - Passionate Love in Arabic and World Literatures (3 cr.)**

#### **Description**

Passionate Love, a subject of interest to all human societies, is the subject of this course. Passionate Love is distinct from other forms of romantic love in that it can cause harm to the lover and beloved, as well as those around them. From Majnun Layla to Romeo and Juliet, passionate love has long been a subject of literary interest and social anxiety. In this class, we will read theories and depictions of passionate love in classical Arabic literature to understand how pre-modern Arabo-Islamic societies understood love as a phenomenon, what role romantic love played in society, and what types of texts dealt with the subject. We will also read depictions of passionate love from other world literary traditions including: modern Arabic, English, Italian, Persian, Indian, Turkish, etc.

### **ARIC 100/1300 - Arabs and Muslims Encountering the Other (3 cr.)**

#### **Description**

Surveys Arab-Islamic history from the perspective of the development of the socio-cultural self and its encounters with the Other. Pays special attention to inter-cultural and inter-confessional relations and to how these informed the development of Arab-Islamic identities from the birth of Islam to the colonial period. Major themes include travel and intercultural encounter, polemic, conversion, the treatment of religious minorities, and the colonial subject's view of the West.

### **ARIC 299/2096 - Selected Topics for the Core Curriculum in International/World Studies (3 cr.)**

#### **Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**ARIC 299/2097 - Selected Topics for the Core Curriculum in Arab World Studies (3 cr.)**

**Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**ARIC 299/2099 - Selected Topics for the Core Curriculum in Humanities (3 cr.)**

**Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**ARIC 201/2101 - Introduction to Classical Arabic Literature (3 cr.)**

**Description**

An introduction to the classical Arabic literary tradition through readings of major texts. Prerequisites: Thanawiya 'Ammā or placement examination.

**When Offered**

Offered in fall and spring.

**Notes**

Taught in Arabic.

**ARIC 202/2102 - Introduction to Modern Arabic Literature (3 cr.)**

**Description**

.An introduction to the literature of the nineteenth and twentieth centuries through readings of major texts. Prerequisites: Thanawiya 'Ammā or placement examination.

**When Offered**



Offered in fall and spring

**Notes**

Taught in Arabic.

**ARIC 203/2103 - Classical Arabic Literature in Translation (3 cr.)**

**Description**

An introduction to the classical Arabic literary tradition through readings of major texts.

**When Offered**

Offered in fall and spring.

**Notes**

Taught in English, with assigned texts in English translation.

**ARIC 204/2104 - Modern Arabic Literature in Translation (3 cr.)**

**Description**

An introduction to the literature of the nineteenth and twentieth centuries through readings of major texts.

**When Offered**

Offered in fall and spring.

**Notes**

Taught in English, with assigned texts in English translation.

**ARIC 205/2205 - The World of Islamic Architecture, from the Beginnings to the Present Day (3 cr.)**

**Description**

An overview of Islamic architecture from Spain to Indonesia from the 7th century to the present. Major examples of religious and secular architecture, including mosques, madrasas, palaces and caravanserais.

**When Offered**

Offered in fall and spring.

**ARIC 206/2206 - The City of Cairo (3 cr.)**

**Description**

The architectural and urban heritage of Fustat - Cairo from 641 CE to the present.

**When Offered**

Offered in the fall and spring.

**Notes**

Classwork is supplemented by field trips on Friday or Saturday mornings.

## **ARIC 270-271/2270-2271 - From Andalusia to Indonesia: Introduction to Islamic Art and Architecture (3 cr. per semester)**

### **Prerequisites**

Prerequisite for ARIC 2271: ARIC 2270, or ARIC 2206 .

### **Description**

Important works in architecture and decorative arts from the seventh century AD to the Ottoman period; artistic achievements of Muslim Spain, North Africa, the Middle East, India and Southeast Asia. ARIC 2270 up to 1250 CE; ARIC 2271 1250 CE onwards.

### **When Offered**

ARIC 2270 offered in fall.

ARIC 2271 offered in spring.

## **ARIC 246/2346 - Survey of Arab History (3 cr.)**

### **Description**

This course presents the history of the Arab-speaking Middle East from pre-Islamic times to the modern era, with emphasis on some of the principal political, economic, social, religious, and cultural developments and their relevance to the contemporary Middle East. The course introduces students to historiographical methodology and different interpretive approaches. It attempts to foster a critical attitude toward sources and provides a context in which students can apply skills and concepts acquired in other required-core.

### **Cross-listed**

Same as HIST 2203.

### **When Offered**

Offered in fall and spring.

## **ARIC 320/3020 - Introduction to Sufism (3 cr.)**

### **Description**

An introduction to mysticism in its Islamic context: a survey of the historical development of tasawwuf, the main trends in Sufi thought and practice, the role played by Sufis and Sufi brotherhoods in society and the Sufi contributions to Middle Eastern culture.

### **When Offered**

Offered in alternate years.

## **ARIC 309/3097 - Selected Themes and Topics in Arabic Literature (3 cr.)**

### **Description**

Focuses on one theme in the classical and/or modern period such as love, satire and humor, regional literature, wisdom literature, Sufi literature, tradition and modernity, self and other, alienation and exile. See class schedule for specific theme or topic offered..

### **When Offered**

Offered occasionally.

**Repeatable**

May be repeated once for credit if content changes

**Notes**

Taught in Arabic.

**ARIC 000/3098 - Selected Topics in Islamic Studies (3 cr.)**

**Prerequisites**

RHET 1020

**Description**

This course will focus on selected areas of Islamic Studies, such as theology, jurisprudence, and issues relating to women and gender. A range of different Muslim and Western approaches and opinions relevant to the chosen topic will be considered, as will as broader social dimensions.

**ARIC 305/3104 - Arabic Literature and Gender (3 cr.)**

**Description**

Investigates the construction of gender, both masculine and feminine, through readings in a variety of Arabic discourses.

**When Offered**

Offered in fall or spring.

**Notes**

Taught in Arabic.

**ARIC 306/3106 - Arabic Literature and Film (3 cr.)**

**Description**

Looks at the intersection between literature and film as two modes of representation. Readings of Arabic literary texts, and in class screenings of films.

**When Offered**

Offered in fall or spring.

**Notes**

Taught in Arabic.

**ARIC 307/3107 - The Writer and the State (3 cr.)**

**Description**

Explores the nature of the relationship between writers and authority, in allegiance or in opposition.

**When Offered**

Offered in fall or spring.

**Notes**

Taught in Arabic

### **ARIC 308/3108 - Colloquial and Folk Literature (3 cr.)**

**Description**

Arabic colloquial and folk literature through the study of various genres.

**When Offered**

Offered in fall or spring.

**Notes**

Taught in Arabic.

### **ARIC 314/3114 - The Arabic Novel (3 cr.)**

**Description**

Study of different trends in the Arabic novel. In-depth reading of major modern Arab novelists.

**When Offered**

Offered in fall or spring.

**Notes**

Taught in Arabic.

### **ARIC 315/3115 - Arabic Drama (3 cr.)**

**Description**

Study of Arabic drama through readings of major texts.

**When Offered**

Offered in fall or spring.

**Notes**

Taught in Arabic.

### **ARIC 316/3116 - The Arabic Short Story (3 cr.)**

**Description**

Study of the short story as a genre in modern Arabic literature. In-depth reading of major short story writers.

**When Offered**

Offered in fall or spring.

**Notes**

Taught in Arabic.

### **ARIC 310/3197 - Selected Themes and Topics in Arabic Literature in Translation (3 cr.)**

**Description**

Focuses on one theme or topic in the classical and/or modern period such as political poetry, village and city, literature of place, Arab women writing. See class schedule for specific theme or topic offered.

**When Offered**

Offered in fall or spring.

**Repeatable**

May be repeated once for credit if content changes

**Notes**

Taught in English, with assigned texts in English translation.

**ARIC 368/3268 - The Art of the Book in the Islamic World (3 cr.)**

**Description**

While focusing on Persian book painting from the Mongols to the Safavids, the course will also briefly consider Arab, Turkish and Mughal arts of the book. In addition to the history of painting it explores matters related to patronage, book production, calligraphy and illumination.

**ARIC 369/3269 - The Arts of Fire: Ceramics and Glass of the Islamic World (3 cr.)**

**Prerequisites**

ARIC 2270-2271

**Description**

This course surveys ceramics and glass of the Islamic world from the 7th to the 18th centuries, tracing the technical and artistic innovations of the medium. Visits to local museums will enhance the student's appreciation of the subject.

**When Offered**

Offered occasionally

**ARIC 370/3270 - The Age of Transition: Early Islamic Art and the Pre-Islamic Past (3 cr.)**

**Prerequisites**

ARIC 2270

**Description**

This course examines the formation of Islamic art and architecture during the critical period of transition from the seventh to tenth centuries and explores the role played by antecedent cultures in this formation.

**When Offered**

Offered occasionally.

**ARIC 371-372/3271-3272 - Islamic Architecture in Egypt and Syria (3 cr. per semester)**

**Prerequisites**

ARIC 2271.

**Description**

Development of architecture and decorative styles in Egypt and Syria from the Arab to the Ottoman conquests, including, in the second semester, the Mamluk period; field trips to Cairo monuments.

**When Offered**

3271 offered in fall, 3272 offered in spring.

**ARIC 000/3273 - Islamic Architecture in Egypt and Syria from the Ottomans to the present (3 cr.)**

**Prerequisites**

ARIC 2270-2271 or ARIC 2206

**Description**

Development of architecture and decorative styles in Egypt and Syria from the Ottoman conquests to the present, field trips to Cairo monuments. Offered occasionally.

**ARIC 319/3319 - Islamic Spain and North Africa (711-1492 A.D.) (3 cr.)**

**Description**

This course is an introduction to the political, economic, social, and cultural history of Muslim Spain and North Africa. Its emphasis is on explaining how interactions among different ethnic groups (Arabs, Berbers, and Iberian natives) and different confessional communities (Jews, Christians, and Muslims) created social situations that made the Western Muslim lands unique in Islamic history.

**Cross-listed**

Same as HIST 3205.

**ARIC 321/3321 - Zawiyas, Harems, Coffee shops, Everyday Life in the Pre-Modern Mideast (3 cr.)**

**Description**

Examination of major trends in social and cultural trends, movements, and institutions in the medieval and early modern Middle East. Includes the interpretation of cultural identity, the transmission of knowledge and culture, the construction of social status, and the integration or marginalization of specific social groups in family, social and state structures.

**Cross-listed**

Same as HIST 3215

**When Offered**

Offered in alternate years.

**ARIC 322/3322 - Land, Trade and Power: a History of Economic Relations in the Middle East, 600-1800 A.D. (3 cr.)**

**Description**

Examination of the major economic structures in the Middle East prior to the modern period: the consideration of land as a major resource, structures for its management and the competition to control it. The organization of trade and

commerce, including the role of merchant communities and their place in society.

**When Offered**

Offered in alternate years.

**ARIC 323/3323 - Marriage and the Family in the Medieval and Early Modern Middle East (3 cr.)**

**Description**

Examination of the perspectives and approaches which define marriage, the family, the household and private life in the Middle East; the study of these questions in relation to larger issues such as Islamic law and changing social, political and economic structures, and how these are interlinked with family structure, sexual segregation, definitions of private and public. Sources include travellers' accounts, legal works, architecture, deeds of pious foundations, and court records.

**When Offered**

Offered in alternate years.

**ARIC 324/3324 - Non-Muslim Communities in the Muslim World (3 cr.)**

**Description**

Examination of the history of non-Muslim communities in the Muslim world, with special focus on Egypt. Study of legal status, issues of identity and assimilation, contribution to the cultural life and social life of societies, participation in Mediterranean trade, and interaction and relations between non-Muslim communities and Muslims as well as the non-Muslim world.

**When Offered**

Offered in alternate years

**ARIC 325/3325 - Beggars, Madmen, Prostitutes: the Marginalized in Pre-Modern Mideast History. (3 cr.)**

**Description**

The course will examine the place of marginals both in the sense of those people who are socially marginalized like beggars, people suffering from poverty, insane persons, or people who for any reason are not socially integrated. It may include those who do not have a place in history because they do not make use of the written word, such as peasants or rural communities.

**When Offered**

Offered in fall.

**ARIC 336/3336 - Studies in Ibn Khaldun (3 cr.)**

**Description**

Examination of Ibn Khaldun's work, his place in Arab Muslim thought, and his value as a critic of Muslim culture and institutions.

**When Offered**

Offered in alternate years.

**ARIC 337/3337 - Shi'i Muslims in History (3 cr.)**

**Description**

This course focuses on the historical roles of Shi'i Muslims from the seventh century to the present. The aim of the course is to familiarize the student with the major Shi'i discourses as they evolved in specific historical contexts. While emphasis will be on the historical development of Twelver Shi'ism, other important groups such as the Ismai'liyya and the Zaydiyya will also receive due consideration.

**Cross-listed**

Same as HIST 3216

**ARIC 343/3343 - Birth of Muslim Community and Rise of the Arab Caliphates (3 cr.)**

**Description**

The rise of Islam and Arab expansion, the classical period of Islamic civilization during its first centuries to the period of Abbasid political disintegration.

**Cross-listed**

Same as HIST 3210.

**When Offered**

Offered in fall.

**ARIC 344/3344 - Caliphs and Sultans in the Age of Crusades and Mongols (3 cr.)**

**Description**

The later Abbasid caliphate, the rise of Shi'ism and the Fatimids, Sunni consolidation under the Seljuks and Ayyubids, external threats to dar al-Islam; the rise of the Mamluks.

**Cross-listed**

Same as HIST 3211.

**When Offered**

Offered in alternate years.

**ARIC 345/3345 - Gunpowder Empires: Ottomans, Safavids and Mughols (3 cr.)**

**Description**

The decline of the Mamluks; the Timurids in Persia; the age of gunpowder: the Safavid, Ottoman, and Moghul empires and their decline.

**Cross-listed**

Same as HIST 3212.

**When Offered**

Offered in fall.



### **ARIC 353/3353 - Muslim Political Thought (3 cr.)**

#### **Description**

This course examines the development of Islamic Political thought from the rise of Islam to the present. The development of the Muslim Umma, and the theories of the Caliphate and Muslim states are analyzed. Political theories formulated by medieval Muslim scholars and different sects are examined in detail. Special attention is given to their relevance to modern and contemporary thought.

#### **When Offered**

Offered in Fall and Spring.

#### **Notes**

Source readings in Arabic or in translation.

### **ARIC 355/3355 - State and Society in the Middle East, 1699-1914 (3 cr.)**

#### **Description**

The Ottoman Empire and Iran: continuities and transformations. Imperial administration and relations with Europe. Challenges to the premodern order: regional and global economies; social and cultural trends.

#### **Cross-listed**

Same as HIST 3213.

#### **When Offered**

Offered once a year.

### **ARIC 356/3356 - State and Society in the Middle East, 1906-present (3 cr.)**

#### **Description**

Beginning with the Young Turk and Iran's Constitutional revolutions, this course follows the fate of Middle Eastern societies and states during the twentieth century, with a special focus on colonialism and nationalism; independence movements and decolonization; the Arab-Israeli conflict; society, politics, and culture.

#### **Cross-listed**

Same as HIST 3214.

#### **When Offered**

Offered in fall and spring.

### **ARIC 357/3397 - Selected topic in Middle East History (3 cr.)**

#### **Description**

Focuses on theme or topic in the history of the Middle East. May be repeated for credit when topic changes.

#### **Cross-listed**

Same as HIST 3288.

#### **When Offered**

Offered occasionally.

### **ARIC 354/3405 - Islamic Philosophy (3cr.)**

**Prerequisites**

ARIC 2346 or ARIC 3343 or consent of instructor.

**Description**

A survey of the rational and spiritual dimension of the Arab-Islamic civilization as shown in the thought and ideas of major theologians, philosophers, and mystics.

**Cross-listed**

Same as PHIL 3015.

**When Offered**

Offered occasionally.

**ARIC 335/3435 - Introduction to the Study of Islam (3 cr.)****Description**

A survey of Islam and its history from the formative period to its manifestations in modern times, with a discussion of sectarian movements such as Kharijism, Shi'ism and Sunnism, various schools of thought in law, theology, philosophy and mysticism, as well as modern interpretations of Islam, especially with regard to political, social and gender issues.

**When Offered**

Offered in spring.

**ARIC 400/5100 - Independent Study (1-3 cr.)****Description**

In exceptional circumstances, some senior majors may, with department approval, arrange to study beyond the regular course offerings.

**Repeatable**

May be repeated for credit if content changes

**Notes**

Open only to senior majors with a minimum of B average.

**ARIC 463/5101 - Selected Topics in the History of Islamic Thought and Institutions (3cr.)****Prerequisites**

Prerequisite: consent of instructor.

**Cross-listed**

Same as HIST 4221.

**When Offered**

Offered in spring.

**Repeatable**

May be repeated for credit when content changes.

**ARIC 000/5102 - Cairo in the Cultural Imaginary (3 cr.)**

**Description**

"Cairo in the Cultural Imaginary" is conceived as an interdisciplinary, 4000-level, capstone course designed to provide a framework within which students can re-experience Cairo by analyzing aspects of its cultural history and urban formation that lie outside of their ordinary orbit. The course will be organized around a series of modules, each focused on a specialized aspect of Cairo's urban and cultural history. It will be structured as a combination of classroom sessions, field trips, walking tours, films, and performances and will be supplemented by guest lectures from within and outside the department.

**ARIC 000/5103 - Source - Criticism and Classical Arabic Literature (3 cr.)****Prerequisites**

ARIC 2101 or instructor's approval

**Description**

Source - Criticism is one of the most important philological skills at a scholar's disposal and it is fundamental to the discipline of history. It is also a critic skill for the student of pre-modern literature as it is a key source of paratextual information and not only an exercise in positivism. This course applies the idea of taphonomy (the study of fossilization processes) to literary and historical works in Classical Arabic recorded in the *tadwin* period. Rather than seek to legitimize or delegitimize a given text based on its historical authenticity or provenance, this course demonstrates how to integrate the dimensions of a text's transmission and its context into the study of literary material. Students will be introduced to the university's manuscript holdings and will each present an unedited literary text of their choosing to the class. Students will edit a portion of these MSS and analyze these texts in their final paper.

**ARIC 401/5110 - Senior Seminar in Arabic Texts (3 cr.)****Description**

A selected theme or topic in classical or modern Arabic texts such as regional literatures of the Arab World, cross-cultural encounters in the Mediterranean, Arabic cultural criticism, avant-garde movements in Arabic literature.

**When Offered**

Offered in fall or spring.

**Repeatable**

May be repeated once for credit if content changes

**Notes**

Taught in Arabic

**ARIC 402/5111 - Senior Seminar in Arabic Literature in Translation (3 cr.)****Description**

A selected theme or topic in Arabic literature, classical or modern, such as francophone and anglophone Arab writers, Andalusian literature, writers and the nation..

**When Offered**

Offered in fall or spring.

**Repeatable**

May be repeated once for credit if content changes

**Notes**

Taught in English, with assigned texts in English translation.

### **ARIC 403/5112 - Arabic Literary Criticism (3 cr.)**

**Description**

Arabic critical theory from the classical to the modern period.

**When Offered**

Offered in alternate years.

**Notes**

Taught in Arabic.

### **ARIC 404/5113 - Sira and Hadith (3 cr.)**

**Description**

The growth of the biographical literature on the Prophet and its relation to the literature of Hadith.

**When Offered**

Offered in fall.

**Notes**

Taught in Arabic unless otherwise stated

### **ARIC 417/5114 - Special Studies in Arabic Texts (3 cr.)**

**Description**

Special readings in Arabic texts for those majors in Arabic Studies who are attending a course taught in English and who must read the assigned texts in Arabic to fulfil the requirements of their specialization.

**Repeatable**

May be repeated once for credit if content changes.

### **ARIC 464/5121 - Islamic Art and Architecture in India and Pakistan (3 cr.)**

**Prerequisites**

ARIC 5122-5123 or consent of instructor.

**Description**

Religious and secular architecture and decoration of Islam in the Indian subcontinent; discussion of the formative impulses from pre-Islamic traditions of India and Pakistan and Islamic influences from Persia, Afghanistan and Central Asia.

**When Offered**

Offered occasionally.

### **ARIC 465-466/5122-5123 - Islamic Architecture in Turkey, Persia and Central Asia (3 cr.)**

**Prerequisites**

ARIC 2270.

**Description**

First semester: Ghaznavids, Seljuks, and Mongols. Second semester: Timurids, Safavids, and Ottomans

**When Offered**

Offered in alternate years.

**ARIC 467/5124 - Islamic Architecture in Spain and North Africa (3 cr.)**

**Prerequisites**

ARIC 2270.

**Description**

Religious and secular architecture and decoration of Islamic Spain and North Africa; discussion of formative impulses from Byzantium and Umayyad Syria.

**When Offered**

Offered occasionally.

**ARIC 477-478/5125-5126 - Islamic Decorative Arts (3 cr. per semester)**

**Prerequisites**

ARIC 2271.

**Description**

Wood carving, ivory, metals, textiles, glass, and carpets of the Islamic world; ornamental elements in common; materials, objects and design.

**When Offered**

Offered in alternate years.

**Repeatable**

May be repeated for credit when content changes.

**ARIC 000/5127 - Selected Topics in Islamic Art and Architecture (3 cr.)**

**Prerequisites**

appropriate course(s) from ARIC 3268-3271 series or consent of instructor

**Description**

Focuses on theme or topic in Islamic Art and Architecture. May be repeated for credit when topic changes.

**ARIC 000/5130 - Poetry for Historians (3 cr.)**

**Prerequisites**

ARIC 2101 or instructor's approval

**Description**

This course is designed to give historians the tools and background they need in order to use classical Arabic poetic material for their research. To the uninitiated, classical Arabic poetry can seem recondite, vague, or inconsequential and accordingly some students of pre-modern Arabo-Islamic history often prefer to bypass the poetic material they encounter in their research. By doing so, however, researchers risk ignoring a valuable source of historical information, especially regarding the affective dimensions of cultural, social, and political history. This course will train students to read classical Arabic poetry, to decipher its occasionally difficult syntax and figurative codes, and to relate poems to the contexts in which they appear. We will pay special attention to how poetry is deployed in historiographical works and how it relates to the context in which it is presented. The course will cover subjects that should be of interest to historians: politics, war, death, memory, elites and non-elites, gender and sexuality, and modernity.

### **ARIC 440/5131 - Arabic Historical Literature (3 cr.)**

#### **Description**

Study of the inception and development of the idea of history in Arabic literature. Examines issues in the transmission of information, historical memory, and the role of historical writing in mediating social, political and religious views.

#### **When Offered**

Offered in alternate years.

### **ARIC 445/5132 - Selected Topics in Coptic Studies (3 cr.)**

#### **Description**

This course allows instructors to offer a topic in Coptic Studies. The topic will be chosen from year to year in coordination with the departments concerned and the dean of the School of HUSS, and according to the individual interests and areas of expertise of the instructors. Topics chosen may include various aspects of Coptic art and history, monasticism, folklore, or other subjects..

#### **Cross-listed**

Same as ANTH 4499, EGPT 5160, HIST 4905, SOC 4499.

#### **When Offered**

Offered in fall.

#### **Repeatable**

The course may be taken more than once if the topic changes

#### **Notes**

Students in these majors may petition preferably before registration to have the course included in their major requirements.

### **ARIC 451/5133 - Islamic Institutions (3 cr.)**

#### **Prerequisites**

ARIC 3343 or ARIC 2346 or consent of instructor.

#### **Description**

Examination of the principal social, legal, and political institutions in medieval Islam, especially those subsumed under shari'a.

#### **When Offered**

Offered in fall.

### **ARIC 454/5134 - Modern Movements in Islam (3 cr.)**

#### **Prerequisites**

HIST 3213 or HIST 3214 or equivalent background

#### **Description**

Trends of thought and activism that developed throughout the Muslim world from the eighteenth century onward and identified themselves as Islamic. This course looks at intellectual roots, affiliations, and differences. It investigates modernity, reform, statehood, and social change as addressed by state and non-state actors, in theory and in practice.

#### **Cross-listed**

Same as HIST 4219.

#### **When Offered**

Offered once a year.

### **ARIC 460/5135 - Selected Topics in Middle Eastern History, 600-1800 AD (3 cr.)**

#### **Prerequisites**

Prerequisite: appropriate course(s) from ARIC 3343-3345 series or consent of instructor

#### **Cross-listed**

Same as HIST 4220.

#### **When Offered**

Offered in fall and spring.

#### **Repeatable**

May be repeated for credit when content changes

### **ARIC 462/5136 - Selected Topics in the History of the Modern Middle East (3 cr.)**

#### **Prerequisites**

ARIC 3355 or ARIC 3356, whichever is appropriate or consent of instructor.

#### **Cross-listed**

Same as HIST 4288.

#### **When Offered**

Offered occasionally

#### **Repeatable**

May be repeated for credit when content changes

### **ARIC 000/5137 - International Trade 1000 - 1700: Egypt and the Mediterranean - Red Sea Trade (3 cr.)**

#### **Description**

This course will examine the development of trade between East and West from the 11th to the 18th century, with special focus on trade routes as well as the commodities exchanged between the world of Islam and the main centers of commerce. Special attention is given to the role of merchants, their place within their societies and their religious, cultural, and social influence on the main centers of commerce they visited. The course also focuses on the overall

political developments taking place along the Mediterranean and Indian ocean trade routes, as well as the Silk Road, the factors that affected the rise and fall of certain trading centers such as the East India Company.

### **ARIC 435/5141 - Studies in the Qur'an (3 cr.)**

#### **Prerequisites**

Prerequisite: consent of instructor.

#### **Description**

The greatest work in Arabic and its influence on Arabic literature and Islamic institutions, with emphasis on methods of interpretation and their development.

#### **When Offered**

Offered in fall.

### **ARIC 439/5142 - Islamic Law (3 cr.)**

#### **Prerequisites**

Prerequisite: consent of instructor.

#### **Description**

A survey of the origins of Jurisprudence in Islam and its development up to the founding of the four schools. The course covers the main sources of fiqh, Qur'an and Sunna, together with ijma' and qiyas, and the study of the growth of the Maliki, Hanafi, Shafi'i and Hanbali schools.

#### **When Offered**

Offered in fall and spring.

### **ARIC 580/5200 - Independent Study and Readings (3 cr.)**

#### **Prerequisites**

Prerequisite: consent of unit.

#### **Description**

Guided readings in selected topics in Islamic Art and Architecture, Middle Eastern History, Arabic Literature and Language or Islamic Studies given on an individual basis.

#### **When Offered**

Offered occasionally.

### **ARIC 514/5201 - Bibliography and Manuscript Study (3 cr.)**

#### **Description**

Techniques of working with Arabic manuscripts and scripts, editing, bibliographical study.

#### **When Offered**

Offered occasionally.



**ARIC 521-522/5202-5203 - Special Studies in Islamic Thought and Institutions (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Special readings and papers by graduate students who are attending a course of undergraduate lectures.

**When Offered**

5202 offered in fall, 5203 offered in spring.

**Repeatable**

May be repeated for credit when content changes.

**ARIC 504/5210 - Seminar on a Selected Work or Author in Classical Arabic Literature (3 cr.)**

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit when content changes.

**ARIC 507/5211 - Seminar on Modern Arabic Literature: Nineteenth Century (3 cr.)**

**Description**

Aspects of Arabic literature in the nineteenth century.

**When Offered**

Offered in alternate years.

**ARIC 508/5212 - Seminar on Modern Arabic Literature: Twentieth Century (3 cr.)**

**Description**

Aspects of Arabic literature in the Twentieth century.

**When Offered**

Offered in alternate years.

**ARIC 510-511/5213-5214 - Special Studies in Classical Arabic Literature (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Reading and papers on selected topics; attendance at a course of undergraduate lectures may be required.

**When Offered**

5213 offered in fall, 5214 offered in spring.

**Repeatable**

May be repeated for credit when content changes.

**ARIC 512-513/5215-5216 - Special Studies in Modern Arabic Literature (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Reading and papers on selected topics; attendance at a course of undergraduate lectures may be required.

**When Offered**

5215 offered in fall, 5216 offered in spring.

**Repeatable**

May be repeated for credit when content changes.

**ARIC 501/5217 - Translation: Theory and Practice (3 cr.)**

**Description**

This course focuses on the developments in the field of Translation Studies since the 1970s when translation became increasingly conceptualized as cultural transfer rather than a linguistic operation. It introduces students to the interdisciplinary approaches in the field including the impact of deconstruction, gender studies and post-colonial theory. Students will explore the cultural and political agendas of translation through selected theoretical texts. The course will also introduce students to various translation practices (adaptation, e-writing, etc) and will look at a translator's role in society, and translation as an agent social change. Students will read a selection of texts in literary theory that will inform their practice in translation. Students will situate their own work in translation not only in relation to contemporary cultural forms and practices, but also in relation to the traditions that inform current translating practices. Selected texts and translation exercises will be in English and in Arabic.

**Cross-listed**

Same as TRST 5217 .

**ARIC 502/5218 - Translation and The Arab "Renaissance" (3 cr.)**

**Description**

Students will read pioneering works of the nineteenth and the twentieth century in the Arab region that dealt with issues of translation and its centrality to modern nation-building. What exactly is the role of the translator? What is the function of translation in society? The course situates at the act of translation within colonial/postcolonial contexts in which questions of power surround the relationship between the original text and its translation. It also explores questions of visibility and invisibility of the translator, translation vs. adaptation, original text and target cultural context. Taught in English. Readings and translation exercises in English and Arabic.

**Cross-listed**

Same as TRST 5218 .

**ARIC 572/5220 - Fieldwork in Islamic Architecture (3 cr.)**

**Description**

Archaeological, museological or conservation methodology; examination of monuments and sites.

**When Offered**

offered occasionally

**Repeatable**

May be repeated for credit when content changes.

**ARIC 573/5221 - Seminar on the Architecture of a Selected Period (3 cr.)**

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit when content changes.

**ARIC 575-576/5222-5223 - Special Studies in Islamic Art and Architecture (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Reading and papers on selected topics by graduate students who also attend a course of undergraduate lectures.

**When Offered**

5222 offered in fall, 5223 offered in spring.

**Repeatable**

May be repeated for credit when content changes.

**ARIC 530/5230 - Seminar on a Selected Topic in Medieval Arab/Islamic History, 600-1800 A.D. (3 cr.)**

**Prerequisites**

Prerequisite: consent of instructor.

**When Offered**

Offered occasionally

**Repeatable**

May be repeated for credit when content changes.

**Notes**

Selected topics in Medieval Arab/Islamic history, 600-1800 A.D.

**ARIC 542/5231 - Seminar on the Nineteenth-Century Middle East (3 cr.)**

**Description**

Readings, discussion, and research.

**Cross-listed**

Same as HIST 5222.

**When Offered**

Offered in fall.

**ARIC 543/5232 - Seminar on the Twentieth-Century Middle East (3 cr.)**

**Description**

Readings, discussion, and research.

**Cross-listed**

Same as HIST 5223.

**When Offered**

Offered in spring.

**ARIC 560 - 561/5233-5234 - Special Studies in Middle Eastern History (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Special readings for graduate students who are also attending a course of undergraduate lectures.

**When Offered**

5233 offered in fall, 5234 offered in spring.

**Repeatable**

May be repeated for credit when content changes.

**ARIC 524/5240 - Seminar on Selected Topics in Qur'anic Studies (3 cr.)**

**Prerequisites**

ARIC 3435 or consent of instructor.

**Description**

Selected topics in Qur'anic Studies: e.g. history of the text or specific theme in the Qur'an (gender issues, relations with others, ethical or legal issues). The course offers an examination of the principal different Muslim and Western approaches and opinions relevant to the chosen topic, illustrated with reference to an appropriate selection of primary sources in translation and in Arabic.

**When Offered**

Offered annually.

**ARIC 525/5241 - Seminar on Selected Topics in Sira or Hadith (3 cr.)**

**Prerequisites**

ARIC 3435 or consent of instructor.

**Description**

Selected topics in Sira and Hadith related to basic issues of the field; e.g. the sources, the methodology of oral

transmission and its influence on the assessment of authenticity, critical examination of Muslim and Western approaches to Hadith and the relationship between interpretation of the texts of Hadith and society. The course offers an examination of the principal different Muslim and Western approaches and opinions relevant to the chosen topic, illustrated with relevant selections of primary sources in translation and in Arabic.

**When Offered**

Offered annually.

**ARIC 526/5242 - Seminar on Selected Topics in Islamic Law and Legal Theory (3 cr.)**

**Prerequisites**

ARIC 3435 or consent of instructor.

**Description**

Selected topics in Islamic Law; e.g. Its history, methodologies, specific Islamic Legal or political theories (including international relation, minorities, human rights), administration of the criminal justice, court systems, reforms in the modern times, principles of jurisprudence (Usul al Fiqh) the concept of social interest, legal maxims. The course offers, whenever appropriate, comparisons, between the different Muslim and Western approaches to the selected Topic, illustrated with reference to the main sources in translation and in Arabic.

**When Offered**

Offered annually.

**Notes**

May be repeated for credit when content changes.

**ARIC 527/5243 - Selected Topics in Islamic Theology, Sufism or Philosophy (3 cr.)**

**Prerequisites**

ARIC 3435 or consent of instructor.

**Description**

Selected topics focusing on one of the main areas of Islamic thought (theology, Sufism, or philosophy). The course offers themes such as the history and sources of Islamic philosophy, theory of knowledge, ethics, metaphysics, the work of a leading Muslim philosopher or theologian, the relationship between mysticism and shi'ism, modern developments in Islamic thought and reforms, or new interpretations of theological questions. It also examines principle different Muslim and Western approaches and opinions relevant to the chosen topic, illustrated with reference to selections of primary sources in translation and in Arabic.

**When Offered**

Offered annually.

**Notes**

Taught in Arabic unless otherwise stated. May be repeated for Credit when content changes.

**ARIC 528/5244 - Selected Topics in Islamic Studies (3 cr.)**

**Prerequisites**

Pre-requisite: Consent of instructor.

**Description**

Selected Topics in Islamic Studies.

**When Offered**

Offered in spring.

**Repeatable**

May be repeated for credit when content changes.

**ARIC 529/5245 - World Religions and the Study of Religion (3 cr.)****Prerequisites**

Prerequisite: Enrollment in Islamic Studies MA Program.

**Description**

This course will introduce students to the great world religions other than Islam, and will introduce them to current theories and methods in the academic field of Religious Studies.

**Cross-listed**

Same as CREL 5609.

**ARIC 599/5299 - Research Guidance and Thesis (no cr.)****When Offered**

Offered in fall and spring.

**LING 000/3310 - Linguistic Fieldwork (3 cr.)****Prerequisites**

LING 2200

**Description**

The purpose of this introductory course is to familiarize students with linguistic fieldwork. Students will be introduced to basic concepts in linguistics research and also to different approaches to research design. The course will focus on different stages of conducting a research project, including identifying a research problem, deciding on a research design, and planning data collection and analysis. Building on this work, students will be involved in transcribing and analyzing language data collected from a natural setting. The course aims at providing students with tools needed to carry out these tasks.

**ALNG 000/1010 - Eye on Press (3 cr.)****Description**

This course is content based and is aimed at exposing elementary level degree-seeking students to the various genres in the newspaper. It develops students' competence in Arabic Media through the four language skills. The rationale for using a newspaper is to raise awareness of cultural texts reflecting both the "little c" and the "big c", thus enhancing students' cultural identity and understanding. The different genres in the newspaper range from advertisements, caricatures and infographics to short stories, news articles and editorials. The newspaper serves as a resource for practicing all skills.

## **ALNG 000/1020 - Arabic in Context (3 cr. per semester)**

### **Prerequisites**

ALNG 1010 or placement examination

### **Description**

In this course, students will be introduced to functions of writing through Arabic authentic reading and listening materials in order to improve their writing skills in a variety of contexts. In addition, the course enhances the four skills, with emphasis on expanding the vocabulary, developing both oral and written production through presentations, debates...etc. The course aims to enhance the students' Arabic language competence through realistic and contextualized tasks based on authentic texts. This is a blended course, students meet twice a week, for three hours in a face to face mode, and two hours in an online component mode. Registration requires the permission of ALNG.

## **ALNG 101-102 -103/1101-1102-1103 - Elementary Modern Standard Arabic (3 cr. each per semester)**

### **Description**

Develops the fundamentals of modern standard Arabic through reading, writing, and oral connection within a framework of the essentials of syntax, morphology, and a working vocabulary. Three-semester sequence. Each course meets five hours per week. Registration requires the permission of ALNG Director.

### **When Offered**

Offered in fall and spring.

### **Notes**

Noncredit for Thanawiyya Amma holders. Sections with odd numbers are for international students and sections with even numbers are for Egyptian degree seeking students.

## **ALNG 109-110/1301-1302 - Elementary Egyptian Colloquial Arabic (3 cr. each per semester)**

### **Description**

Study of the basic inflectional and syntactical patterns of Egyptian colloquial Arabic through every day-life communicative activities. Two- semester sequence. Each course meets five hours per week. Registration requires permission of the ALNG Director.

### **When Offered**

Offered in fall and spring

### **Notes**

These two courses are only for international students non-native speakers of Arabic.

## **ALNG 111/1501 - Accelerated Elementary Modern Standard Arabic (6 cr. per semester)**

### **Description**

ALNG 1501 covers material of ALNG 1101 and ALNG 1102. This course meets ten hours per week. Registration requires permission of the ALNG Director.

**When Offered**

Offered in fall and spring.

**Notes**

Noncredit for Thanawiyya Amma holders. Sections with odd numbers are for international students and sections with even numbers are for Egyptian degree seeking students.

**ALNG 112/1502 - Accelerated High Elementary and Lower Intermediate Modern Standard Arabic (6 cr. each per semester)****Prerequisites**

ALNG 1501

**Description**

ALNG 1502 covers the material of ALNG 1103 and ALNG 2101. The course meets ten hours per week. Registration requires permission of the ALNG Director.

**When Offered**

Offered in fall and spring.

**Notes**

Noncredit for Thanawiyya Amma holders. Sections with odd numbers are for international students and sections with even numbers are for Egyptian degree seeking students.

**ALNG 199/1991 - Selected Topics (3 cr. per semester)****Description**

Study of selected topics for elementary students. The course meets five hours per week. Registration requires the permission of ALNG Director.

**When Offered**

Offered fall and spring.

**Notes**

May be repeated for credit if content changes. Noncredit for Thanawiyya Amma holders. Sections with odd numbers are for international students and sections with even numbers are for Egyptian degree seeking students.

**ALNG 000/2010 - Current Issues and Egyptian Society (3 cr. per semester)****Prerequisites**

ALNG 1020

**Description**

Three-semester sequence. Each course meets five hours per week. Registration requires permission of the ALNG Director. Increases the command of grammatical and syntactical structure of modern standard Arabic through reading materials; develops reading and writing skills and comprehension. Critical examination of social and cultural dimensions of reading materials.

**ALNG 201-202-203/2101-2102-2103 - Intermediate Arabic (3 cr. each per semester)**



**Prerequisites**

ALNG 1103 or placement examination.

**Description**

Three-semester sequence. Each course meets five hours per week. Registration requires permission of the ALNG Director. Increases the command of grammatical and syntactical structure of modern standard Arabic through reading materials; develops reading and writing skills and comprehension. Critical examination of social and cultural dimensions of reading materials.

**When Offered**

Offered in fall and spring.

**Notes**

Noncredit for Thanawiyya Amma holders. Sections with odd numbers are for international students and sections with even numbers are for Egyptian degree seeking students.

**ALNG 204-205/2104-2105 - Intermediate Modern Standard Arabic (3 cr. each per semester)****Prerequisites**

ALNG 2103 or placement examination.

**Description**

Increase the command of grammatical and syntactical structure of modern standard Arabic through reading materials; develop reading and writing skills and comprehension. Critical examination of social and cultural dimensions of reading materials. Two-semester sequence. Each course meets five hours per week. Registration requires permission of the ALNG Director.

**When Offered**

Offered in fall and spring.

**Notes**

These two courses are only for international students.

**ALNG 206/2131 - Arabic of the News Media (3 cr. per semester)****Prerequisites**

ALNG 2101.

**Description**

Introduction to the vocabulary and style of the Arabic press. Readings from the daily newspapers and magazines and other sources. The course meets three hours per week. Registration requires permission of the ALNG Director.

**When Offered**

Offered in fall and spring.

**Notes**

Noncredit for Thanawiyya Amma holders. Sections with odd numbers are for international students and sections with even numbers are for Egyptian degree seeking students.

### **ALNG 210/2301 - Intermediate Egyptian Colloquial Arabic (ECA) (3 cr. per semester)**

#### **Prerequisites**

ALNG 1302

#### **Description**

Concentrates on developing the students' listening and speaking skills in daily life situations through activities and presentations as well as introducing cultural connotations. The course meets five hours per week. Registration requires permission of the ALNG Director.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

This course is only for international students non-native speakers of Arabic.

### **ALNG 211-212/2501-2502 - Accelerated Intermediate Modern Standard Arabic (6 cr. each per semester)**

#### **Prerequisites**

ALNG 2101 or placement examination.

#### **Description**

Increase the command of grammatical and syntactical structures of modern standard Arabic through reading materials; develop reading and writing skills and comprehension. Critical examination of social and cultural dimensions of reading materials. ALNG 2501 covers material of ALNG 2102-2103, while ALNG 2502 covers the materials of ALNG 2104-2105. Two-semester sequence. Registration requires permission of the ALNG Director. Each course meets ten hours per week.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

These two courses are only for international students.

### **ALNG 299/2991 - Selected Topics (3 cr. per semester)**

#### **Description**

Study of selected topics for intermediate students. The course meets five hours per week. Registration requires permission of the ALNG Director.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

May be repeated for credit if content changes. Noncredit for Thanawiyya Amma holders. Sections with odd numbers are for international students and sections with even numbers are for Egyptian degree seeking students.

### **ALNG 301-302/3101-3102 - Advanced Modern Standard Arabic I (3 cr. each per semester)**

**Prerequisites**

ALNG 2105

**Description**

Further develops reading, writing, listening and speaking of Modern Standard Arabic. Prepares advanced non-native speakers for upper-division or graduate-level work in the Arabic language. Two-semester sequence. Each course meets five hours per week. Registration requires permission of the ALNG Director.

**When Offered**

Offered in fall and spring

**Notes**

These two courses are only for international students

**ALNG 303-304/3103-3104 - Advanced Modern Standard Arabic II (3 cr. each per semester)****Prerequisites**

ALNG 3102 or ALNG 3501.

**Description**

Further develops reading, writing, listening and speaking of Modern Standard Arabic. Prepares advanced non-native speakers for upper-division or graduate-level work in the Arabic language. Two-semester sequence. Each course meets five hours per week. Registration requires permission of the ALNG Director.

**When Offered**

Offered in fall and spring.

**Notes**

These two courses are only for international students

**ALNG 305/3105 - Independent Study (3 cr. per semester)****Prerequisites**

Any 2000 level Arabic language course.

**Description**

Independent study in various aspects of MSA may be assigned to special groups in different majors. Students study the Arabic language related to their fields of study, such as politics, economics, literature. The course meets five hours per week. Registration requires permission of the ALNG Director.

**When Offered**

Offered upon request.

**Notes**

Non-credit for Thanawiyya Amma holders.

**ALNG 306/3131 - Advanced Arabic of the News Media (3 cr. per semester)****Prerequisites**

ALNG 2131 or placement examination

**Description**

Introduces more complex and analytical articles and editorials from the Arabic press and trains students to take notes while listening to broadcasts. Expands students' range of vocabulary and develops their ability to listen to lengthier passages. The course meets three hours per week. Registration requires permission of the ALNG Director.

**When Offered**

Offered in fall and spring.

**Notes**

This is a three-credit elective course. Sections with odd numbers are for international students and sections with even numbers are for Egyptian degree seeking students.

**ALNG 000/3327 - Egyptian culture on Film (3 cr.)**

**Prerequisites**

Good command of Arabic: native speakers of Arabic, heritage students, and/or native-like (must be at the level of ACTFL Advanced High).

**Description**

The main aim of this course is to introduce to native and native-like speakers of Arabic the features of cultural change as reflected in Egyptian film over time. It focuses on the prominent features of change of cultural phenomena and social mobility over time through Egyptian film. Also, through observations and profound analysis, this course aims to highlight and raise awareness of cultural attitude to enhance learners' ability to view a wide scale of cultural differences, intercultural communicative competence, cross-culture communication, and transcultural communication in reading, writing, speaking, and listening.

**ALNG 311-312/3501-3502 - Accelerated Advanced Modern Standard Arabic (6 cr. each per semester)**

**Description**

The courses aim at preparing advanced, non-native speaking students for upper-division or graduate-level work in the Arabic language. ALNG 3501 covers material of ALNG 3101-3102, while ALNG 3502 covers the materials of ALNG 3103-3104. Two-semester sequence. Each course meets ten hours per week. Registration requires permission of the ALNG Director.

**When Offered**

Offered in fall and/or spring.

**Notes**

These two courses are only for international students

**ALNG 000/3912 - Learning Arabic through Community Engagement (3 cr.)**

**Prerequisites**

Native Speakers of Arabic who are: Thanawiyia Amma holders or exempted from Arabic language courses or at Advanced level of Arabic language.

**Description**

This Community Based Learning (CBL) course has been done in discussion with ACE, specifically late Dr Pandeli. This course aims to improve students' writing, reading, listening, and presentation skills in Arabic through taking part in a community based learning project. The course helps students develop a sense of social responsibility and civic engagement by immersing them in real life problems of people in need on and off campus. Moreover, it promotes students' critical thinking and problem-solving skills. It also increases students' leadership and communication skills such as interpersonal (conversing with community groups), interpretive (reading research), and presentation skills (presenting research done). The course requires students to come up with out of the box practical solutions to the problems of real cases from the Employee Emergency Relief fund and community service clubs on campus. Students are asked to submit reflection papers, give several presentations, in addition to a final project. To this end, students will be introduced to the linguistic tools necessary to express their ideas in written and spoken Arabic. Authentic materials which enhance students' different Arabic language skills will be introduced in class and in the form of assignments. Moreover, authentic reading and listening materials on community engagement, NGOs, philanthropists, fundraising, and marketing through social media will be provided. This course will be offered to Arabic native speakers in Fall and Spring semesters.

### **ALNG 399/3991 - Selected Topics (3 cr. per semester)**

#### **Description**

Study of selected topics for advanced students. The course meets three hours per week. Registration requires the permission of ALNG Director.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

May be repeated for credit if content changes. It is a three-credit elective course. Sections with odd numbers are for international students and sections with even numbers are for Egyptian degree seeking students.

### **ALNG 000/3993 - Introduction to Arabic for Career Purposes 3 cr.**

#### **Prerequisites**

Students should be holding Thanaweya Amma certificate or advanced level Arabic. Also, registration requires the department approval.

#### **Description**

This course helps to improve students' Arabic linguistic skills (both oral and written) with regards to communicating in formal professional Arabic language, in different business contexts and for various career purposes. Topics covered in this course are: the five oral levels of the Arabic language, writing C.V., covering letters, reports, e-mails, meeting agenda and minutes, critiques, appraisals, recommendation letters, carrying out presentations, debates, business meeting, interviews. It is offered as an advanced elective course for students.

### **ALNG 415/4221 - Arabic Morphology (Sarf) and Prosody ('Arud) (3 cr.)**

#### **Description**

Examination of the basic features of Arabic morphology (sarf) and prosody ('arud) with particular reference to the treatment of the subjects by Arab grammarians. Reference is also made to the system of terminology adopted for the subject by Western scholars.

**When Offered**

Offered occasionally.

**Notes**

The language of instruction is Arabic.

**ALNG 413-414/4231-4232 - Arabic Syntax (Nahw) (3 cr. per semester)****Description**

Examination of the basic features of Arabic syntax (nahw) with particular reference to the treatment of the subject by Arab grammarians. Reference is also made to the system of terminology adopted for the study of Arabic syntax by Western scholars. The language of instruction is Arabic.

**When Offered**

413 Offered in fall, 414 Offered in spring.

**ALNG 425/4281 - Linguistics of Arabic (3 cr.)****Description**

Development of the linguistic structure of Arabic and the Arabic of the early Islamic era as described by the early Arab philologists.

**When Offered**

Offered in alternate years.

**ALNG 426/4291 - The Phonetics of Arabic (3 cr.)****Description**

Phonetics of classical Arabic as it is spoken in Egypt; reference to the phonetics of both Egyptian colloquial Arabic and the Arabic of the early Islamic era as described by the early Arab phoneticians.

**When Offered**

Offered in fall.

**ALWT 000/3919 - Arabic through Translation: A course in Bilingual Awareness (3 cr.)****Prerequisites**

Thanawiyya Amma, or ALNG 2103, or scoring at the advanced level in the ALI placement exam

**Description**

This is an Arabic language course utilizing the medium of translation to raise students' bilingual awareness across Arabic and English for the purpose of developing their overall skills in Modern Standard Arabic. It employs translation mainly as a framework for the exploration of various linguistic aspects of Arabic central to acquiring a solid grasp of the language. It trains students to transfer knowledge in their respective fields of study and in areas of general interest back and forth across both languages, while fostering sensitivity to the specificity of each. Emphasis is placed upon Arabic as the target language and English the source language, maintaining Arabic as the primary focus of the productive language skills, writing and speaking. Drawing upon the academic knowledge base and formal language

skills students are building through their studies in English, students are instructed in the means of rendering them in sound Arabic. Reference to translation theory is made insofar as it serves the learning objectives of the course.

**When Offered**

Offered in Spring

**ALIN 101-102-103-104/1101-1102-1103-1104 - Elementary Modern Standard Arabic (3 cr. each)**

**Description**

Develops a fundamental working knowledge of the language through interactive exercises and drills within a framework of the essentials of syntax and morphology. Six credits are taken simultaneously in a two semester sequence.

**Hours**

Each course meets five hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 105-106/1151-1152 - Elementary Listening and Speaking (2-3 cr. each)**

**Description**

Develops students' ability to listen and understand Modern Standard Arabic.

**Hours**

Each course meets three or five hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 205-206/1231-1232 - Intermediate Grammar (2-3 cr. each)**

**Description**

Examines the basic features of Arabic grammar with particular attention to the system of i'rab. Reference is also made to the Western system of grammatical terminology.

**Hours**

Each course meets three or five hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the

student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 201-202-203-204/2101-2102-2103-2104 - Intermediate Modern Standard Arabic (3 cr. each)**

#### **Description**

Emphasizes the acquisition of vocabulary and increases the command of grammatical and syntactical structures. Further develops reading, writing, listening, and speaking skills. Two semester sequence.

#### **Hours**

Each course meets five hours per week.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Any two consecutive can be taken simultaneously. Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 207-208/2141-2142 - Intermediate Spoken Modern Standard Arabic (MSA) (2-3 cr. each)**

#### **Description**

Uses selected written material to prepare students to engage in discussions in Modern Standard Arabic.

#### **Hours**

Each course meets three or five hours per week.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 209-210/2151-2152 - Intermediate Listening and Speaking (2-3 cr. each)**

#### **Description**

Develops students' listening skills while expanding their vocabulary in wide range topics and increases their ability to speak and comprehend details by using selected authentic video and audio tapes.

#### **Hours**

Each course meets three or five hours per week

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.



## **ALIN 261/2221 - Applied Morphology (2-3 cr. each)**

### **Prerequisites**

Prerequisites are not listed for every course. Entry into all intermediate courses presupposes that the student is of intermediate standing. The instructor's permission may also be required. Placement is determined by written exam for incoming students and if necessary for continuing students.

### **Description**

Explore the morphological framework of the language in detail. A wide variety of drills introduces students to the root and patter system of the language and helps then navigate it more effectively. Targets phonology to highlights the intrinsic link between pattern and meaning, thus improving oral/aural skills. Devotes considerable attention to the derived verb system, addressing such essential concepts as transitivity.

### **Hours**

Each course meets three or five hours per week.

### **When Offered**

Offered occasionally.

## **ALIN 281-282/2241-2242 - Political Texts (2-3 cr. each)**

### **Hours**

Each course meets three or five hours per week.

### **When Offered**

Offered in fall and spring.

### **Notes**

Acquaints students with the terminology and style of selected political texts. Covers elections, the party system, public policy, etc.

## **ALIN 301-302/3101-3102 - Advanced Modern Standard Arabic (3 cr. each)**

### **Description**

Through the reading and analysis of selected texts, the course exposes students to a wide range of vocabulary, idiom, and style, while reviewing the major topics of grammar.

### **Hours**

Each course meets five hours per week.

### **When Offered**

Offered in fall and spring.

### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

## **ALIN 307-308/3141-3142 - Advanced Spoken Modern Standard Arabic (MSA) (2-3 cr. each)**

### **Description**

Further develops students' ability to communicate orally in Modern Standard Arabic. Students present lectures, followed by question and answer sessions, and engage in debates and discussions.

**Hours**

Each course meets three or five hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 309-310/3151-3152 - Advanced Listening and Speaking (2-3 cr. each)**

**Prerequisites**

ALIN 2151-2152 or consent of instructor.

**Description**

Further develops students' listening and speaking skills by using selected authentic video and audio tapes, thus trains students to comprehend, communicate and discuss material in Modern Standard Arabic

**Hours**

Each course meets three or five hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 305-306/3231-3232 - Advanced Arabic Grammar (2-3 cr. each)**

**Description**

Examines the complexities of Arabic grammar through textual analysis.

**Hours**

Each course meets three or five hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 381-382/3241-3242 - Political Texts (3 cr. each)**

**Description**

An issue-oriented course which explores the writings of modern political scientists.

**Hours**

Each course meets three hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 111-112-113/1301-1302-1303 - Elementary Colloquial Arabic (3-4 cr. each)****Description**

Introduces students to the spoken Arabic of Cairo. Concentrates on enabling students to communicate effectively in daily life. Targets high-frequency vocabulary and social situations and emphasizes pronunciation.

**Hours**

Each course meets five or seven hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 211-212/2301-2302 - Intermediate Colloquial Arabic (3-4 cr. each)****Description**

Concentrates on increasing student's vocabulary and command of syntax, with a higher level of fluency. Enables students to communicate with native speakers in a wide variety of social situations.

**Hours**

Each course meets five or seven hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 311-312/3301-3302 - Advanced Colloquial Arabic (3-4 cr. each)****Description**

Develops students' ability to express themselves more precisely and fluently. Uses authentic material, whether recorded or written, to encourage discussion.

**Hours**

Each course meets five or seven hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 284/2411 - Introduction to Egyptian Culture - Intermediate (2-3 cr.)****Prerequisites**

Prerequisite: Intermediate level in Arabic or consent of program director.

**Description**

Develops language through further understanding of culture. Introduces different aspects of Egyptian culture, with emphasis on customs, traditions, family, the role of religion in society, women and social strata. Medium of instruction is combination of both intermediate Modern Standard and Egyptian Spoken Arabic. Uses authentic material whether recorded or written to encourage discussion.

**Hours**

Class meets 3 or 5 hours per week.

**When Offered**

Offered in fall and spring.

**ALIN 384/3411 - Introduction to Egyptian Culture - Advanced (2-3 cr.)****Prerequisites**

Prerequisite: Advanced level in Arabic or consent of program director.

**Description**

Further develops language to meet the advanced level of Arabic language students through further understanding of culture. Introduces different aspects of Egyptian culture, emphasis on customs, traditions, family structure, the role of religion in society, women and social strata. Medium of instruction is combination of both advanced Modern Standard and Egyptian Spoken Arabic. Uses authentic material whether recorded or written to encourage discussion.

**Hours**

Class meets 3 or 5 hours per week.

**When Offered**

Offered in fall and spring.

**ALIN 252/2251 - Readings in Modern Arabic Literature (2-3 cr.)****Description**

The course introduces students to a variety of prose and poetry selected from works of significant modern and/or contemporary Arab authors. Focuses on expanding students' vocabulary and strengthening their command of syntax.

**Hours**

Course meets three or five hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the

student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 352/3251 - Readings in Modern Arabic Literature (3 cr.)**

#### **Description**

The course acquaints students with a selection of prose and poetry including at least one novel, by prominent authors from several Arab countries. Sheds light on the socio-cultural backdrop of the works discussed. Both intensive and extensive reading strategies are developed and students demonstrate their comprehensive of the texts and their ability to analyze them through discussion and lengthy writing assignments.

#### **Hours**

Course meets three hours per week

#### **When Offered**

Offered in spring.

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 353-354/3252-3253 - Readings in the Modern Arabic Novel (3 cr. each)**

#### **Description**

Introduces students to the genre through the reading of some representative novels or plays written by well known Arab writers.

#### **Hours**

Each course meets three hours per week.

#### **When Offered**

Offered occasionally.

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 131-132/1131-1132 - Elementary Printed Media (2-3 cr. each)**

#### **Prerequisites**

ALIN 1131

#### **Description**

Introduces students to the basic format of the Egyptian newspaper and acquaints them with the vocabulary and syntax of the Arabic press through the reading of simple news items.

#### **Hours**

Each course meets three or five hours per week

#### **When Offered**

Offered in fall and spring

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 133-134/1133-1134 - Elementary Aural Media (2-3 cr. each)**

#### **Prerequisites**

ALIN 131

#### **Description**

Exposes students with some background in printed media to broadcast news media. Drills students in vocabulary and syntax and helps them develop strategies for listening comprehension.

#### **Hours**

Each course meets three or five hours per week

#### **When Offered**

Offered in fall and spring

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 231-232/2131-2132 - Intermediate Printed Media (2-3 cr. each)**

#### **Description**

Exposes students to a wider range of topics selected from the Arabic press. Emphasizes vocabulary and idiom acquisition, and begins to develop students' ability to read for speed.

#### **Hours**

Each course meets three or five hours per week

#### **When Offered**

Offered in fall and spring

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 233-234/2133-2134 - Intermediate Aural Media (2-3 cr. each)**

#### **Description**

Further develops students' listening skills while expanding their vocabulary, especially in the areas of politics and economics. Increases their ability to comprehend details.

#### **Hours**

Each course meets three or five hours per week

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the

student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 331-332/3131-3132 - Advanced Printed Media (2-3 cr. each)**

#### **Description**

Introduces more complex and analytical articles and editorials from the Arabic press. Further develops students' ability to skim.

#### **Hours**

Each course meets three or five hours per week.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 333-334/3133-3134 - Advanced Aural Media (2-3 cr. each)**

#### **Description**

Trains students to take notes while listening to broadcasts. Expands their range of vocabulary and develops their ability to listen to lengthier passages.

#### **Hours**

Each course meets three or five hours per week.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 171-172/1211-1212 - Readings in the Qur'an (2-4 cr. each)**

#### **Description**

Introduces students to the Qur'an, its structure, and a selection of its simpler verses. Addresses basic grammatical issues, while focusing on comprehension, oral repetition, and correct reading..

#### **Hours**

Each course meets three to seven hours per week

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 271-272/2211-2212 - Readings in the Qur'an (2-3 cr. each)**

**Description**

Introduces a wide selection of verses, thoroughly addressing grammatical and syntactical issues. Trains students to recite with great precision.

**Hours**

Each course meets three or five hours per week.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 371-372/3211-3212 - Qur'anic Studies (3 cr. each)****Description**

Permits an in-depth reading and discussion of Qur'anic passages in addition to the tafsir of some verses. Addresses finer grammatical and syntactical issues as necessary, and refines students' reading and recitation.

**Hours**

Each course meets three hours per week.

**When Offered**

Offered occasionally.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 191-192/1991-1992 - Supervised Studies (1-4 cr. each)****Description**

Study of a selected topic according to the students' level and interests. Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**Hours**

Each course meets two to seven hours per week

**When Offered**

Offered in fall and spring.

**Repeatable**

May be repeated for credit when content changes

**ALIN 291-292/2991-2992 - Supervised Studies (1-4 cr. each)****Description**

Study of a selected topic according to the students' level and interests. Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing.



The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**Hours**

Each course meets two to seven hours per week

**When Offered**

Offered in fall, winter and spring.

**Repeatable**

May be repeated for credit when content changes

**ALIN 391-392/3991-3992 - Supervised Studies (1-4 cr. each)**

**Description**

Study of a selected topic according to the students' level and interests. Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**Hours**

Each course meets two to seven hours per week

**When Offered**

Offered in fall and spring.

**Repeatable**

May be repeated for credit when content changes

**ALIN 241-242/2201-2202 - Intermediate Translation (2-3 cr. each)**

**Description**

Translation close reading and analysis of Arabic texts covering a wide range of topics, the course employs translation into English as a means to enhance students' knowledge of Arabic vocabulary, idiomatic expressions and complex structures. Translation from English into Arabic is used to train students to produce coherent and correct Arabic texts. Issues and techniques related to the practice of translation are dealt with, but the primary focus is on Arabic language learning

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 341-342/3201-3202 - Advanced Translation (2-3 cr. each)**

**Description**

Focus is more on problems and issues of translation where students are expected to produce coherent, culturally sensitive texts in both languages. Length and level of complexity of source language texts are increased.

**When Offered**

Offered in fall and spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 121-122/1111-1112 - Elementary Writing (2-3 cr. each)**

**Description**

Develops basic writing skills useful in daily life. Trains students to summarize short informative passages and complete practical tasks such as filling out forms, writing messages, telegrams, invitations, etc.

**Hours**

Each course meets three or five hours per week.

**When Offered**

Offered in fall and spring

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 221-222/2111-2112 - Intermediate Writing (2-3 cr. each)**

**Description**

.Develops students' ability to meet short practical writing needs. Trains students to summarize informative and narrative passages, gradually introducing more complex structures..

**Hours**

Each course meets three or five hours per week

**When Offered**

Offered in fall and spring

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

**ALIN 225-226/2121-2122 - Intermediate Reading and Writing (3 cr. each)**

**Description**

Develops reading and writing by integrating the two skills in one course and introducing a wide variety of modern Arabic texts to be used for reading and a basis for writing assignments. The course develops the students' reading comprehension, vocabulary acquisition and acquaints them with the style of the Arabic essay. It prepares the student for the more sophisticated course in advanced reading and writing.

**Hours**

Each course meets five hours per week

**When Offered**

Offered in Fall and Spring.

**Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the

student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 321-322/3111-3112 - Advanced Writing (2-3 cr. each)**

#### **Description**

Equips students to write at greater length using a variety of techniques, including description, comparison, contrast, argumentation, etc. Refines students' ability to write cohesive summaries.

#### **Hours**

Each course meets three or five hours per week.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIN 325-326/3121-3122 - Advanced Reading and Writing (3 cr. each)**

#### **Prerequisites**

ALIN 2121-2122 or consent of instructor.

#### **Description**

Further develops reading and writing by integrating the two skills in one course and exposing the students to a wide variety of modern Arabic texts focusing on the different stylistic devices. Emphasis on analytic reading and essay writing.

#### **Hours**

Each course meets five hours per week.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Prerequisites are not listed for every course. However, entry into all intermediate and advanced presupposes that the student is of intermediate or advanced standing. The instructor's permission may also be required. Standing will be determined by written and/or oral placement tests for incoming students and sometimes for continuing students.

### **ALIS 101-102-103-104/1101-1102-1103-1104 - Elementary Modern Standard Arabic (2-3 cr. each)**

#### **Description**

Develops a fundamental working knowledge of the language through interactive exercises and drills within a framework of the essentials of syntax and morphology. Each course meets 7 or 10 hours in summer.

### **ALIS 121-122/1111-1112 - Elementary Writing (1-3 cr. each)**

#### **Description**

Develops basic writing skills useful in daily life. Trains students to summarize short informative passages and complete

practical tasks such as filling out forms, writing messages, invitations, etc. Each course meets three or five hours per week.

### **ALIS 131-132/1131-1132 - Elementary Printed Media (1-3 cr. each)**

#### **Description**

Introduces students to the basic format of the Egyptian newspaper and acquaints them with the vocabulary and syntax of the Arabic press through the reading of simple news items. Each course meets three or five hours per week.

### **ALIS 171-172/1211-1212 - Readings in the Qur'an (1 cr. each)**

#### **Description**

Introduces students to the Qur'an, its structure, and a selection of its simpler verses. Addresses basic grammatical issues, while focusing on comprehension, oral repetition, and correct reading. Each course meets three hours per week.

### **ALIS 111-112-113/1301-1302-1303 - Elementary Colloquial Arabic (2-4 cr. each)**

#### **Description**

Introduces students to the spoken Arabic of Cairo. Concentrates on enabling students to communicate effectively in daily life. Targets high-frequency vocabulary and social situations and emphasizes pronunciation. Each course meets seven hours per week.

### **ALIS 191-192/1991-1992 - Supervised Studies (1-4 cr. each)**

#### **Description**

Study of a selected topic according to the students' level and interests.

#### **Hours**

Each course meets two to seven hours per week.

#### **When Offered**

Offered in summer.

#### **Repeatable**

May be repeated for credit when content changes.

### **ALIS 201-202-203-204/2101-2102-2103-2104 - Intermediate Modern Standard Arabic (2-3 cr. each)**

#### **Description**

Emphasis the acquisition of vocabulary and increases the command of grammatical and syntactical structures. Further develops reading, writing, listening and speaking skills. Any two consecutive courses can be taken simultaneously. Each course meets 7 or 10 hours in summer.

### **ALIS 221-222/2111-2112 - Intermediate Writing (1-3 cr. each)**

**Description**

Develops students' ability to meet short practical writing needs. Trains students to summarize informative and narrative passages, gradually introducing more complex structures. Each course meets three or five hours per week .

**ALIS 231-232/2131-2132 - Intermediate Printed Media (1-3 cr. each)**

**Description**

Exposes students to a wider range of topics selected from the Arabic press. Emphasizes vocabulary and idiom acquisition, and begins to develop students' ability to read for speed. Each course meets three or five hours per week.

**ALIS 233-234/2133-2134 - Intermediate Aural Media (1-3 cr. each)**

**Description**

Further develops students' listening skills while expanding their vocabulary, especially in the areas of politics and economics. Increases their ability to comprehend details. Each course meets three or five hours per week.

**ALIS 241-242/2201-2202 - Intermediate Translation (1 cr. each)**

**Description**

Translation of close reading and analysis of Arabic texts covering a wide range of topics. The course employs translation into English as a means to enhance students' knowledge of Arabic vocabulary, idiomatic expressions and complex structures. Translation from English into Arabic is used to train students to produce coherent and correct Arabic texts. Issues and techniques related to the practice of translation are dealt with, but the primary focus is on Arabic language learning

**ALIS 271-272/2211-2212 - Readings in the Qur'an (1-3 cr. each)**

**Description**

Introduces a wide selection of verses, thoroughly addressing grammatical and syntactical issues. Trains students to recite with great precision. Each course meets three or five hours per week.

**ALIS 252/2251 - Readings in Modern Arabic Literature (1 cr.)**

**Description**

Selections from a variety of prose writings. Course meets three hours per week.

**ALIS 211-212/2301-2302 - Intermediate Colloquial Arabic (2-4 cr. each)**

**Description**

Concentrates on increasing student's vocabulary and command of syntax, with a higher level of fluency. Enables students to communicate with native speakers in a wide variety of social situations. Each course meets five or seven hours per week.

### **ALIS 291-292/2991-2992 - Supervised Studies (1-4 cr. each)**

#### **Description**

Study of a selected topic according to the students' level and interests.

#### **Hours**

Each course meets two to seven hours per week

#### **When Offered**

Offered in summer.

#### **Repeatable**

May be repeated for credit when content changes.

### **ALIS 301-302/3101-3102 - Advanced Modern Standard Arabic (2-3 cr. each)**

#### **Description**

Through the reading and analysis of selected texts, the course exposes students to a wide range of vocabulary, idiom, and style, while reviewing the major topics of grammar. Each course meets 7 or 10 hours in summer.

### **ALIS 321-322/3111-3112 - Advanced Writing (1-3 cr. each)**

#### **Description**

Equips students to write at greater length using a variety of techniques, including description, comparison, contrast, argumentation, etc. Refines students' ability to write cohesive summaries. Each course meets three or five hours per week.

### **ALIS 331-332/3131-3132 - Advanced Printed Media (1-3 cr. each)**

#### **Description**

Introduces more complex and analytical articles and editorials from the Arabic press. Further develops students' ability to skim. Each course meets three or five hours per week.

### **ALIS 333-334/3133-3134 - Advanced Aural Media (1-3 cr. each)**

#### **Description**

Trains students to take notes while listening to broadcasts. Expands their range of vocabulary and develops their ability to listen to lengthier passages. Each course meets three or five hours per week.

### **ALIS 341-342/3201-3202 - Advanced Translation (1 cr. each)**

#### **Description**

Focus in this course is more on problems and issues of translation. Students are expected to produce coherent, culturally sensitive texts in both languages. Graded authentic texts are used.

### **ALIS 352/3251 - Readings in Modern Arabic Literature (1 cr.)**

**Description**

Selections from a variety of prose writings: short stories, novels, plays, and poetry by writers from different Arab countries. Course meets three hours per week.

**ALIS 311-312/3301-3302 - Advanced Colloquial Arabic (2-3 cr. each)****Description**

Develops students' ability to express themselves more precisely and fluently. Uses authentic material, whether recorded or written, to encourage discussion. Each course meets five or seven hours per week.

**ALIS 391-392/3991-3992 - Supervised Studies (1-4 cr. each)****Description**

Study of a selected topic according to the students' level and interests.

**Hours**

Each course meets two to seven hours per week

**When Offered**

Offered in summer.

**Repeatable**

May be repeated for credit when content changes.

**ALWT 221/2271 - From Reading to Writing: Intermediate Level: 3 credits****Description**

This course combines reading and writing skills in various disciplines such as Political Science, Anthropology, Economics, History, Arts, etc. Special attention is given to basic structures, fixing common mistakes, rhetorical devices, clichés, collocations, and vocabulary building. Students reaching intermediate level in the Arabic Writing Placement exam can take this course. Registration requires permission of the ALNG Director.

**When Offered**

Offered in the fall and spring.

**ALWT 321/3271 - From Reading to Writing: High Intermediate Level: 3 credits****Description**

This course combines reading and writing skills in various disciplines such as Political Science, Anthropology, Economics, History, Arts, etc. Special attention is given to basic structures, fixing common mistakes, rhetorical devices, clichés, collocations, and vocabulary building. Thanawiya amma holders or students reaching high-intermediate level in the Arabic Writing Placement exam can take this course.

**When Offered**

Offered in the fall and spring.

**Notes**

The level of material taught is higher than those taught in ALWT 2271 but following the same guidelines.

### **ALWT 462/4201 - Professional Translation in Business: 3 credits**

#### **Prerequisites**

ALWT 4271 or consent of instructor.

#### **Description**

This course is designed to meet the pressing need for high level translation in all work places. Attention is given to points of contrast, idiomatic usage, semantic fields of corresponding vocabulary in both English and Arabic in business administration and economics.

#### **When Offered**

Offered in the fall, winter, spring and summer.

### **ALWT 463/4202 - Diplomatic Professional Translation: 3 credits**

#### **Prerequisites**

ALWT 4271 or consent of instructor.

#### **Description**

This course is designed to meet the pressing need for high level translation in all work places. Attention is given to points of contrast, idiomatic usage, and semantic fields of corresponding vocabulary in both English and Arabic in the field of diplomacy and political science.

#### **When Offered**

Offered in the fall, winter, spring and summer.

### **ALWT 420/4271 - From Reading to Writing: Advanced Level: 3 credits**

#### **Prerequisites**

Students reaching Advanced level in the Arabic Writing Placement Exam or have taken either 3271.

#### **Description**

This course combines reading and writing skills in various disciplines such as Political Science, Anthropology, Economics, History, Arts, etc. It develops further the reading and writing skills. Special attention is given to complex structures, fixing common mistakes, rhetorical devices, clichés, collocations, and vocabulary building.

#### **When Offered**

Offered in the fall and spring.

### **ALWT 421/4272 - Arabic Language Proficiency for Media Writing 3 credits**

#### **Prerequisites**

Approval of ALNG Director.

#### **Description**

This course aims at improving students' proficiency in the Arabic language. It trains students to efficiently use discourse markers and cohesive connectors to successfully conduct interviews and write news reports in modern standard Arabic. Students will also be familiarized with different Arabic media writings.



**When Offered**

Offered in fall, winter, spring and summer.

**ALWT 422/4273 - Professional Business Writing: 3 credits****Prerequisites**

Students reaching advanced level the Arabic Writing Placement Exam or have taken either 3271.

**Description**

The course bridges the communication gap between language course work and information- transfer needs of business. The course trains the student to write major forms of business writing, including correspondence, memoranda, reports and the like.

**When Offered**

Offered in the fall and spring.

**ALWT 423/4274 - Professional Diplomatic Writing (3 cr)****Prerequisites**

Students reaching advanced level in the Arabic Writing Placement Exam or have taken 3271.

**Description**

The course bridges the communication gap between language course work and information- transfer needs of diplomacy. The course trains the student to write major forms of diplomatic writing, including correspondence, memoranda, reports and the like.

**When Offered**

Offered in the fall and spring.

**ALWT 521/5271 - Professional Arabic TV Script Writing 3 credits****Prerequisites**

ALWT 4272 or Approval of ALNG Director

**Description**

This course is a continuation of ALWT 4272 . This course makes students practice writing TV scripts in syntactically and semantically eloquent Arabic. It also develops students' Arabic language through further understanding of Arabic and Egyptian culture.

**When Offered**

Offered in the fall, winter, spring and summer.

**ARCH 221/1511 - Free-hand Representation for Architects (3 cr.)**

**Prerequisites**

**Description**

Free-hand manual drawing and manual visual communication for designers. Three primary modules covering conceptual diagramming and idea sketching; tools for diagrammatic analysis; and rendering and final presentation using manual techniques.

**Hours**

Three hours studio period.

**ARCH 273/1521 - Digital Representation Tools for Architects (2 cr.)**

**Prerequisites**

ENGR 1005

**Description**

An introduction to different forms of digital representation in architecture: architectural drawings, 3D-modeling, rendering, sheet layout design and fundamentals in animation and image editing. Introduction to Building Information Modeling (BIM) and graphical representation software. Such techniques are utilized as design tools for the creative development of projects and communication with clients and consultants from different disciplines in architectural practice.

**Hours**

One-hour class period and three-hour lab period.

**When Offered**

Offered in fall and spring.

**ARCH 222/1561 - Architecture: Art or Engineering (3 cr.)**

**Description**

A study of architecture as a way of contrasting the "Arts" and "Engineering" approaches to design. The course addresses issues of form and space generation, function and interior environment, exterior and site, and materials and construction. Famous buildings and styles will be critically analyzed from the perspectives of both the artist and the engineer.

**ARCH 314/2211 - History and Philosophy of Modern and Contemporary Architecture (3 cr.)**

**Prerequisites**

**Description**

A brief history of architecture from Ancient Egyptian to Baroque. Introduction to the historical development of

twentieth-century and twenty-first architecture in the western tradition, including its social, technological, and conceptual aspects. Special emphasis on studying different paradigms, individual architects, buildings, and theoretical writings. Traditional, local vernacular, and contemporary vernacular architecture are also studied.

**When Offered**

Offered in fall and spring.

**ARCH 234/2221 - Human Aspects in Architectural Design (3 cr.)**

**Prerequisites**

ARCH 273/1521 - Digital Representation Tools for Architects (2 cr.) , ARCH 221/1511 - Free-hand Representation for Architects (3 cr.)

**Description**

Introduction to architectural design related environment-behavior issues. Introduction to architectural programming and post-occupancy evaluation. Human aspects in design: perception, behavioral uses of spaces, users needs, ergonomics, proximics. Design for the disabled. Effects of cultural processes on architecture and urban design. Use of environment-behavior research methods in architecture and urban design. Design applications of theoretical concepts into design projects.

**Hours**

One hour class period and 3 hours studio period.

**When Offered**

Offered in fall and spring.

**ARCH 326/2231 - Environmental Control Systems and Sustainable Design (3 cr.)**

**Prerequisites**

PHYS 1011 , MACT 1122 and ARCH 2551

**Description**

Basic principles and application of environmental systems: acoustic, lighting, HVAC, energy use, and their integration with the building envelop. Performance of the building envelops materials and assemblies. Introduction to LEED and similar systems. Sustainable design principles and its applications. Sustainable design project.

**Hours**

Three-hour studio period and three-hour lab period.

**When Offered**

Offered in fall and spring.

**ARCH 268/2411 - Surveying for Architects (1 cr.)**

**Prerequisites**

MACT 1122

**Description**

Basics of surveying theory, recording field data and representation of data. Digital mapping production and contouring. Surveying applications including field work of detail surveying, stakeout, and parcel boundaries. Survey planning and associated survey computations. Operation of automatic level, total station and GPS. Introduction to 3D scanning of buildings.

**Hours**

Three-hour lab period.

**ARCH 250/2512 - Foundations of 3-Dimensional Design (3 cr.)****Description**

Basic concepts and fundamentals of visualization, thinking, and design of simple forms in three dimensions. Presentation, communication and basic design skills using simple three dimensional modeling exercises in manual formats. Balance between aesthetic and functional design criteria. No previous modeling or digital experience is required.

**Hours**

Four-hour studio period.

**ARCH 251/2551 - Introduction to Architectural Design (3 cr.)****Prerequisites**

ARCH 273/1521 - Digital Representation Tools for Architects (2 cr.)

ARCH 250/2512 - Foundations of 3-Dimensional Design (3 cr.)

ARCH 221/1511 - Free-hand Representation for Architects (3 cr.)

**Description**

Architectural design stages. Leadership role of architects in project delivery. Influence of site location on design. Influence of project related factors on design. Design of simple buildings. Introduction to basic building components and assemblies. Introduction to building code requirements.

**Hours**

One-hour class period and three-hours studio period.

**When Offered**

Offered in fall and spring.

**ARCH 351/2552 - Architectural Design Studio I (4 cr.)****Prerequisites**

ARCH 234/2221 - Human Aspects in Architectural Design (3 cr.) , ARCH 251/2551 - Introduction to Architectural Design (3 cr.)

**Description**

Studio on designing in behavioral and socio-cultural contexts. "Inside-out" approach to Architecture. Design through the study of behavioral use of space. Age, sex, culture and individuality as well as complex functional relationships influence on architectural design. Study of the nature of human behavior and how it can be incorporated, facilitated, modified and influenced through architectural design. Design for special needs populations. Introduction to developing

project brief through definition of the needs of society, users and clients.

**Hours**

Six-hour studio period.

**When Offered**

Offered in fall and spring.

**ARCH 428/3311 - Detail Design and Finishes in Buildings (3 cr.)**

**Prerequisites**

CENG 4252

**Description**

Construction details, materials selection, and methods of construction of building finishes: floors, walls, ceiling; stairs, openings, installations, specialty works. Design and detailing of architectural components. Both manual drawings and CAD are used to develop the construction details.

**Hours**

Four hours studio period.

**When Offered**

Offered in fall and spring.

**ARCH 426/3321 - Building Service Systems and Building Systems Integration (3 cr.)**

**Prerequisites**

ARCH 2551 .

**Description**

Basic principles of plumbing, electrical, and mechanical systems in buildings. Integration of building systems. Assessment, selection and integration of structural systems, building envelop, environmental, life safety, and building systems into building design.

**Hours**

Two-hour class period and three-hour lab period.

**ARCH 323/3331 - Construction Materials and Quality Control (4 cr.)**

**Prerequisites**

ENGR 2102

**Description**

Concepts of Stress and Strain. Uniaxial, bending, torsion, shear and combined Stresses. Types and properties of construction materials and components. Concepts of quality control, statistical evaluation and corresponding experimental work. Aggregates types, sources and quality. Inorganic cements. Concrete mix design, admixtures and quality control. Asphalt cement, asphalt concrete mix design and quality control. Steel in construction. Masonry

materials, timber, insulating materials and coatings.

**Hours**

Two one-hour class periods and three-hour lab period.

**When Offered**

Offered in fall and spring.

**ARCH 473/3522 - Digital Design Studio and Workshop (3 cr.)**

**Prerequisites**

ARCH 2551

**Description**

In depth application of advanced CAD concepts. Real time computer graphics. Computer applications for performance animation, virtual reality and interactivity.. Modeling, texture mapping, environments, navigation, lighting, animation and sound. Generative design and Avatars. Digital tools and methods of design with manual tools within the design process. Computational design methodologies, visualization, digital fabrication, cost-estimation, scheduling and facility management. Parametric design and Building Information Modeling (BIM). Applications through design studio and workshop on digital fabrication.

**Hours**

Three-hour studio period and three-hour lab period.

**When Offered**

Offered in fall and spring.

**ARCH 368/3531 - Housing Design and Geographic Information Systems (3 cr.)**

**Prerequisites**

ARCH 268/2411 - Surveying for Architects (1 cr.)

**Description**

Context, history and framework of regional, city and urban planning. Concepts, features and characteristics of human settlements. Interrelationship between socio-cultural contexts and housing processes. Design of housing areas and housing units. Design of 'appropriate' and 'responsive' residential environments within specific resources. Concepts and system components of GIS. Creation and management of a geodatabase. GIS analysis and applications in housing projects.

**Hours**

Three-hour studio period and three hour lab period.

**When Offered**

Offered in fall and spring.

**ARCH 352/3553 - Architectural Design Studio II (4 cr.)**

**Prerequisites**

ARCH 2211, ARCH 2552

**Description**

Studio on form, space and composition. "Outside-in" approach to architecture. The architectural form and its composition. The compositional aspects of spatial design- expression, language, intent, dynamics etc. and their use as tools of concept and functional accommodation. Three-dimensional models and design development. Spatial approach to design. Meaning, message and symbolism. Work with architectural precedents through analysis of various works of architects. Contemporary design theory as a premise for design.

**Hours**

Six-hour studio period.

**When Offered**

Offered in fall and spring.

**ARCH 453/3554 - Architectural Design Studio III (4 cr.)****Prerequisites**

ARCH 2231 and ARCH 3553.

**Description**

Studio on Environment and Sustainability. This studio will allow students to investigate various aspects of the environment and 'sustainability' as a force within the architectural profession. Recent increases in global climatic and social pressures have necessitated environmental awareness as well as new architectural design solutions. Using current sustainable design strategies as a foundation, students will analyze and implement their own environmentally responsible analysis and designs. Conservation and recycling of materials and waste management. Field trip to gain hand on experience on the sustainable design and waste management is a requirement.

**Hours**

Six-hour studio period.

**When Offered**

Offered in fall and spring.

**ARCH 321/3562 - Introduction to Architectural Engineering (3 cr.)****Prerequisites**

CENG 2251

**Description**

Role of the architect and other engineers in building construction. Introduction to the factors influencing architectural design. Building components, materials and assemblies. Architectural drawing and detailing.

**When Offered**

Offered in fall and spring.

**Notes**

(Two-hours lecture period and three-hour lab period)

**ARCH 496/3950 - Internship in Construction Projects (0 cr.)****Prerequisites**

ARCH 2551

**Description**

Each student is required to spend a minimum of 4 weeks of internship in Egypt or abroad. These should include substantial practical training in construction activities. A complete account of the experience is reported, reflected on, and evaluated.

**When Offered**

Offered in fall and spring.

**ARCH 429/4312 - Design Development and Construction Documents (3 cr.)**

**Prerequisites**

ARCH 3311, ARCH 3321

**Description**

Development of design into technical documents. Production of construction documents. Design of construction assemblies, constructability aspects and choice of materials. Building coordination and integration using Building Information Modeling applications. Drawing conventions and symbols. Building permit package. Basics of technical specifications.

**Hours**

Six-hour studio period.

**When Offered**

Offered in fall and spring.

**ARCH 441/4421 - Professional Practice, Design Management and Codes (2 cr.)**

**Prerequisites**

ARCH 2551 .

**Description**

Types of architecture firms. Design process management. Business management of architecture firms. Procurement of architectural services. Architects' administrative role. Architecture practice stakeholders. Building contracts and legal aspects. Building codes. Introduction to real-estate investment concepts. Applications on design projects.

**Hours**

One hour class period and 1.5 hours studio period.

**When Offered**

Offered in fall and spring.

**ARCH 468/4532 - Urban Design and Landscape Architecture (3 cr.)**

**Prerequisites**

ARCH 3531

**Description**

This course is intended to teach students the basics of urban design and landscape architecture. Ethnography, inclusive



communities and placemaking are emphasized through the analysis of visual elements, urban form, grain, texture, and fabric of lively streets. The course discusses perception, space, time and function of tactical urbanism and urban acupuncture as strategies of development. Students work in teams and present their ideas and design schemes where they are trained to question the role of the urban designer and master plan in relationship to people, economic activities and the ecosystems at play in the city.

**Hours**

One-hour class period and three-hour studio period.

**When Offered**

Offered in fall and spring.

**ARCH 420/4541 - Design of Interior Spaces I (3 cr.)**

**Prerequisites**

ARCH 2551 or (ARCH 1521 and DSGN 2201)

**Description**

Historical background of Interior Design Styles. Concepts and principles of interior design. Space planning and design. Aesthetics of Interior Design. Color and lighting. Materials selection. Function, material and layout of furniture and textiles. Design for the disabled. Ergonomics and design. Mood Board design. Design drawing and detailing.

**Hours**

Two-hours lecture and two-hours Studio.

**Hours**

One-hour lecture and three-hour Studio.

**When Offered**

Offered in fall and spring.

**ARCH 454/4555 - Architectural Design 4 (4 cr.)**

**Prerequisites**

ARCH 453/3554 - Architectural Design Studio III (4 cr.) CENG 306/3152 - Structural Design for Architects II (3 cr.) - ARCH 323/3331 - Construction Materials and Quality Control (4 cr.)

**Description**

Studio on the Art of Structure and Technology. This studio's primary objective is to link the two basic components of architecture- art and engineering. Based on a firm understanding of structural systems and their appropriate application to architectural design, projects will be designed to incorporate both aesthetic beauty and structural thinking. The influence of technology in the form of new materials and methods will be examined through their design potential. Three-Dimensional manual and digital models will play an essential role in the design development processes of this studio.

**Hours**

Six-hour studio period.

**When Offered**

Offered in fall and spring.

**ARCH 456/4557 - Architectural Design Studio VI Design Studio Contextual (4 cr.)**

**Prerequisites**

ARCH 454/4555 - Architectural Design 4 (4 cr.)

ARCH 468/4532 - Urban Design and Landscape Architecture (3 cr.)

ARCH 426/3321 - Building Service Systems and Building Systems Integration (3 cr.)

ARIC 205/2205 - The World of Islamic Architecture, from the Beginnings to the Present Day (3 cr.)

EGPT 203/2030 - Introduction to Egyptian Architecture (3 cr.)

**Description**

Studio on design in critical Settings- Designing in Historical Contexts. A critical review of works, theories, and polemics in modern architecture. Case studies of buildings within urban settings will be the focus, with an emphasis on adaptive re-use, historic preservation, urban and landscape design practices. Within the context of a historical survey, students will develop a framework to assess and design for contemporary issues in architecture.

**Hours**

Six-hour studio period.

**ARCH 455/4558 - Architectural Design Studio VIII Design Studio High Tech (4 cr.)****Prerequisites**

ARCH 456/4557 - Architectural Design Studio VI Design Studio Contextual (4 cr.)

ARCH 473/3522 - Digital Design Studio and Workshop (3 cr.)

**Description**

Studio on smart buildings and high-tech architecture. Expanding on the 1970's theme of High-Tech architecture, this studio aims at redefining the role of cutting edge technology in design- both process and product. Digital technology has revolutionized the way we conceptualized, visualize, present and are eventually able to construct our buildings, making impossible designs of the past a reality. Rapid developments in materials, building systems and construction methods have broadened our design horizons. Issues such as virtual architecture and smart buildings will be explored with regards to their viability and role in the future of architecture.

**Hours**

Six-hour studio period.

**When Offered**

Offered in fall and spring.

**ARCH 000/4561 - Vertical Design Studio A (5 cr.)****Prerequisites**

ARIC 2205, ARCH 3554, ARCH 4421, ARCH 4532, ARCH 3311, CENG 3151

**Description**

First part of a vertical design studio sequence. Design adopts an innovative approach and a theoretical position in one of three areas of interest: building design: human and environmental studies, tectonics and computational design, and architecture and urban heritage design. Development of design foundations and theoretical frameworks based on a critical review of works, theories and polemics in architecture, and case studies of buildings, spaces, structures within specific settings. Study of components and drivers of design. Development of a space and functional program. Production of a preliminary schematic design.

## **ARCH 000/4562 - Vertical Design Studio B (5 cr.)**

### **Prerequisites**

ARCH 4561 , ARCH 3522 , ARCH 3321, CENG 3152

### **Description**

Second part of a vertical design studio sequence. Design builds on the innovative approach and theoretical position that was developed in the vertical design studio A in one of three areas of interest: building design: human and environmental studies, tectonics and computational design, and architecture and urban heritage design. Development of advanced schematic design using innovative spatial and formal arrangements. Design development and innovative detail exploration.

## **ARCH 000/4570 - Senior Design Studio (5 cr.)**

### **Prerequisites**

ARCH 4562 , ARCH 4541 , ARCH Elective, EGPT 2030, ARCH 4312

### **Description**

First part of an advanced capstone vertical design studio sequence with the senior project. Design adopts an innovative approach and a theoretical position in one of three areas of interest: building design: human and environmental studies, tectonics and computational design, and architecture and urban heritage design. Development of design foundations and theoretical frameworks based on a critical review of works, theories and polemics in architecture, and case studies of buildings, spaces, structures within specific settings. Study of components and drivers of design. Development of a space and functional program. Production of a preliminary schematic design.

## **ARCH 000/4801 - Human and Environmental Studies Theory and Dissertation (2 cr.)**

### **Prerequisites**

ARCH 4562

### **Description**

Theoretical framework on state of the art research in human and environmentally responsive design. Definition of a critical theoretical position on a research subject and expression of the position through a theoretical foundation. Development a structured methodology for investigation. Production of a well-written dissertation about a selected topic related to building design with emphasis on human and environmental studies.

## **ARCH 000/4802 - Tectonics and Computational Design Theory and Dissertation (2 cr.)**

### **Prerequisites**

ARCH 4562

### **Description**

Theoretical framework on state of the art research in tectonics and computational design. Definition of a critical theoretical position on a research subject and expression of the position through a theoretical foundation. Development

a structured methodology for investigation. Production of a well-written dissertation about a selected topic related to building design with emphasis on human and environmental studies.

### **ARCH 000/4803 - Architecture and Urban Heritage Theory and Dissertation (2 cr.)**

#### **Prerequisites**

ARCH 4562

#### **Description**

Theoretical framework on state of the art research in architecture and urban heritage studies and design. Definition of a critical theoretical position on a research subject and expression of the position through a theoretical foundation. Development a structured methodology for investigation. Production of a well-written dissertation about a selected topic related to building design with emphasis on human and environmental studies.

### **ARCH 480/4920 - Special Problems in Architectural Engineering (1-3 cr.)**

#### **Prerequisites**

Prerequisite: consent of instructor and department chair on the basis of a well-defined proposal.

#### **Description**

Independent study in various problem areas of construction may be assigned to individual students or groups. Readings assigned and frequent consultations held

#### **When Offered**

Offered in fall and spring.

#### **Repeatable**

May be repeated for credit if content changes.

### **ARCH 494/4930 - Selected Topics in Architectural Engineering (3 cr.)**

#### **Prerequisites**

Prerequisite: senior standing.

#### **Description**

Specialized topics in Architecture will be selected and presented.

#### **When Offered**

Offered in fall and spring.

### **ARCH 000/4931 - Introduction to Urban and Architecture Conservation (3 cr.)**

#### **Description**

Egypt is one of the richest countries in its cultural heritage. Monuments, buildings of value, archaeological remains, and preserved urban tissues are dispersed along its geographical areas dating back from pre-history, Ancient Egyptian, Coptic, Islamic, Colonial and Modern periods, in addition to the vernacular settlements. Although this gift is an asset for its development, challenges for comprehensive conservation and valorization are great. Poverty, demographic pressure, lack of awareness, deteriorating services, environmental hazards, and difficult bureaucratic procedures are among other difficulties facing heritage successful preservation.

### **ARCH 000/4932 - Sustainable Landscape architecture in Hot an Arid Environments (3 cr.)**

#### **Description**

The aim of this course is for students to understand the context and the process within which sustainable landscape environments are conceived and designed, from concept to preparation of construction documents stage and to apply this knowledge in a specific landscape design project with emphasis on establishing sustainable sites consideration.

### **ARCH 000/4933 - Vernacular Architecture (3 cr.)**

#### **Description**

The objective of this course is to introduce students to a departure from conventional architecture to the vernacular. By exploring architecture without architects, the vernacular will be discussed not as a style or even an architectural approach, but an attitude. Using examples from different geographic regions and different historical periods, as well as contemporary interpretations, students will engage in a series of lectures, debates, research and design.

#### **Hours**

Three hour class and studio period

### **ARCH 000/4934 - Cairo in the Curriculum, The Urban Laboratory: Mapping Cairo's Complexities (3 cr.)**

#### **Description**

This course examines the city of Cairo through the lens of the juxtopolis pedagogy. It defines the city as a multi-layered series of juxtapositions representing often colliding and oppositional urban conditions. Students are expected to apply various mapping tools to document these urban juxtapositions through a series of thematic investigations that change every semester.

### **ARCH 000/4935 - Coptic Art and Architecture (3 cr.)**

#### **Description**

The course offers an interdisciplinary undergraduate course to students majoring in either art or architecture, as the theme of the course covers the study of architectural forms and elements of Coptic churches, construction and roofing systems, as well as portraits, iconography, wall paintings, decorative patterns, wood and stone carving.

### **ARCH 000/4936 - Design of Interior spaces II 3 credits (1 hr lecture and 3 hours studio)**

#### **Prerequisites**

ARCH 420/4541 - Design of Interior Spaces I (3 cr.)

#### **Description**

An applied studio on the design and application of interior design concepts and technical aspects. Lighting and texture in the design of interior spaces. Principles of furniture design and manufacturing. Utilization of textiles and accessories in interior spaces. Integration of finish materials & elements. Sustainability in the design of interior spaces. Creating an image and signage systems. Design for the disabled.

## **ARCH 000/4937 - Seminar on Contemporary Architecture Discourse (3 cr.)**

### **Prerequisites**

ARCH 352/3553 - Architectural Design Studio II (4 cr.)

### **Description**

This course attempts to question the assumption that local architects and designers have little value to add to the global design discourse. Readings and discussions over the presentations of a number of local designers on their works and design directions will be the channel to debate this issue against the backdrop of the concurrent global discourse. Students should emerge with a critical understanding of the contemporary architecture discourse in Egypt and express such an understanding within an effective theoretical format.

## **ARCH 000/4938 - Urban Dialogues on Heritage and Space (3 cr.)**

### **Prerequisites**

ARCH 4532

### **Description**

This course introduces students to the field of "heritage" and how it has emerged as a concept and mechanism to organize the city since the nineteenth century till our present time. Emphasis will be on understanding the role of heritage in the city, its underpinning politics, and the key role it plays in constructing new forms of historical knowledge. The course foregrounds the theoretical debates around the topic and invites experts in the field to discuss their projects and researches. The course adopts the possibility of heritage in becoming a gateway for the past, a mode of development for the present and social action for the future. It offers students a platform to investigate, question and imagine how heritage projects can re-map the city and its spaces, transform it and become a means of civic engagement and empowerment to its citizens.

## **ARCH 000/4939 - Advanced Architectural Computing (3 cr.)**

### **Prerequisites**

ARCH 3522

### **Description**

This course introduces students to concepts of interactive media, responsive systems, physical computing, human-computer interaction, architectural robotics, tangible and natural user interfaces, building automation, and smart building systems. Emphasis will be on using physical computing to automate computer aided architectural design operations and using interactive media to aid the process of generative design, and performative analysis and evaluation.

## **ARCH 497/4951 - Internship in Technical Drawing and Design (1 cr.)**

### **Prerequisites**

ARCH 3311

### **Description**

Each student is required to spend a minimum of 8 weeks of internship in Egypt or abroad. The internship should include substantial practical training in technical drawing and design. Introduction to professional ethics, professional judgment and the social responsibilities of architects. A complete account of the experience with a reflection on its

learning outcomes is reported on, presented and evaluated.

**When Offered**

Offered in fall and spring.

**ARCH 000/4971 - Selected Topics in Human and Environmental Studies of Architectural Engineering (3 cr.)**

**Prerequisites**

Senior standing

**Description**

Specialized topics in Human and Environmental Studies will be selected and presented

**ARCH 000/4972 - Selected Topics in Tectonics and Computational Design of Architectural Engineering (3 cr.)**

**Prerequisites**

Senior standing

**Description**

Specialized topics in Tectonics and Computational Design will be selected and presented.

**ARCH 000/4973 - Selected Topics in Architecture and Urban Heritage Design (3 cr.)**

**Prerequisites**

Senior standing

**Description**

Specialized topics in Architecture and Urban Heritage Design will be selected and presented

**ARCH 490/4980 - Senior Project I (2 cr.)**

**Prerequisites**

ARCH 4557

**Description**

A capstone project. Topics are selected by students from a set defined by advisors and according to their area of interest. Project analysis and research. Developing project brief through definition of the needs of society, users and clients. Preparation of space and functional programs. In depth studies of specific design aspects.

**Hours**

Three-hour studio period.

**When Offered**

Offered in fall and spring

## **ARCH 491/4981 - Senior Project (5 cr.)**

### **Prerequisites**

ARCH 4558, ARCH 4980, ARCH 4312, ARCH 4541, ARCH 4570, ARCH 4801 , ARCH 4802 , ARCH 4803

### **Description**

Second part of the advanced capstone vertical design studio sequence. Design builds on the innovative approach and theoretical position that was developed in the senior design studio in one of three areas of interest: human and environmental studies, tectonics and computational design, and architecture and urban heritage design. Development of advanced schematic design using innovative spatial and formal arrangements. Design development and innovative detail exploration.

### **Hours**

Eight-hour studio period.

### **When Offered**

Offered in fall and spring.

## **ARCH 000/5201 - Philosophy & Theory of Architecture (3 cr.)**

### **Description**

This course seeks to connect the architecture debate with the wider historical, cultural and political discourse. Students explore writings in theory and philosophy where political, social, and cultural aspirations become arguments for architectural and urban modernity. The seminar structure allows students to juxtapose different readings against each other to emerge with new modes of questioning. The goal is to unravel some of the complexities of the intertwined networks of relationships that make the questions we ask more relevant than the specific answers we often reach.

## **ARCH 000/5202 - Critical Thinking in Architectural Design (3 cr.)**

### **Description**

In this course, the students as the primary investigators in any research for design process become the primary target of investigation. Their own approaches and perspectives are put to question raising the critical perspective of informed questioning especially as it pertains to the specific intangible and tangible dimensions of design and the profession. Critical readings of how social, cultural, and political contexts agendas become effective arguments for architectural and urban design decisions will inform the debates within an applied studio setting on how professional forms of research, communication and practice produce knowledge and architecture outcomes.

## **ARCH 000/5221 - Research Methods in Architecture (3 cr.)**

### **Description**

Architectural research is the search for new knowledge and new ideas about the built environment. This course seeks to prepare the graduate architecture researcher to deal with the diverse questions that are related to studying the built environment and the various research approaches and methods available to adopt in the process of pursuing research questions. It poses the key issues distinguishing architectural research from other disciplines, and introduces an array of the different methods that are available for integration, with an exploration of their application challenges through case studies.

## **ARCH 000/5290 - Research Guidance Thesis (3 cr.)**



**Description**

Consultation on problems related to student thesis.

**Notes**

Must be taken twice for credit.

**ARTV 199/1099 - Selected Topics for Core Curriculum (3 cr.)****Description**

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.

**When Offered**

Offered occasionally.

**ARTV 213/2113 - Introduction to Visual Cultures (3 cr.)****Description**

This lecture course provides a primer in visual literacy across media, introducing students to key terms and methods for critically reading the visual world including iconology, formal analysis, art history, ideological analysis, and semiotics. Students gain fluency in understanding how images work in cultural context to communicate meaning, to express a sense of self, to convey pleasure, to sell things, and to distribute power. Questions of the effect of specific visual technologies are also engaged, particularly their impact on perception and conduct. Examples are drawn from fine art, advertising, film, popular culture, and new media.

**ARTV 200/2200 - Analogue and Digital Practices (3 cr.)****Description**

This introductory studio course introduces students to techniques of visual research as a basis for creative work in various media forms. Students undertake a continuous visual research project as the basis for the course. By means of class lectures and exercises, sketchbook practices, technical workshops, take-home assignments, and group critiques designed to activate the research process, they develop their skills in the expressive use of analogue and digital media for the realization of art, design, or film projects.

**When Offered**

Offered in fall and spring.

**ARTV 201/2201 - Introduction to Drawing (3 cr.)****Description**

An introduction to the technical and observational skills of drawing in a variety of mediums. Concepts of line, value and composition will be explored in objective, non-objective, still life, and landscape drawing exercises.

**ARTV 202/2202 - Introduction to Painting (3 cr.)**

**Prerequisites**

ARTV 2201

**Description**

An introduction to the technical, aesthetic, and historical aspects of painting in a variety of mediums. Formal concepts of composition, pictorial space and color interaction are applied to subjects such as still life, landscape and the figure.

**ARTV 203/2203 - Introduction to sculpture/Installation (3 cr.)****Prerequisites**

ARTV 2200

**Description**

An introduction to the contemporary practices in Sculpture and installation. Offers a focused practice for students that addresses the origins and history of installation art/sculpture including site-specificity, the context of the gallery/museum, and alternate environments.

**ARTV 204/2204 - Introduction to Time-Based Media (3 cr.)****Description**

Introduces students to the creative practice of video art in a production studio environment, including both concepts and techniques. Classes include workshops on camera, lighting, video effects, and sound recording techniques. Students create individual video projects.

**ARTV 000/2206 - Experimental Animation Art (3 cr.)****Prerequisites**

ARTV 2201.

**Description**

This studio course introduces students to experimental techniques and theories of animation art, particularly the use of simple frame animation as a means to trace the development and mutation of ideas, narratives, memories and experiences in the imagination. It is designed as an extension of students' foundation experiences in drawing, painting and collage. Emphasis is on integrating those skills into "moving image" making through techniques of addition and subtraction to the surface of the animated frame.

**ARTV 000/2207 - Introduction to Ceramics (3 cr.)****Description**

This course aims to explore the various techniques and concepts of ceramics, with an emphasis on basic skills and crafts of clay. The course includes introductory information and experiments in clay free-hand technique related to ceramics arts, starting from making building techniques, glazing techniques and kiln firing operations. Students will be introduced to ceramic art history and its long-term cultural traditions, as well as contemporary ceramics concepts and

ceramics installation arts. This course has a minimum of two field trips to Fustat, an "ancient ceramics area in old Cairo" to explore the historical and local Craft of ceramic art and Egypt's social history in relation to the field.

### **ARTV 000/2208 - Internship Practice (0 cr.)**

#### **Prerequisites**

Student should be declared as Visual Art Major.

#### **Description**

This course must be taken with ARTV 000/4312 - Advanced Studio III (3 cr.)

Student will be introduced to the most established independent contemporary art institutions in Egypt through an official collaboration agreement between the VA program and those institutions. Students are free to choose one of these institutions according to the availability of places as an intern for a period 8-10 days during the semester.

Students will be asked to contribute to work related to tasks such as, achieving professional work, organizing public workshops, curating public exhibitions, organizing public screenings, also investigate their use of archives: what kind of important, how do they use it in exhibitions.

\* This is pass/fail course

### **ARTV 000/2209 - Studio Professional Practice (0 cr.)**

#### **Prerequisites**

Student should be declared as Visual Arts Major

#### **Description**

This course provides visual art major students with important and essential practices to work in their own spaces and time at the university in order to create arts projects for experimentation of needed art practices and training. Students should spend minimum of 10 hours per week of studio work in one of the Visual Arts studios (p008 & p019) Total of 100-150 working hours per semester starting from their declaration date till their graduation projects exhibition.

The total practicum periods are 4-5 semesters.

(please see 4 year plan's proposal)

\* This course is pass/ fail course

### **ARTV 000/2210 - Experimental Workshop Practices (0 cr.)**

#### **Prerequisites**

Student should be declared as Visual Arts Major

#### **Description**

Students should take minimum 5 workshops during their studies as Visual Arts Major student. These workshops may be selected from a variety offered at AUC, or in other institutions in Cairo.

The workshops will enhance crafts and skills they need and are not offered in our courses like printmaking crafts, carpentry crafts, photography printing crafts, textile making crafts, electronic and coding interactive arts, etc.

### **ARTV 000/2211 - Introduction to Experimental Comic Strips (3 cr.)**

**Description**

This course will address the history, principles, concept and anatomy of the comics form, as well as the fundamentals of the craft and the process of storytelling through the visual narrative. Techniques are open to experimentation from the conventional tools of drawing to the complexity of interactive digital media.

**ARTV 000/2214 - History of Art Practices I (3 cr.)****Description**

This introductory art history course aims at exploring Visual Art Practices from the Ancient Period to the late 19th century in a wide range of media such as architecture, sculpture, painting, print-making and photography. The works will be studied from a formal, conceptual, and expressive standpoint but also as evidences of a historical context. The course will be based on students' research, lectures and field trips. The field trips are designed to introduce students to their heritage and to explore the relationship between geography and artistic practice.

**ARTV 230/2230 - Introduction to Digital Photography (3 cr.)****Description**

Introduces photographic practices in a digital environment. Explores camera, tools, techniques and conceptual approaches related to image capture and printing. A digital camera is required.

**ARTV 315/3115 - Art Theory (3 cr.)****Prerequisites**

ARTV 2113

**Description**

Offers an introduction to art theory from the start of the twentieth-century up until the present. Emphasis is on reading theoretical texts and interpreting their application to modern and contemporary artistic practices. The course is writing intensive.

**ARTV 370/3270 - Selected Topics in Art (3 cr.)****Prerequisites**

Determined by instructor.

**Description**

In-depth examination of specific topics in the studio arts or art history.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be repeated for credit when content is different

**ARTV 000/3311 - Advanced Painting and Drawing (3 cr.)**

**Prerequisites**

ARTV 201/2201 - Introduction to Drawing (3 cr.)

ARTV 202/2202 - Introduction to Painting (3 cr.)

**Description**

This course provides students with practical and advanced study of new techniques and theoretical concepts in contemporary painting and drawing. Starting from the use and innovation of painting and drawing techniques to collage, assemblage and three dimensional installation art. Students will also revise traditional methods of painting, while being introduced to contemporary visual and critical thinking techniques.

Students will study the theories of conceptual painting in contemporary art and its relation to contemporary painting methodologies.

**ARTV 000/3312 - Advanced Studio I (3 cr.)****Prerequisites**

ARTV 200/2200 - Analogue and Digital Practices (3 cr.)

ARTV 201/2201 - Introduction to Drawing (3 cr.)

**Description**

This course is the first course in a series of advanced 3 sequential courses, and is an introduction to cross-medium studio practices and mediums. It introduces students to the basics of visual, conceptual and theoretical language as it relates to multiple types of contemporary studio practices. Concepts/ ideas are examined through diverse approaches to painting, drawing, sound, installation/ sculpture, video, performance and alternative practices. The class structure will be a combination of lectures, tutorials critical reports and studio practices.

**ARTV 000/3316 - History of Art Practices II (3 cr.)****Prerequisites**

ARTV 000/2214 - History of Art Practices I (3 cr.) or ARTV 213/2113 - Introduction to Visual Cultures (3 cr.)

**Description**

This course aims to explore Visual Art Practices of the Modern and the Contemporary Period. We are going to start our exploration with the movement of Impressionism in France and finish in the ever-changing global World Wide Web. We will analyze artistic methodologies, technologies and their impact upon artistic creation. The course focuses on exposing the dynamic interplay between visual research, politics, intellectual theories, and societal changes. The range of media that is covered is very wide: photography, performance, conceptual proposals, installation art, film, video, digital practices and appropriations from mass culture alongside painting and sculpture. The course is based on practical assignments, field trips and lectures.

**ARTV 469/4269 - Senior Project (A) (3 cr.)****Description**

The first in the advanced Senior Project A and B sequence that is required for the Visual Art major. Course is devoted to the processes of research, experimentation, reflection and critical feedback necessary for successful completion of ARTV 4270. Preparation for subsequent professional life will also be emphasized, including writing and portfolio assignments and studio visits with practicing artists.

**When Offered**

Offered in fall.

**ARTV 470/4270 - Senior Project (B) (3 cr.)****Prerequisites**

ARTV 4269

**Description**

A continuation of ARTV 4269, students develop and exhibit a final body of work that expresses a thorough conceptual and technical process. The course culminates in a group exhibition of senior projects, typically to be installed in the Sharjah Art Gallery. This course is the equivalent of a "thesis" or a "capstone" class.

**When Offered**

Offered in spring.

**ARTV 402/4302 - Independent Study (1-3 cr.)****Description**

Professional internship, independent research, or studio work conducted by either individual students or small groups of students with the aid of faculty members. A detailed plan and schedule of the work must be approved by the Art Program Director prior to registration. No independent study can substitute for course regularly offered in the program.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be repeated up to three times if the content changes.

**Notes**

Open to seniors only, with a minimum B average.

**ARTV 000/4311 - Advanced Studio II (3 cr.)****Prerequisites**

ARTV 000/3312 - Advanced Studio I (3 cr.) and its prerequisites

**Description**

Continuation from Advanced Studio I, this is an advanced course that further develops students' studio practices with an initial multidisciplinary collaborative working process. Particular focus is given to newer mediums such as immaterial, conceptual, interventionist and performative practices: new media; and collaborative and cross-disciplinary work. Students develop critical thinking skills about context, space and location. Increasingly sophisticated and ambitious studio practice is expected. The class is conducted through a combination of lectures, group project assignments, and studio practice. This course is required to be taught in Sharjah Art Gallery. Preferably taught as an Accelerated Summer course.

**ARTV 000/4312 - Advanced Studio III (3 cr.)**

**Prerequisites**

ARTV 000/4311 - Advanced Studio II (3 cr.) and its prerequisites

**Description**

Continuation from Art Studio II. This course looks at archives and collections as creative practice, specifically looking at the archive itself as an object of critical analysis. Using interdisciplinary methods and readings on archival practice, students will be challenged to look critically at a range of archival collections to interrogate the motivations behind collecting and curating arts.

Class discussions and projects, students will engage in various theoretical and practical contexts within a contemporary discourse on art and archival practices.

In addition to class work, all students are expected to undertake short-term internships at local art institutions as a part of ARTV 000/2208 - Internship Practice (0 cr.) course.

**ARTV 410/5110 - Contemporary issues in Arab Art (3 cr.)****Description**

An examination of contemporary issues in Arab art within its historical-political geographic terrain and its contemporary diaspora communities. We will explore various kinds of visual and built environments including art works, exhibitions, literature and popular culture. Students will develop visual and analytic skills needed to examine contemporary issues in Arab art in relation to the local, regional and global markets and discourse.

**BIOL 103/1010 - Introduction to Life Sciences (3 cr. + 1 cr. lab)****Prerequisites**

Non-science majors only.

**Description**

This course aims to emphasize the connection between fundamental principles of Biology and other life sciences. Lectures and lab sessions cover topics such as the cell as basic unit of life, biological molecules to understand energy flow and nutrition, tissues and organ systems (with a focus on human health), and ecological and evolutionary processes explaining biodiversity.

**When Offered**

Offered in fall and spring.

**Notes**

Students taking BIOL 1010 may not take BIOL 1011 for credit.

**BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)****Description**

Introduction to the basic concepts of biology, molecules of life, cell structure and function, photosynthesis, cell respiration, cell cycle and cancer are presented. Basis and applications of genetics and molecular biology are addressed. The course introduces students to the fundamental concepts, principles and processes upon which the unity of life is based: the relationship of the course material to their day-to-day world: and how to apply scientific methods. Laboratories introduces students to basic principles of plant and animal structure and function and build on the principles of inheritance to the structure and function of tissues and organ systems.

**When Offered**

Offered in fall, spring and summer.

**Notes**

Students cannot take both BIOL 1010 and BIOL1011 for credit

**BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab)**

**Prerequisites**

BIOL 1011 or exemption

**Description**

Based on the diversity of life: viruses, bacteria, protists, fungi, plants and animals are studied. The course concentrates on characteristics of different domains of life, structure, and function of plants and animals, population genetics, ecology and the environment. Laboratories introduce students to evolution, structure and function of different populations of organisms and ecosystems. Some field applications are examined.

**When Offered**

Offered in spring.

**BIOL 102/1040 - Essentials of Environmental Biology (3 cr.)**

**Prerequisites**

Non-science majors only.

**Description**

This course is designed for non-science majors who are interested in learning more about environmental issues through the lens of biological principles. The course covers biological concepts and fundamentals of environmental biology, and introduced students to a range of environmental issues (pollution, degradation of natural resources, overpopulation, etc.) that are currently affecting Egypt and the rest of the planet. The course will highlight man's impact on how our planet functions and examine societal and scientific solutions to these problems. The course is taught through lectures, class projects, reading discussions, and may include mandatory field trips and active participation in a sustainable community development project.

**When Offered**

Offered in fall.

**BIOL 130/1410 - Current Health Issues (4 cr.)**

**Description**

Explores the public and personal health infrastructure with a focus on Egypt. The course has an optional service-learning component in which students become aware of their role in community health issues. Information will be present in the form of classroom discussions, debates, field trips, and videos.

**Notes**

This course is open to all AUC students.

**BIOL 199/1930 - Selected Topic for Core Curriculum (3 cr.)**



**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**BIOL 241/2090 - Quantitative Biology (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 2150 and MACT 1221 .

**Description**

This course discusses essential concepts in experimental design and testing hypothesis and introduces quantitative skills for processing, analyzing, and visualizing data generated by biological and medical experiments, focusing on analysis of microarray genes expression data. The open-source bioinformatics and computing platform R will be introduced and used throughout the course in the laboratory sessions.

**BIOL 221/2150 - Genetics (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 1011 or BIOL 1010

**Description**

The course is designed to cover the basic fundamentals of classical and molecular genetics. This includes principal of segregation, DNA structure and genetic variation, chromosome and gene organization, replication, molecular biology of gene expression, and mechanisms of gene regulation. The course also covers genetics of bacteria and their viruses, human genome variation, biotechnology, transgenic organisms, and ethical issues in genetic research. The laboratory consist of exercises to introduce students to classical and contemporary genetic analysis.

**BIOL 211/2230 - Molecular and Cell Biology (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 2150 and CHEM 2003 or co-requisite.

**Description**

The course is designed to provide a detailed understanding of the structure and function of the cell. This includes mechanisms of DNA replication and repair in prokaryotic and eukaryotic organisms and regulation of transcription and translational machinery. Protein sorting into functional structural proteins will be addressed with emphasis of post-translational protein modifications. Mechanisms of cell-cell signaling and their role in regulating genomic integrity and cell cycle regulation will be covered in details and consequences of abnormalities in these mechanisms will be discussed. Laboratories include the identification of basic cell structures, laboratory techniques in DNA and protein isolation, characterization and computational tools in molecular biology.

**When Offered**

Offered in spring.

### **BIOL 304/2320 - Biophysics (4 cr.)**

#### **Prerequisites**

PHYS 1011 and PHYS 1012 .

#### **Description**

Principles, concepts and advances in the physical analysis of life processes. Fundamental and advanced physical and physicochemical treatment of kinetic processes underlying the normal function of biological systems will be addressed to include mechanics, hydrodynamics, electricity, optics and nuclear physics.

### **BIOL 214/2340 - General Botany (3 cr. + 1 cr. lab)**

#### **Prerequisites**

BIOL 1011 (or BIOL 1010) and BIOL 1012

#### **Description**

This course will explore several aspects of plant biology with emphasis on structure, function, reproduction, systematics, plant metabolism and development. Students will be introduced to basic concepts of plant breeding, plant tissue culture and genetic transformation and the generation of genetically-modified crops. Detailed morphological, physiological study and greenhouse experimentation will be covered in the lab. Upon completion of this course, students will gain an appreciation for plant diversity, learning how plants are essential for supporting life on our planet and the potential impact of plant biotechnology on our life.

#### **When Offered**

Offered in spring.

### **BIOL 302/3040 - Environmental Biology for Engineers (2 cr. + 1 cr. lab)**

#### **Prerequisites**

Prerequisite: Junior or senior standing.

#### **Description**

This course covers aspects of soil, water, food, and mineral resources management, waste disposal, energy alternatives, population ecology, and environmental ethics with special emphasis on problems encountered by engineers. Laboratory includes field studies of ecosystems, environmental monitoring instrumentation, solar energy techniques, electronic population modeling and techniques used to deal with human consumption of natural resources.

### **BIOL 310/3130 - Molecular Evolution and Population Genetics (3 cr. + 1 cr. lab)**

#### **Prerequisites**

BIOL 2230

#### **Description**

This course covers a spectrum of evolutionary forces at the molecular level and their impact on allele frequencies in the population. Topics the course will address include the Hardy-Weinberg principles, linkage disequilibrium, genetic drift, neutral theory of molecular evolution, mutation and natural selection, evolution of gene families, lateral gene transfer, basics of molecular phylogenetics, and origin of viruses and origin of the cell. Laboratory sessions will include computational simulations of evolutionary forces in action, population genetics, and maximum likelihood and Bayesian

phylogenetic inferences.

### **BIOL 315/3280 - Biochemistry (3 cr.)**

#### **Prerequisites**

CHEM 3006

#### **Description**

The living cell, structure of biomolecules and their relationship to biological functions; biochemical energetics; metabolism of major cellular components and their relationship to clinical conditions..

#### **Cross-listed**

Same as CHEM 3015.

#### **Hours**

Two class periods and one three hour lab period.

### **BIOL 307/3310 - Microbiology (3 cr. + 1 cr. lab)**

#### **Prerequisites**

BIOL 2230

#### **Description**

This course provides a broad understanding of the microbial world, its application and implications. The fundamentals and principles of bacteriology, virology and mycology are addressed. Cellular and molecular aspects that contribute to selected infectious diseases and the role of the immune system in preventing such diseases are discussed. Additionally we examine the recent advances in pharmaceutical and biotechnology application of microbes.

### **BIOL 312/3326 - Vertebrate Anatomy and Physiology (3 cr. + 1 cr. lab)**

#### **Prerequisites**

BIOL 2230

#### **Description**

The principal objective of this course is to give the student a solid foundation in understanding the anatomy and physiology of the basic vertebrate body from a functional perspective. The course focuses on describing the anatomy of the major organ systems found in vertebrates and explaining how the physiology of these anatomical systems enables vertebrate bodies to function in their environment. The course will survey model organisms to compare variation in anatomy and physiology associated with different behavioral and ecological requirements. The laboratory will consist of computer learning models, physiological and biomedical experiments with living tissue and specimens to investigate the function of various organ systems, and dissection of preserved and fresh vertebrate specimens, to give students in-depth experience with anatomical identification.

#### **When Offered**

Offered in fall.

### **BIOL 313/3340 - Invertebrate Zoology (3 cr. + 1 cr. lab)**

**Prerequisites**

BIOL 1012

**Description**

Invertebrate Zoology is the study of animals without a backbone. These organisms comprise over 99% of all animal species known. Anatomy, development, behavior, systematics, and phylogeny of diverse invertebrate groups are included in the lectures. The class also covers major groups of protozoa. Discussed examples include both representatives of each phylum and highlights of groups of medical, veterinary, or biotechnological importance. Laboratory sessions emphasize morphology and anatomy through dissections, mounted specimens, and prepared slides.

**BIOL 320/3341 - Animal Behavior (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 2150

**Description**

Study of ethology with emphasis on its development, control and function. Laboratory includes observations and descriptions, qualification techniques and experimentation.

**BIOL 301/3360 - Animal Physiology (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 2230

**Description**

A comparative approach to the nutrient procurement, temperature, osmotic and ionic regulation, regulation of fluids, respiratory, circulatory, and digestive systems, reproduction, hormonal and nervous control, behavior, and biological rhythms of animals. Laboratory emphasizes the physiology of invertebrates and vertebrates.

**BIOL 303/3370 - Developmental Biology (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 2230

**Description**

This course is designed to acquaint students with the mechanisms that direct the development of multicellular organisms from a single cell. The course covers the fundamental processes operating during embryonic development including cellular differentiation, development of specialized tissues, morphogenesis, and organogenesis at the cellular and molecular levels. Special attention will be on the understanding of key experiments that contributed to the current knowledge of the basic principles implicated in the development of the organism. Laboratory includes examination of various developmental biology aspects at the molecular, cellular and morphological levels.

**BIOL 341/3510 - Ecology (3 cr. + 1 cr lab)****Prerequisites**

BIOL 1012, CHEM 1005 , PHYS 1011 .

**Description**

Ecology is the study of the distribution and abundance of organisms and the interactions with the environment that determine those distributions and abundances. The class discusses ecological interactions and mechanisms at organismal, population, community, and ecosystem levels. Chemical, physical, evolutionary, and human-driven factors that influence the natural world are explained. A laboratory emphasizing collection, analysis and interpretation of data is included and intended to expose students to a broad array of ecological techniques.

**BIOL 305/3540 - Environmental Biology (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 3510 or instructor's consent.

**Description**

Examination of degradation and pollution of natural environments. Aspects of soil, water, food, and mineral resources management, waste disposal, energy alternatives, population ecology, and environmental ethics. Laboratory to include field studies of ecosystems, environmental monitoring instrumentation, solar energy techniques, electronic population modeling, techniques used to deal with human consumption of natural resources.

**BIOL 306/3541 - Environmental Biology of the Red Sea (3 cr. + 1 cr. lab)****Prerequisites**

Prerequisites: students must be good swimmers and consent of the instructor.

**Description**

This course is designed to be an interdisciplinary course for students with an interest in coastal and marine environmental issues. Topics covered include marine biology, ecology, geology, paleontology, climatology, and oceanography. Using the Red Sea as a model, students will receive extensive field experience in evaluating the impact of natural phenomena and human activities on coastal and marine environmental planning, management, and monitoring, as well as in the preparation of environmental impact assessments.

**Notes**

Laboratories and field trips to the Red Sea are essential to the course.

**BIOL 345/3542 - GIS For Biologists (4 cr.)****Prerequisites**

Prerequisite: Junior or Senior standing

**Description**

.Geographic Information Systems (GIS) for Biologists is designed to introduce the student to the use and application of computer based mapping and analysis technology to ecological data. The application of GIS technology requires program operation skills, computerization of data and relevant biological information. The course is designed to provide "hands-on" skill development in the use and application of GIS.

**BIOL 360/3600 - Introduction to Bioinformatics (3 cr.)**

**Prerequisites**

Any of the following:

BIOL 2150, BIOL 2230 , BIOL 3280 , CHEM 3015

**Description**

Bioinformatics is the application of computational methods and tools to, retrieve, and analyze large quantities of sequence datasets. The course covers genomic public databases and resources, sequence alignment, protein structure and function prediction, and analysis of microarray gene expression. Concepts of programming for bioinformatics are introduced. The course provides the students with hand-on experience solving practical problems such as characterization of gene interest, identification of differentially expressed genes, prediction of secondary and tertiary structures of proteins, and tracking spatial and temporal dynamics of a virus.

**BIOL 361/3601 - Bioinformatics Tools and Techniques (3 cr.)****Prerequisites**

BIOL 3600 and CSCE 1101

**Description**

This interdisciplinary course is designed for students in biology, computer science, and mathematics to build the most essential concepts and practices for Bioinformatics development using Biopython and R.

**BIOL 399/3910 - Guided Studies in Environmental Sciences (3 cr.)****Description**

Under faculty guidance, students will carry out a project on an environmentally related topic. The students will present their results by submitting a common/individual report or by passing an examination, as determined by the supervisor.

**Cross-listed**

Same asCHEM 3910

**When Offered**

Offered in fall and spring.

**BIOL 411/4150 - Molecular Biology of the Gene (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 2230 and CHEM 2003 or co-requisite.

**Description**

A comprehensive molecular biology course with emphasis on principles, processes and methodologies leading to the formation of central concepts of molecular genetics. Students are presented to the latest models of describing gene structure, genome organization and regulation of gene and protein expression, in eukaryotes and prokaryotes. Current topics such as epigenetics, RNA interference and transgenics are also exposed. Laboratory sessions cover modern techniques in recombinant DNA technology related to gene cloning, protein expression, and omics.

**BIOL 415/4230 - Immunology (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 2230 and CHEM 1005

**Description**

The students are introduced to the basic principles of immunology, including the structure and function of the immune system at the molecular, cellular, tissue, and organ system levels and the processes involved in the host defense against infection. This includes antigen and antibody structure and function, effector mechanisms, complement, major histocompatibility complexes, B-and T-cell receptors, antibody formation and immunity, cytotoxic responses, and regulation of the immune response. Students are also introduced to the applied aspects of immunology, which include immunoassay design, flow cytometry and LUMENIX technology. Special topics are also highlighted and discussed including cancer immunology, immunotherapy, autoimmunity, immunomics and vaccination. Laboratories include practical experience with the anatomy and histology of the lymphoid tissues, cell isolation, identification and serological and cellular immune techniques as well as basic tissue culture techniques.

**BIOL 430/4330 - Tumor Biology (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 2230 and BIOL 2150

**Description**

The course provides a broad knowledge on the biological principals underlying tumor and cancer formation. The basic science of tumor at the cellular, molecular and genetic level will be addressed. The course allows students to understand the fundamental mechanisms that underlie eukaryotic cell multiplication, cell senescence and cell death, including the alterations that are involved in the initiation of uncontrolled growth and carcinogenesis. In addition, cell cycle surveillance mechanisms that ensure genomic integrity and the signaling pathways that regulate tumor development and spread will be covered.

**BIOL 440/4540 - Marine Ecology (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 3510 and CHEM 1005

**Description**

Examination of the ecology of marine ecosystems. Relationship of physical and chemical processes of marine systems to biological processes in both pelagic and benthic regions. Where possible, examples will be drawn from the Mediterranean and the Red seas.

**Notes**

Includes an extended field trip to marine research institute for "hands-on" experience in marine biological research.

**BIOL 445/4541 - Desert Ecology (3 cr. + 1 cr. lab)****Prerequisites**

BIOL 3510

**Description**

Examination of the ecology of desert ecosystems with particular reference to Middle-Eastern deserts. Emphasis is placed on the strategies employed by desert-living organisms which allow them to survive and prosper under desert conditions. Field trips are an integral part of this course.

### **BIOL 460/4690 - Bioinformatics Capstone Seminar I (1 cr.)**

#### **Prerequisites**

Prerequisites or corequisites BIOL 3600 or BIOL 3601

#### **Description**

Students complete a capstone proposal and major elements of the capstone project for the Minor in Bioinformatics. Bioinformatics Capstone Seminar I will focus on the development of the problem statement and the research questions that will be answered in the Capstone. Emphasis will be placed on the development of a sound rationale for the project, justified by a thorough literature review.

### **BIOL 461/4691 - Bioinformatics Capstone Seminar II (2 cr.)**

#### **Prerequisites**

BIOL 4690

#### **Description**

In this project-based course, the students tackle a real-life biological or biomedical problem using a computational approach where they utilize existing bioinformatics resources and/or develop novel tools. The students are required to deliver a written report and an oral presentation describing the problem, methodology/approach, contribution, and results. This course is available only for students enrolled in the Minor in Bioinformatics program.

### **BIOL 410/4910 - Guided Studies in Biology (1-4 cr.)**

#### **Prerequisites**

Prerequisite: consent of the instructor.

#### **Description**

Under the guidance of a faculty member and with the approval of the Chair, the student undertakes readings or research on a specific topic in biology. The student should demonstrate achievements by presenting results, submitting a report, or passing an examination as determined by the supervisor.

### **BIOL 408/4930 - Selected Topics in Biology (1-4 cr.)**

#### **Prerequisites**

Prerequisite: consent of the instructor.

#### **Description**

Topics in biology chosen according to the special interests of the student and faculty.

#### **Repeatable**

May be repeated for credit more than once if the content changes.



### **BIOL 495/4980 - Senior Research Thesis (1 cr.)**

#### **Prerequisites**

Senior standing in biology.

#### **Description**

Students select a research topic according to their field of interest and the availability of advisers and facilities. A research proposal is submitted to include a literature review on the topic and the design of a laboratory and/or field investigation.

#### **When Offered**

Offered in fall

### **BIOL 496/4981 - Seminar in Biology (2 cr.)**

#### **Prerequisites**

BIOL 4980

#### **Description**

The senior research thesis project is executed and presented in the form of an oral presentation and a poster session in the annual biology department senior thesis conference. A final report, written similar to an original research manuscript, to include the execution, results and conclusion of the project will be submitted.

#### **When Offered**

Offered in spring.

### **BIOT 501/5201 - Biochemistry (3 cr.)**

#### **Description**

A basic course introducing the student to chemical bonds, structure of biomolecules, the structure and function of cellular components, protein structure and folding, carbohydrates metabolism, fatty acids oxidation, the kinetics of enzyme-catalyzed reactions, cellular metabolism, energy production, cellular regulatory processes, signal transduction cascades, and photosynthesis.

#### **Cross-listed**

Same as CHEM 5201.

### **BIOT 502/5202 - Cell and Molecular Biology (3 cr.)**

#### **Description**

This course is designed to introduce the student to structure and function of the basic unit of life, the cell. This includes organelle biogenesis, cytoskeleton and cell motility, protein and lipid trafficking, membrane and ion transport, energy flow within the cell, cell cycle, division, and programmed cell death. In addition, to the passage of information from gene to protein will be addressed.

### **BIOT 503/5203 - Biotechnology (3 cr.)**

**Prerequisites**

BIOT 5201 and BIOT 5202

**Description**

This course, taught by a team of instructors, covers different areas of biotechnology. This course introduces students to the different aspects of the biotechnology revolution including principles of recombinant DNA technology, protein engineering, directed mutagenesis, manipulation of gene expression, microbial synthesis of biologics, biomass utilization, large scale production of proteins, transgenic animals, and the human genome project. In addition, this course introduces students to bioinformatics and bioengineering.

**BIOT 504/5204 - Experimental Biotechnology (3 cr.)****Prerequisites**

BIOT 5203

**Description**

This course consists of two class periods and one three-hour lab period. It introduces students to the experimental methods used in investigation and research in biotechnology applications. The laboratory section will provide students with hands-on experimentations in major techniques in molecular biology such as DNA and RNA isolation, protein purification, DNA and protein electrophoresis, nucleic acid hybridization and polymerase chain reaction.

**BIOT 505/5205 - Basics of Bioentrepreneurship (3 cr.)****Description**

This course covers four modules: business aspects of biotechnology, regulatory issues, patenting biotechnology inventions, and bioethics.

**BIOT 521/5206 - Fundamentals of Bioinformatics (3 cr.)****Prerequisites**

Prerequisites: Familiarity with molecular biology, calculus, basic probability and statistics.

**Description**

This course should introduce students to the fundamental theories and practices of bioinformatics. Lectures should focus on the basic knowledge required in this field, including the need for databases, access to genome information, sources of data, and tools for data mining. The course should also cover identification of both lower order and higher order informational patterns in DNA and approaches to linking genome data to information on gene function. Emphasis will be placed on how to use the databases and tools. Students should use the PERL programming language in this course.

**BIOT 531/5207 - Molecular Diagnosis (3 cr.)****Description**

Topics include diagnosis of genetic disorders, infectious diseases, malignant diseases, and forensic applications such as paternity testing, DNA fingerprinting. Aspects of quality control, quality assurance, regulatory issues, and intellectual properties will be also covered.

### **BIOT 541/5208 - Molecular Genetics (3 cr.)**

#### **Description**

The course introduces genetics studies in molecular biotechnology; introduction to Mendalian genetics, eukaryotic gene regulation, genome project and model organisms utilized in research studies, cytogenetics, cellular genomic instability in carcinogenesis and molecular genetic based therapeutic approaches.

### **BIOT 543/5210 - Microbial Biotechnology (3 cr.)**

#### **Description**

The course introduces current advances in bacteriology, mycology and virology. This covers from medical applications, environmental application of microbes to microbial quality control and assurance in biotechnology products. In addition topics include the use of microbes in recombinant DNA technology, protein production in prokaryotes, fermentation technology, antimicrobial peptides and its applications in medical microbiology.

### **BIOT 511/5211 - Bioengineering (3 cr.)**

#### **Description**

The application of the concepts and methods of the physical sciences and mathematics in an engineering approach to problems in the life sciences.

### **BIOT 571/5271 - Bionanotechnology (3 cr.)**

#### **Description**

This course covers the use of various nanostructures for ultrasensitive detection of DNA, bacteria, and viruses. Recent techniques for detection of single biomolecules that offers superior advantages over the conventional bulk measurements will also be presented. This course will also cover the use of different nanoparticles such as nanocrystals and gold nanoparticles for optical imaging, as hyperthermia agents for cancer therapy, and the development of smart drug delivery nanocarriers.

#### **Cross-listed**

Same as NANO 5271

### **BIOT 580/5910 - Independent Study In Biotechnology (3 cr.)**

#### **Description**

Independent study in various problem areas of biotechnology may be assigned to individual students or to groups. Readings assigned and frequent consultations held.

#### **Notes**

Students may sign up for up to 3 credits towards fulfilling M.Sc. requirements.

### **BIOT 551/5930 - Selected Topics in Biotechnology (3 cr.)**

**Prerequisites**

Pre-requisite: consent of instructor, graduate standing.

**Description**

Topics chosen according to special interests of faculty and students.

**Repeatable**

May be repeated for credit more than once if content changes.

**BIOT 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)****Prerequisites**

SCI 5940

**Description**

Consultation on problems related to student thesis.

**Notes**

Must be taken twice for a total of 6 credits.

**BIOT 604/6204 - Model Systems in Cancer Research (2 cr. + 1 cr. lab)****Prerequisites**

BIOT 5203 or BIOT 5204 .

**Description**

This course exposes graduate students to a powerful tool, cell lines, for research. Cell lines are commonly used in many fields of laboratory research mainly as in vitro models in cancer research. Topics covered in class include but not limited to the biology, epidemiology, and molecular mechanisms of cancer including genetic variants, role of microRNA and epigenetic gene deregulation. Students, throughout the semester, will develop an understanding of the molecular events underlying the development of human cancer through examining primary literature related to the current knowledge of cancer biology. The course includes a laboratory component exploring a range of techniques used in the study of cancer biology.

**BIOT 620/6206 - Computational Genomics and Transcriptomics (3 cr.)****Prerequisites**

BIOT 5206

**Description**

The course is designed to provide graduate students with the essential concepts and skills for processing, analyzing, and visualizing biological data generated by modern high-throughput transcriptomic and genomic technologies such as microarray and next-generation sequencing. The open-source statistical platform R and the BioConductor package will be used throughout the course for the practical sessions. The course will focus on how to extract meaningful information from microarray and RNA-Seq data (e.g., differentially expressed genes, alternative splice forms, and polymorphism). Different data visualization methods will be covered from simple summarizing graphs to interaction networks of cellular elements. Practical exercises will use publically published data and simulated data with applications crossing from cancer genomics to environmental genomics. Target audience is biomedical and

computational sciences graduate students and postdoctoral researchers.

**When Offered**

Offered in fall.

**BIOT 621/6207 - Systems and Computational Biology (3 cr.)**

**Description**

Systems biology is an interdisciplinary study field that focuses on complex interactions in biological systems. A major goal of systems biology is the modeling and discovery of emergent properties, properties of a system whose theoretical description is only possible using techniques, which fall under the remit of systems biology. The course targets graduate students from various scientific backgrounds. This course aims to provide hands-on experience in computational systems biology by combining experimental data and mathematical modeling with emphasis on modeling of cellular pathways. Potential biomedical and biotechnological applications are introduced.

**When Offered**

Offered in fall.

**BIOT 601/6930 - Current Topics in Biotechnology (3 cr.)**

**Description**

This course provides a comprehensive and thorough understanding of recent trends in biotechnology research and development. Frontier areas in biotechnological applications as bioremediation, genetically modified organisms, molecular medicine and nano-biotechnology will be addressed.

**BIOT 602/6931 - Reading and Conference Course (3 cr.)**

**Description**

Contemporary biotechnology topics, addressed from current primary literature will be discussed. Dogmas and disputes in biological, medical and/or agricultural sciences will be addressed to generate student discussions.

**BIOT 699/6980 - Research Guidance Dissertation (3 cr.)**

**Description**

Consultation on problems related to student thesis. To be taken 11 times for credit.

**BADM 203/2001 - Introduction to Business (3 cr.)**

**Description**

The course is designed to be an introductory course for students with no prior knowledge in business. The course starts by defining the business organization and its role in society as well as entrepreneurship and its role in the economy. The course then covers some of the business functions including research and development, marketing, production, finance. The four basic functions of a manager, namely planning, organizing, leading and controlling are also introduced. The ethical and social responsibility of business is emphasized. The course is meant to give students who

are considering majoring or minoring in Business or Entrepreneurship an introductory overview about the field , that gives a practical and integrated view of the profession and the field of study.

### **BADM 301/3002 - International Business (3 cr.)**

#### **Prerequisites**

MGMT 3201 or BADM 2001 along with MKTG 2101

#### **Description**

The social, cultural, political, legal, and technological environment of international business. The theoretical relationship underlying international business transactions and the integration of functional activities in international firms.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Enrollment in this course is limited. Priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students need it as collateral requirement in other major, and students who have declared business administration as a minor.

### **BADM 300/3003 - Business Environment and Ethics (3 cr.)**

#### **Prerequisites**

BADM 2001 or MGMT 3201

#### **Description**

Perspectives on the business environment and the ethical issues facing business. Organizational responses to environmental and ethical issues. Social responsibility of business firms.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Enrollment in this course is limited. Priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students need it as collateral requirement in other major, and students who have declared business administration as a minor.

### **BADM 480/4001 - Business Planning and Strategy (3 cr.)**

#### **Prerequisites**

All BBA Business Core courses and graduating senior standing.

#### **Description**

A capstone course, which integrates all business functions. Emphasis is on developing business strategies, discussing different levels of strategies, and developing a business plan for organizations.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Enrollment in this course is limited. Priority is given to students seeking the Bachelor of Business Administration

degree or the Bachelor of Accounting degree, students need it as collateral requirement in other major, and students who have declared business administration as a minor.

### **BADM 000/4999 - Internship and Assessment (0 cr.)**

#### **Prerequisites**

Junior standing

#### **Description**

This course offers business students an opportunity to complement their academic studies with practical application and demonstrate knowledge attained in areas of global awareness and responsible citizenship.

Course will be graded on pass/fail basis.

### **BADM 000/5310 - Strategic Management (3 cr.)**

#### **Prerequisites**

All MBA Foundation Courses

#### **Description**

This course provides a framework through which core business skills acquired from the foundational courses are integrated together. Such integration replicates how the different business functions are interrelated and ultimately reflected in the strategic development of the organization. The course addresses two central questions for any business entity; where to compete and how to compete. Participants learn effective means by which a business entity could harness its resources in order to translate a well designed strategy into superior performance at all organizational levels.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

This is the capstone course for the MBA program.

### **BADM 000/5401 - Business Consultancy (3 cr.)**

#### **Prerequisites**

Consent of Instructor.

#### **Description**

This course provides MBA students with a platform to apply and practice the multidisciplinary business competencies they acquired throughout the program within a comprehensive and practical context. A major component of the course will be a graduation consultancy project offering business solutions for real established companies or developing a business plan for a startup. Students will also be coached on how to professionally communicate their business solutions as consultants. Skills acquired through this course will be augmented by the extensive use of cases covering a variety of business problems, including but not limited to growth strategy, international and regional expansion, entrepreneurship, family business challenges, organizational restructuring, business transformation, mergers & acquisitions, and operational efficiency.

### **AIAS 411/4101 - Modern Standard Arabic (4 cr.)**

**Description**

This course integrates the four language skills to help students develop their ability to produce and comprehend both oral and written discourse at the advanced/advanced high level. The material addresses linguistic needs at this level and provides students with opportunities to further develop their understanding of the various aspects of Egyptian culture.

**When Offered**

Offered in summer.

**AIAS 401/4301 - Egyptian Colloquial Arabic (4 cr.)****Description**

This course further develops students' skills in Egyptian colloquial Arabic in general while emphasizing the shared features between ECA and MSA. The course concentrates on increasing students' vocabulary and command of syntax, with a higher level of fluency. The material designed to train students to emulate the speech of educated native speakers in a wide range of social situations.

**When Offered**

Offered in summer.

**AIAS 531/5121 - Reading, Writing And Vocabulary Building (5 cr.)****Description**

This course fosters and further develops the student's ability to read long, authentic texts on a wide range of topics with minimal dependency on the dictionary. Students are trained to extend their reading strategies and knowledge of different genres and styles. Special emphasis is placed upon vocabulary building and the idiomatic use Arabic. The writing component is integrated whereby students employ and manipulate syntactic and morphological structures studied in the reading component, in addition to various cohesive devices, to produce complex sentences at the paragraph and text level, according to the mores of connected Arabic written discourse.

**When Offered**

Offered in fall.

**AIAS 521/5151 - Listening And Speaking (3 cr.)****Description**

This course further develops students' skill in comprehending large chunks of authentic spoken MSA in different forms of discourse (reports, interviews, debates, etc.). It integrates listening and speaking skills by training students to carry out discussion on various topics of general and personal interest. The course includes a number of live lectures given by specialists in different fields of interests.

**When Offered**

Offered in fall.

**AIAS 522/5152 - Academic Listening and Speaking (3 cr.)****Prerequisites**

AIAS 4101 and AIAS 5151



**Description**

This course fosters and further develops the students' ability to understand the main ideas and most details of connected academic and discourse in a variety of fields. It does so by teaching strategies to sustain both comprehension and delivery of propositionally and linguistically complex extended aural/oral discourse. These include training students to recognize and use cohesive devices signaling the sequence of thought in a given text, enabling them to follow MSA-ECA code-switching and code-mixing patterns, as well as sensitizing them to the socio-cultural nuances embedded in the spoken message.

**When Offered**

Offered in spring.

**AIAS 551/5201 - Advanced Translation (3 cr.)**

**Description**

This course fosters and develops students' skills in translating written texts of different genres. Attention is given to points of contrast, idiomatic usage, and semantic fields of corresponding vocabulary in English and Arabic. Most work is done on translating from Arabic into English, with special attention given to developing the skills necessary for the preservation of the finer nuances of meaning when rendering a text from one language to another.

**When Offered**

Offered in spring.

**AIAS 552/5261 - Advanced Media (3 cr.)**

**Description**

This course further develops the students' critical reading skills of linguistically and conceptually complex texts in Arabic printed media. It does so by exposing the students to different text types on a variety of topics, many outside their respective immediate spheres of interest or specialization. It encourages learners to make inferences based on comprehension of the facts presented in a text through sensitizing them to the socio-cultural nuances embedded in the written message. The course also focuses on vocabulary building and trains learners to recognize the special stylistic properties of media language.

**When Offered**

Offered in spring.

**AIAS 541/5271 - Advanced Writing (3 cr.)**

**Description**

This course fosters and develops students' ability to write, with a high degree of precision and detail, on a variety of academic topics. It also trains them to observe the well-defined rules of Arabic letter-writing. The course teaches the students to write extended research papers, reports and essays, performing various language functions beyond descriptions, comparisons etc., such as argumentation, hypothesizing, refutation etc. Students are trained to appraise samples of authentic written material and model their own written production on them, demonstrating a solid command of grammar (syntax and morphology), vocabulary use, spelling, cohesive devices and general stylistic norms of Arabic discourse.

**When Offered**

Offered in spring

### **AIAS 501/5301 - Egyptian Colloquial Arabic (3 cr.)**

#### **Description**

This course further develops students' skill to communicate in Egyptian colloquial. It concentrates on complex vocabulary and syntax and enables students to communicate with native speakers in a wide range of situations with high level of accuracy and fluency. Special emphasis is placed upon educated Egyptian Arabic as well as appropriateness of speech, and cultural competency.

#### **When Offered**

Offered in fall.

### **AIAS 502/5411 - Advanced Egyptian Colloquial Arabic (3 cr.)**

#### **Description**

This course further develops students' ability to communicate with native speakers in a wide range of situations with a higher degree of accuracy, fluency, and cultural appropriateness. The course trains students to comprehend and discuss topics of general and personal interest. The materials used reflect the dynamics of Egyptian society and focus on educated Egyptian Arabic.

#### **When Offered**

Offered in Spring.

### **AIAS 555/5601 - CASA Students without Borders (3 cr.)**

#### **Description**

This course empowers students to engage in significant learning experiences, develop intercultural competence, work on superior level language proficiency skills, and establish social networks by engaging in the target language community through a project related to their academic and/or professional interests. Each student will design and complete a project related to their academic and/or professional interests that requires their engagement with the target language community. The project will span the fall and spring semesters. Each student will work with a supervising teacher with whom they will write a contract specifying the nature of their project. The project may include volunteer service in a local organization. Projects involving service to the community are highly encouraged.

#### **When Offered**

Offered in spring.

### **AIAS 553/5991 - Selected Topics in Arabic (3 cr.)**

#### **Description**

Each course addresses a different topic of interest to advanced plus/superior Arabic language students. Topics covered are chosen by the students each semester. Some examples of topics include: Arab literature, politics in the Middle East, and religious studies.

#### **When Offered**

Offered in spring.

### **CHEM 103/1003 - Chemistry and Society (3 cr.)**

**Prerequisites**

Not for credit for Science, Engineering and Computer Science Majors

**Description**

Not for credit for Science, Engineering and Computer Science majors. Introduction to basic chemical principles; examples of chemistry in context of daily life and impact on society : nutrition, polymers, colors and pigments, drug development, energy storage, environmental pollution and control, agro chemicals and other related issues

**When Offered**

Offered in fall and spring.

**Notes**

Not for credit for Science, Engineering and Computer Science majors

**CHEM 104/1004 - Man and the Environment (3 cr.)****Description**

Chemistry of the environment. Principles of ecosystem structures, energy flow and elements cycles. Natural resources, Population and Development. Renewable energy. Pollution control and prevention: air pollution, global warming, the depletion of the ozone layer and water pollution. Hazardous substances. Solid waste and recycling. Pests and pest control. Sustainability.

**When Offered**

Offered in fall, spring and occasionally in summer.

**Notes**

Not for credit for science, engineering and computer science majors.

**CHEM 105/1005 - General Chemistry I (3 cr.)****Prerequisites**

Thanawiya Amma Science or equivalent.

**Description**

Chemical stoichiometry; atomic structure and periodicity; an overview of chemical bonding with a discussion of models and theories of covalent bonding; introduction to structure and chemistry of organic compounds.

**When Offered**

Offered in fall, spring and occasionally in summer and winter.

**CHEM 106/1006 - General Chemistry II (3 cr.)****Prerequisites**

CHEM 1005

**Description**

Gases; thermochemistry; liquids and solids, properties of solutions; introduction to chemical kinetics, chemical equilibria, environmental pollution.

**When Offered**

Offered in fall and spring.

**CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)****Prerequisites**

Thanawiya Amma Science or equivalent

**Description**

Selected experiments in inorganic and organic chemistry.

**Hours**

One three-hour lab period

**When Offered**

Offered in fall and spring and occasionally in summer and winter.

**CHEM 116L/1016 - General Chemistry Laboratory (1 cr.)****Prerequisites**

CHEM 1015

**Description**

Semi-micro qualitative analysis of selected salts and mixtures

**Hours**

One three-hour laboratory period.

**When Offered**

Offered in fall and spring.

**CHEM 199/1930 - Selected Topic for Core Curriculum (3 cr.)****Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**CHEM 203/2003 - Organic Chemistry I (3 cr.)****Prerequisites**

CHEM 1005

**Description**

Aliphatic and aromatic hydrocarbons, stereochemistry and conformational analysis, ionic and free-radical substitution and addition reactions.

**When Offered**

Offered in fall.

## **CHEM 205/2005 - Environmental Analytical Chemistry (3 cr.)**

### **Prerequisites**

CHEM 1006

### **Description**

Introduction; analytical environmental data: assessment and interpretation, titrimetry, chromatography, atomic spectrometry, mass spectrometry, potentiometric techniques, thermal techniques. Specific applications to the environment.

### **Notes**

This course is not available for credit for students who take CHEM 3011 . Some laboratory demonstrations will be provided.

## **CHEM 206/2006 - Analytical Chemistry I (2 cr.)**

### **Prerequisites**

CHEM 1006 and to be taken concurrently with CHEM 2016

### **Description**

Ionic equilibria: solubility, activity and ionic strength. Gravimetry: nucleation and crystal growth, methodology, colloids. Acid-base, complexation, oxidation-reduction and precipitation equilibria and titrations. Introduction to separations in analytical chemistry.

### **When Offered**

Offered in spring.

## **CHEM 207/2007 - Chemical Industries (3 cr.)**

### **Prerequisites**

CHEM 1006 .

### **Description**

An overview of major chemical industries, global and local production, major products and their production, selected from: metals petrochemicals, agrochemicals, dyes, pharmaceuticals, plastics, glass, ceramics, cement. Quality assurance.

### **When Offered**

Offered in fall.

### **Notes**

Field trips to local industries.

## **CHEM 216L/2016 - Volumetric and Gravimetric Analysis (2 cr)**

### **Prerequisites**

CHEM 1016 and concurrent with CHEM 2006

**Description**

Acid-base, oxidation-reduction, complexometric and precipitation titrations; gravimetric analysis; potentiometric titrations.

**Hours**

Two three-hour periods.

**When Offered**

Offered in spring.

**CHEM 220/2020 - Introduction to Food Science and Technology (3 cr.)****Prerequisites**

CHEM 1005 .

**Description**

An overview of the interdisciplinary nature of food science. The chemical and physical properties of foods. An overview of food regulation. Concepts and applications of food chemistry, food analysis, food processing, biotechnology, sensory evaluation, food packaging, food product development and food engineering. Global food situation with an emphasis on the Egyptian context.

**CHEM 312/3002 - Archaeological Chemistry I (3 cr.)****Prerequisites**

CHEM 1006 .

**Description**

Characterization of metals, minerals, pigments, glass, stone, dyes. Dating techniques: thermoluminescence, radiocarbon, amino-acid, Obsidian hydration and potassium/argon. Introduction to Mossbauer spectroscopy and neutron activation analysis.

**When Offered**

Offered occasionally.

**CHEM 303/3003 - Thermodynamics (3 cr.)****Prerequisites**

MACT 2123 and CHEM 1005.

**Description**

Gas laws, state variables and equations of state, energy and the first law, thermochemistry; entropy and the second and third laws; spontaneity and equilibrium; physical transformation of pure substances, phase rule, phase equilibria.

**When Offered**

Offered in fall.

**CHEM 304/3004 - Physical Chemistry I (3 cr.)**

**Prerequisites**

CHEM 3003 , PHYS 1021 and concurrent with CHEM 3014 .

**Description**

Chemical potential and equilibria, solutions and colligative properties, electrochemical systems.

**When Offered**

Offered in spring.

**CHEM 000/3005 - Principles of Chemical Modeling (3 cr.)****Prerequisites**

CHEM 3003 and CSCE 1001 .

**Description**

Introduction to computational chemistry techniques and their applications to chemical and biochemical areas; Principles of Density Functional Theory; Thermochemistry modeling in Chemistry; Generating and Analyzing a Molecular Dynamics Trajectory; Mass transport in material science; Basics of Monte Carlo Sampling Techniques; Binding Energies in Biochemistry; Combined QM/MM Simulation; Enzyme Reaction Mechanism.

**CHEM 306/3006 - Organic Chemistry II (3 cr.)****Prerequisites**

CHEM 2003

**Description**

Stereochemistry, aromaticity, electrophilic aromatic substitution; spectroscopy and structure; SN1, SN2, E1, and E2 reactions.

**When Offered**

Offered in spring.

**CHEM 309/3009 - Inorganic Chemistry I (3 cr.)****Prerequisites**

CHEM 1006

**Description**

Basic principles of quantum mechanics as applied to hydrogenic and polyelectron atoms, atomic orbitals, electron-electron interactions, atomic parameters. Molecular orbital theory as applied to diatomic and polyatomic molecules and to solids, bond properties, molecular shape and symmetry, introduction to applications of molecular symmetry in chemistry. The structures of simple solids; acids & bases; oxidation-reduction. Overview of methods of molecular structure determination.

**When Offered**

Offered in fall.

### **CHEM 310L/3010 - Organic Chemistry I Laboratory (1 cr.)**

**Prerequisites**

CHEM 1016 and CHEM 3006 .

**Description**

Characterization of organic compounds by classification tests.

**When Offered**

Offered in fall.

### **CHEM 311/3011 - Analytical Chemistry II (3 cr.)**

**Prerequisites**

CHEM 2006 and CHEM 2016.

**Description**

Instrumental methods of chemical analysis: visible, ultraviolet, and infrared absorption spectroscopy, atomic absorption and emission spectrometry, fluorimetry, X-ray diffraction and fluorescence; mass spectrometry, gas chromatography, thermometric and electrochemical methods.

**Hours**

Two class periods and one three-hour lab period.

**When Offered**

Offered in fall.

### **CHEM 313L/3013 - Thermodynamics Laboratory (1 cr.)**

**Prerequisites**

CHEM 1006 ,CHEM 2016 and concurrent with CHEM 3003 .

**Description**

Experiments in physical chemistry, thermodynamics and error analyses.

**When Offered**

Offered in fall.

### **CHEM 314L/3014 - Physical Chemistry I Laboratory (1 cr.)**

**Prerequisites**

CHEM 3013 and concurrent with CHEM 3004 .

**Description**

Experiments in electrochemistry. One three-hour lab period.

**When Offered**

Offered in spring.



### **CHEM 315/3015 - Biochemistry (3 cr.)**

**Prerequisites**

CHEM 3006

**Description**

The living cell, structure of biomolecules and their relationship to biological functions; biochemical energetics; metabolism of major cellular components and their relationship to clinical conditions.

**Cross-listed**

Same as BIOL 3280.

**Hours**

Two class periods and one three hour lab period.

**When Offered**

Offered in fall.

### **CHEM 316L/3016 - Organic Chemistry II Laboratory (1 cr.)**

**Prerequisites**

CHEM 3010

**Description**

Systematic identification of organic compounds, analysis of mixtures (qualitative and quantitative).

**When Offered**

Offered in spring.

### **CHEM 318L/3018 - Inorganic Chemistry Laboratory (1 cr.)**

**Prerequisites**

CHEM 2016

**Description**

Preparations, reactions, and characterization of some inorganic compounds; ion-exchange; chromatography; measurements of stability constants.

**When Offered**

Offered in fall.

### **CHEM 320/3020 - Food Chemistry (3 cr.)**

**Prerequisites**

CHEM 1005 .

**Description**

This course covers the chemistry of food constituents, the changes these constituents undergo during processing, the chemistry and technology of meat and meat products, dairy products, fruit and vegetables, cereal products and

alcoholic/non-alcoholic beverages. It also covers the basic chemistry of color, odor and taste (sensory properties of foodstuffs).

### **CHEM 325/3025 - Clinical Chemistry I (3 cr.)**

#### **Prerequisites**

CHEM 3011 or concurrently, CHEM 3013 or consent of instructor

#### **Description**

Module 1: Principles of laboratory techniques: spectrophotometry, chromatography, mass spectrometry, radioisotopes, electrophoresis, immunochemical techniques, electrochemistry, point-of-care devices, and lab automation. Module 2: Chemometrics: statistical procedures, selection and interpretation of lab procedures, reference intervals, clinical decision limits, quality control and method evaluation. Module 3: Laboratory management, quality and informatics.

#### **Hours**

Two class periods and one three-hour lab period.

#### **When Offered**

Offered in spring.

### **CHEM 307/3522 - Production Basics for Chemical Industries (3 cr.)**

#### **Prerequisites**

CHEM 1006 .

#### **Description**

An overview of planning scale-up from laboratory to pilot plant, to production plant, with a focus on models for determining profitability of new projects, new products and new processes. Selected topics from: process design, plant layout and flowsheets, material and energy balances, mass and heat transfer, reactor kinetics, chemical economics, process design strategies and waste management.

#### **When Offered**

Offered in fall.

### **CHEM 000/3523 - Chemistry of Petrochemical Processes**

#### **Prerequisites**

CHEM 3003

#### **Description**

Crude oil processing and production of basic, intermediate, and final petrochemicals; ethylene, propylene, butenes, benzene, toluene, xylene; non-hydrocarbon intermediates; higher paraffin-based chemicals; C4 olefins and diolefin-based chemicals; process technologies in petrochemical industries including thermal and catalytic cracking, reforming, dehydrogenation

#### **When Offered**

Offered in Spring

### **CHEM 399/3910 - Guided Studies in Environmental Sciences (3 cr.)**

**Description**

Under faculty guidance, the student(s) will carry out a group individual project on an environmental related topic. The student(s) will present their results by submitting a common/individual report or by passing an examination, as determined by the supervisor.

**Cross-listed**

Same as BIOL 3910.

**When Offered**

Offered in fall and spring.

**CHEM 301/3940 - Seminar in Science and Technology (1 cr.)****Prerequisites**

Junior standing

**Description**

Weekly one-hour seminars in different areas of science and technology with emphasis on chemistry to be given by faculty and invited speakers from industries and other scientific communities.

**When Offered**

Offered occasionally

**CHEM 402/4003 - Physical Chemistry II (3 cr.)****Prerequisites**

CHEM 3004 , MACT 2141 and concurrent with CHEM 4013 .

**Description**

The kinetic theory of gases, chemical kinetics and dynamics, photochemistry, homogeneous and heterogeneous catalysis, surface chemistry including adsorption.

**When Offered**

Offered in fall.

**CHEM 403/4004 - Physical Chemistry III (3 cr.)****Prerequisites**

CHEM 3004 (or concurrent) and PHYS 2221 .

**Description**

Basic concepts and theory of quantum mechanics, applications to atomic and molecular spectroscopy; introduction to statistical thermodynamics.

**When Offered**

Offered in spring.

**CHEM 406/4006 - Organic Chemistry III (3 cr.)**

**Prerequisites**

CHEM 3006

**Description**

A continuation of the chemistry of monofunctional and polyfunctional compounds, including the chemistry of carbanions, condensation reactions, nucleophilic addition and multistep syntheses.

**When Offered**

Offered in spring.

**CHEM 407/4007 - Food Processing and Preservation (3 cr.)****Prerequisites**

CHEM 1006 .

**Description**

An overview of fruit, vegetable, cereal, dairy, seafood and meat science and technology. The principles of food processes, including refrigeration, freezing, heat processing, dehydration, fermentation, high pressure, irradiation, pulsed electric field and packaging. Commercial preservation technologies used in the preservation of minimally processed and processed foods.

**When Offered**

Offered in fall.

**CHEM 408/4008 - Inorganic Chemistry II (3 cr.)****Prerequisites**

CHEM 3009

**Description**

Coordination chemistry, transition metals and their complexes, theories of metal-ligand bonding, complexes of pi-acceptor ligands and organometallic compounds, reaction mechanisms of d-block complexes. Selected topics in nanochemistry, solid state chemistry, bioinorganic chemistry and/ or catalysis.

**When Offered**

Offered in spring.

**CHEM 412L/4013 - Physical Chemistry II Laboratory (1 cr.)****Prerequisites**

CHEM 3014 and concurrent with CHEM 4003 .

**Description**

Experiments in physical chemistry emphasizing chemical kinetics.

**Hours**

One three-hour lab period.

**When Offered**

Offered in fall.

**CHEM 416L/4016 - Organic Syntheses (2 cr.)****Prerequisites**

CHEM 3016 and CHEM 4006 .

**Description**

Organic Synthesis of compounds through one step or multistep, using different techniques for separation and purification. Several spectroscopic tools, (MS, IR, NMR & C<sup>13</sup>) are used to confirm the structure of synthesized compounds.

**When Offered**

Offered in fall.

**CHEM 425/4025 - Clinical Chemistry II (3 cr.)****Prerequisites**

CHEM 3025

**Description**

Module 1. Clinical analytes: amino acids, proteins, nucleic acids, lipids, carbohydrates, electrolytes, clinical enzymology, clinical toxicology, tumor markers, therapeutic drug monitoring, and vitamins. Module 2. Pathophysiology: hepatic, cardiac, renal, gastric, and pancreatic diseases, acid-base disorders, endocrine function, bone disease, organ transplantation, pregnancy and fetal development, and biochemical aspects of hematology.

**Hours**

Two class periods and one three-hour lab period

**When Offered**

Offered in fall.

**CHEM 430L/4030 - Advanced Practical Organic Chemistry (3 cr.)****Prerequisites**

CHEM 4016 and consent of instructor.

**Description**

Advanced organic multistep syntheses, identification of products by spectroscopy, semimicro quantitative determination of organic compounds.

**When Offered**

Offered occasionally.

**CHEM 435/4035 - Advanced Organic Chemistry (3 cr.)****Prerequisites**

CHEM 4006 consent of instructor.

**Description**

Specialized topics in the field of organic chemistry chosen according to specific interests; e.g. polynuclear aromatic compounds, heterocyclic compounds, carbohydrates, proteins, nucleic acids, physical organic chemistry.

**When Offered**

Offered occasionally.

**CHEM 440/4040 - Molecular Symmetry and Applications (3 cr.)****Prerequisites**

CHEM 3009 and consent of instructor.

**Description**

Molecular symmetry: basic principles and applications, molecular vibrations, construction of hybrid orbitals, delocalized molecular orbitals with emphasis on pi orbitals, ligand field spectra and construction of energy-level diagrams.

**When Offered**

Offered occasionally.

**CHEM 000/4524 - Polymer Chemistry and Technology (3 cr.)****Prerequisites**

(CHEM 3003 and CHEM 3522) or equivalent

**Description**

Mechanisms and kinetics of polymerization reactions of monomers; principles, limitations and advantages of various methods for molecular weight characterization; structure - physical properties relationship; specific catalysis for the control of polymeric stereo-specificity and morphology; polymer production and processing techniques

**When Offered**

Offered in Fall

**CHEM 000/4900 - Industrial Internship (0 credits)****Prerequisites**

Senior Standing

**Description**

Each student is required to spend a minimum of four weeks in Petrochemical Industrial Training in Egypt or abroad. A complete account of the experience is reported, presented and evaluated.

**CHEM 444/4910 - Independent Study ( 1-3cr.)****Prerequisites**

Prerequisite: consent of instructor, senior standing.

**Description**

In exceptional circumstances some senior Chemistry students, with departmental approval, may arrange to study a selected topic outside of the regular course offerings. The student and faculty member will select a topic of mutual interest and the student will be guided in research and readings. The student would demonstrate achievement either by submitting a report or passing an examination, according to the decision of the supervisor.

**Repeatable**

May be taken more than once if content changes.

**Notes**

A student may earn up to a total of three credits.

**CHEM 414/4930 - Selected Topics in Chemistry (1-3 cr.)**

**Prerequisites**

Prerequisite: consent of instructor.

**Description**

Topics chosen according to special interests of faculty and students..

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit more than once if content changes

**CHEM 495/4980 - Senior Thesis I (1 cr.)**

**Prerequisites**

Senior standing.

**Description**

A capstone course. Each student selects a topic in his/her field of interest under the supervision of a faculty member. In this course, the student prepares an outline, assembles a bibliography, and develops a study plan under the supervision of the faculty advisor to be followed in preparing his/her project. The students are also expected to compose a theoretical background section that illustrates his/her knowledge of the range of equipment and techniques that will be used in obtaining and reporting the results of research. Each student is expected to deliver a seminar by the end of the semester that provides an overview of the research topic, anticipated outcomes and evaluation criteria.

**When Offered**

Offered in fall and spring.

**Notes**

May be substituted by a 400-level course in chemistry or other sciences with the approval of the department.

**CHEM 496/4981 - Senior Thesis II (2 cr.)**

**Prerequisites**

CHEM 4980 .

**Description**

A capstone course. Students will embark in this course on performing the actual work on the project topics selected in CHEM 4980. After completion of this research study, the students are expected to compose in accordance with the departmental guidelines, a full thesis and give an oral presentation of the main results achieved.

### **CHEM 000/5200 - Environmental Physical Chemistry (3 cr.)**

#### **Description**

Catalytic processes of ozone destruction; rates of free-radical reactions; supercritical gas pressure; fossil fuels and CO<sub>2</sub>; molecular vibrations and energy absorption by greenhouse gases; petroleum refining and fractional distillation; thermochemical production of fuels; environmental problems of nuclear fuel; acid rain; long-range transport of atmospheric pollutants; toxic metals and compounds; oxidation-reduction chemistry in natural waters; water disinfection; activated carbon; the desalination of salty water

### **CHEM 501/5201 - Biochemistry (3 cr.)**

#### **Description**

A basic course introducing the student to chemical bonds, structure of biomolecules, the structure and function of cellular components, protein structure and folding, carbohydrates metabolism, fatty acids oxidation, the kinetics of enzyme-catalyzed reactions, cellular metabolism, energy production, cellular regulatory processes, signal transduction cascades, and photosynthesis.

#### **Cross-listed**

Same as BIOT 5201.

### **CHEM 502/5202 - Organometallics (3 cr.)**

#### **Description**

Structure and properties of different types of organometallic compounds, types of ligands, bonding, reactivity of organotransition metal compounds, applications in synthesis and catalysis.

### **CHEM 503/5203 - Advanced Organic Chemistry (3 cr.)**

#### **Description**

This course discusses important organic classes, concepts, reactions and mechanisms not usually covered in depth in the undergraduate organic courses such as: heterocycles, photochemistry computational chemistry in modern organic chemistry and the art of planning multi-step syntheses.

### **CHEM 504/5204 - Methods of Structure Determination (3 cr.)**

#### **Description**

Structure-properties relationships. Methods of structure determinations: diffraction methods, spectroscopic methods, resonance techniques, ionization-based techniques, magnetometry and other miscellaneous techniques. Case histories will be presented.

### **CHEM 505/5205 - Nanochemistry (3 cr.)**



**Description**

This course introduces students to the basics of chemistry at the nanoscale, and would entail a general introduction to the nano world; physico-chemical considerations for properties at the nanoscale (band structures, typical and useful "nano effects" etc...); basic synthesis and fabrication methods for nano structures (top-down and bottom up approaches).

**Cross-listed**

NANO 5205

**CHEM 000/5206 - Advanced Food Chemistry (3 cr.)****Description**

Chemistry of food constituents, the changes these constituents undergo during processing, the chemistry and technology of meat and meat products, dairy products, fruit and vegetables, cereal products and alcoholic/non-alcoholic beverages, basic chemistry of color, odor and taste (sensory properties of foodstuffs).

**CHEM 511/5211 - Applied Food Microbiology (3 cr.)****Description**

This course consists of two lectures and one laboratory session per week. It is designed to train students on different aspects of food microbiology. It focuses on the biology and practical aspects of both pathogenic microorganisms and useful industrial bacteria associated with foodstuffs. The course also considers topics on food preservation regimes and laboratory methods for the detection of various food-born bacteria. Much emphasis is being placed on practical training via extensive laboratory classes planned in this course. This training involves practical work on both classical and modern methodologies in food microbiology.

**CHEM 512/5212 - Food Safety Assurance (3 cr.)****Prerequisites**

CHEM 5211

**Description**

This course prepares students to participate in food safety monitoring and maintenance in various food industry and governmental health inspection sectors. The course encompasses topics on food-associated hazards and approaches to ensure food safety. In addition to lectures, the course will involve problem-based learning, class discussions and hands-on training on the application of food safety assurance systems. Multiple visits to modern safety units within food processing plants will be organized.

**CHEM 513/5213 - Food Packaging (3 cr.)****Description**

This course covers the principles of Food Packaging including the chemistry and technology of packaging materials (metal, glass, plastics, and paper/paperboard), It will also cover main packaging technologies (Modified Atmosphere Packaging, Aseptic Packaging, Active and Intelligent Packaging, etc.) and technical processes for the production of packaging materials (extrusion, co-extrusion, lamination, high vacuum metallization, etc.). It will stress the significance of the phenomena of migration and permeation in packaging materials and finally it will review the main applications of packaging to basic food commodities.

### **CHEM 514/5214 - Nutritional Evaluation of Food during Processing (3 cr.)**

#### **Description**

The course is designed to provide the students with in-depth information on the principles of food selection and food preparation. This course covers the physical, chemical, and nutritional changes which occur in food during storage, cooking, processing and preservation.

### **CHEM 515/5215 - Food Additives, Contaminants and Legislation (3 cr.)**

#### **Description**

The course discusses the principles and various aspects of food additive utilization. It will train students on how to use analytical techniques to distinguish between "natural" and "artificial" additives.

Regulation and approval of additives for use in foods will be covered.

### **CHEM 516/5216 - Food Fermentation (3 cr.)**

#### **Description**

Food fermentations by microorganisms play central roles in the processing and preservation of foodstuffs. The typical flavor and other sensory characteristics of fermented foods depend on the formation of specific fermentation products. This course covers the study of microorganisms responsible for fermentation, the biochemistry of microbial fermentations and the industrial aspects of the fermentation process. It also seeks to deliver up-to-date knowledge and practical training on various technologies of food fermentation.

### **CHEM 517/5217 - Sensory Evaluation of Food Products (3 cr.)**

#### **Description**

This course consists of two lectures and one laboratory session per week. It investigates the nutritional, chemical, physical, and sensory properties of foods in relation to preparation procedures. It will present sensory characteristics of foods and assessment of color, texture, and flavor. The course will give the student the ability to apply sensory testing of foods, practice different types of sensory tests, and understand errors in sensory testing. It will assess the best environment for sensory testing and procedures of sensory testing, measurements and scales. Statistical analysis of sensory data such as discrimination tests, descriptive tests, hedonic tests, affective tests will also be discussed.

### **CHEM 518/5218 - Functional Foods and Nutraceuticals (3 cr.)**

#### **Description**

Functional foods & nutraceuticals (FFN) and herbal products present some potential to improve the long-term health of the population through disease prevention. The move of FFN into the mainstream is part of the shift towards a preventative approach to health and disease and a move away from relying on pharmaceuticals to treat disease. This course introduces students to the FFN industry with its diversity of natural health products (NHP). Topics will cover classes of FFN and their connection to foods and drugs. Aspects of the development, production, quality control and assurance of FFN will be discussed. The safety and efficacy of individual FFN products are emphasized. Issues regarding the unique regulatory environment of natural health products and their influence on the development and commercialization of these products in global markets will be presented.

**CHEM 519/5219 - Food Analysis (3 cr.)****Description**

This course is designed to introduce students to the theory and application of chemical, physical and instrumental methods of food analysis. Modern separation and instrumental analysis techniques that are used for detection of food constituents (e.g. moisture, ash, nitrogen, protein, lipid, carbohydrate, vitamins, minerals, etc) as well as contaminants (e.g. mycotoxins, pesticide residues, antimicrobial agents, heavy metals, etc) are stressed. Topics will include sample handling, preparation and analysis as well as the evaluation and reporting of data. Key analytical and separation techniques such as spectroscopy, titration, potentiometry, atomic absorption, chromatography and mass spectrometry will also be presented.

**CHEM 000/5220 - Life Cycle Nutrition (3 cr.)****Prerequisites**

CHEM 5201

**Description**

Analysis & application of the physiological, biological and biochemical basis for differences in nutritional requirements throughout the principle stages of the life cycle - pregnancy, infancy, childhood, adolescence, adulthood, older adulthood and the ways in which social & environmental factors influence nutritional status at each stage. This course provides an overview of nutrition during each life stage, commencing in utero, and continuing throughout the life cycle. It will discuss the biology of development, growth, maturation and aging and its impact on nutrition requirements, how to assess diet and nutrition status and how nutritional requirements can be achieved in the context of each major life stage.

**CHEM 000/5221 - Nutrition & Diseases (3 cr.)****Prerequisites**

CHEM 5201 or CHEM 5203

**Description**

The course provides the relationship between diet, nutrition and disease. The course will cover the methodology used to determine dietary, nutritional and body composition techniques and how evidence is gathered to determine the links between diet, nutrition and health. The relationship between diet and nutrition and the prevention and management of specific diseases and conditions such as cardiovascular disease, cancer, diabetes, obesity, gastrointestinal disorders and osteoporosis will be covered in depth. Main topics are: Malnutrition (obesity and undernutrition); metabolic syndrome; diabetes; cardiovascular diseases; food allergies, food intolerance, osteoporosis and cancer.

**CHEM 000/5222 - Clinical Nutrition (3 cr.)****Prerequisites**

CHEM 5201

**Description**

Clinical nutrition aims to provide a thorough grounding in all aspects of clinical nutrition and its application in prevention and disease management. This course reviews the array of assessment tools used in clinical nutrition practice including methodology, application, implications, strengths and limitations. During this course attention goes to various ways by which nutrition can be applied; oral nutrition and supplementations, tube feeding, parenteral

nutrition. Students shall learn when to apply these different nutritional interventions and the pros and cons of the different feeding techniques.

### **CHEM 541/5241 - The Chemistry of Nanostructures (3 cr.)**

#### **Prerequisites**

CHEM 5205

#### **Description**

This course addresses the synthesis and chemical properties of the different categories of nanostructures such as carbon NANObes/nanorods/ etc..., fullerenes, colloids, Self-assembled monolayer structures (SAMs), dendrimers and other macromolecules, oxide and inorganic nanotubes/fibers/rods/etc. For each category examples of applications would be giving to demonstrate the applicability of the properties discussed.

#### **Cross-listed**

NANO 5241

### **CHEM 542/5242 - Nanoelectrochemistry (3 cr.)**

#### **Prerequisites**

CHEM 5205

#### **Description**

This course addresses the fundamentals of electrochemistry, and their application to the synthesis of nanostructures, together with applications (e.g. sensors, fuel cells, batteries, electrolysis, photovoltaic cells, reduction of carbon dioxide, environmental remediation, water disinfection, ect...). Characterization and analysis techniques would also be addressed.

#### **Cross-listed**

NANO 5242

### **CHEM 552/5910 - Independent Study in Chemistry (3 cr.)**

#### **Prerequisites**

Consent of instructor.

#### **Description**

Independent study in various problem areas of biotechnology may be assigned to individual students or to groups. Readings are assigned and frequent consultation held. Students may sign for up to 3 credits towards fulfilling M.Sc. requirements.

### **CHEM 551/5930 - Selected Topics in Chemistry (3 cr.)**

#### **Prerequisites**

Consent of instructor

**Description**

Topics include: polymer science, quantum chemistry and spectroscopy, and molecular symmetry and applications.

**CHEM 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)****Prerequisites**

SCI 5940

**Description**

Consultation on problems related to student thesis. Must be taken twice for a total of 6 credits.

**CHEM 603/6103 - Bioseparation Processes for Food and Pharmaceutical Industries (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

This course deals with the separation processes used in food and pharmaceutical industries for the isolation and purification of biological molecules. The focus is on the science and engineering concepts underlying the separation, as well as the process calculations associated with each bioseparation unit operation. Key topics include principles and design calculations of centrifugation and cell disruption, extraction phase separations and equipment design, absorption equilibrium and column dynamics, chromatography plate theory, chromatography equipment and methods, dynamic scale-up, electric-field based methods, engineering analysis of membrane processes, membrane concentration polarization and fouling, modeling of filtration processes, crystallization and drying operations, and overall process development.

**When Offered**

Offered in fall and spring.

**CHEM 615/6105 - Principles and Applications of Mass Spectrometry (3 cr.)****Prerequisites**

CHEM 5204 or consent of instructor.

**Description**

This course addresses the theory of mass spectrometry and develops the technique as a modern analytical tool to solving research problems in chemistry and biochemistry. It also addresses gas-phase ion chemistry. The course will be delivered in three sections: instrumentation, theory and applications. Topics will include ionization techniques, mass separation techniques and mass analyzers, ion dissociation, ion mobility, in addition it will include sophisticated experimental methods, such as tandem in space and tandem in time mass spectrometry. Mass spectral interpretation will also be covered for various applications, including environmental, food chemistry and medical sciences.

**CHEM 000/6107 - Chemistry of Natural and Synthetic Polymers (3 cr.)****Prerequisites**

**Description**

Synthesis and characterization of natural and synthetic polymers, their applications in drug delivery systems, food and goods storage and packaging, polymer nanocomposites, polymeric membranes.

**CHEM 640/6240 - Nanoporous Materials (3 cr.)****Prerequisites**

NANO 5205

**Description**

Review of the field of nanoporous materials. Synthesis, characterization and surface modification. Adsorption and separation processes, biological and catalytic applications. Nanoporous materials for the removal of pollutants in the gaseous and liquid phases.

**CHEM 000/6910 - Independent Study in Chemistry (3 cr. max.)****Description**

Independent study in various problem areas of Chemistry may be assigned to individual students or to groups. Readings assigned and frequent consultations held.

**CHEM 000/6930 - Advanced Selected Topics in Chemistry (3 cr.)****Description**

Topics chosen according to special interests of faculty and students. May be repeated for credit more than once if content changes.

**CHEM 699/6980 - Research Guidance Dissertation (3 cr.)****Description**

Consultation on problems related to student thesis. To be taken 11 times for credit.

**SCI 105/1005 - Science and Technology of Ancient Egypt (3 cr.)****Prerequisites**

Prerequisite: Not for credit for Science, Engineering and Computer Science students.

**Description**

Development of civilization in ancient Egypt. Primitive time reckoning and measurement. Building materials. Outline of the different chemical arts and crafts which developed in Egypt as interpreted from mural paintings and works of art. Mummification. Aspects of mathematics and medicine in ancient Egypt.

**When Offered**

Offered in fall and spring.

**SCI 109/1009 - Exploration of the Universe (3 cr.)****Prerequisites**

Prerequisite: Not for credit for Science, Engineering and Computer Science students.

**Description**

An introduction to historical and conceptual developments in astronomy. Stars and galaxies: the sun as a case history in stellar evolution; the formation of elements in the stars. A survey of the sky with particular attention to the solar system: the members of the solar system as physical bodies with specific structures and as entities whose motion characteristics can be understood and predicted.

**When Offered**

Offered in fall and spring.

**SCI 150L/1015 - General Science Laboratory (1 cr.)****Prerequisites**

SCI 1020 or concurrently and not for credit for Science, Engineering and Computer Science students, except for Actuarial Science students.

**Description**

Introduction to experimental techniques of measurement in the general fields of physics, chemistry, and other sciences.

**Hours**

One three-hour lab period.

**When Offered**

Offered in fall, spring, and occasionally in winter and summer

**SCI 120/1020 - Scientific Thinking (3 cr.)****Description**

The course emphasizes the unifying aspects of the scientific approach to the study of nature and human behavior. About one-third of the course is devoted to scientific inquiry and investigation. The course focuses on fact identification and concept formation and testing. In the remaining parts, the students are exposed to applications of the approach in various disciplines. The course sets some basic concepts and theories of science into broad historical, philosophical, and cultural context and traces the development of these theories to their present status. This serves the double purpose of acquainting students with the appropriate setting in which a given idea gained relevance and exposing them to the evolution toward the current methods of investigation. Moral and ethical issues in science are examined.

**When Offered**

Offered in the fall and spring.

**SCI 199/1930 - Selected Topic for Core Curriculum (3 cr.)**

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**SCI 240/2004 - Chemistry, Art and Archaeology (3 cr.)****Description**

The course provides students with some grounding in the application of Natural Sciences to the solution of problems related to Art and Archaeology and instigates in them an appreciation of the complementary contributions of the Humanities and Sciences to the study of particular phenomenon. Students are introduced to analytical scientific techniques on a need to know basis depending on relevant applications. Celebrated cases of fakes and forgeries are discussed. The course aims at enhancing the student's analytical ability and skills to solve problems related to forgery.

**When Offered**

Offered in fall and spring.

**SCI 250/2005 - Introduction to Geology (3 cr.)****Description**

The environment of Earth and the natural forces that shape it; Earth's materials, origin and its 4.5 billion years history; geological events and their implications in finding oil and gas and other natural energy resources; economic contributions of geology to the environment; special case studies with emphasis on Egypt are discussed.

**When Offered**

Offered in fall and spring.

**SCI 260/2006 - Environmental Geology (3 cr.)****Description**

Environmental geology is applied geology focussing briefly on the entire spectrum of possible interactions between people and the physical environment.

**When Offered**

Offered occasionally.

**SCI 251L/2015 - Introduction to Geology Lab (1 cr.)****Description**

Introduction to the physical properties of the earth material. Identification of minerals and all types of rocks; mode of preservation and identification; of fossils; topographic maps and map readings; geological maps and cross sections; remote sensing (aerial photography).

**Hours**

One three-hour lab period.



**When Offered**

Offered in fall and spring.

**SCI 302/3002 - Science, Technology and the Environment (3 cr.)****Prerequisites**

Prerequisites: Junior standing or higher.

**Description**

An introductory, multidisciplinary approach to studying the relationships between science, technology and the environment. Principles of ecosystem structure, function, balance, communities and populations. Principles of environmental sciences, outline of crises, overpopulation, depletion and pollution. Framework for understanding environmental problems. Group projects, aimed at exploring broad range of environmental issues from an interdisciplinary approach, constitute a major component of the course.

**When Offered**

Offered occasionally.

**SCI 450/4005 - Geology of Raw Materials (3 cr.)****Prerequisites**

SCI 2005 or consent of instructor

**Description**

An interdisciplinary study. The geology of naturally occurring minerals, methods for determining the utility of natural resources, and the environmentally sound industrial conversion of raw materials. Particular attention given to the natural resources of Egypt, especially to their importance in economic development.

**When Offered**

Offered occasionally.

**SCI 000/5940 - Graduate Thesis Seminar (3 cr.)****Prerequisites**

Completion of 9 cr hrs

**Description**

Seminar on research topics, research methodology, proposal and thesis writing. The course is intended to serve as a forum in which graduate students can present and discuss their research work and learn various research skills

**CREL 299/2096 - Selected Topics for the Core Curriculum in Global Studies (3 cr.)****Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**CREL 299/2097 - Selected Topics for the Core Curriculum in Arab World Studies (3 cr.)**

**Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**CREL 299/2099 - Selected Topics for Core Curriculum (3 cr.)**

**Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**CREL 135/2601 - Dimensions of the Sacred: Exploring Religious Experience (3 cr.)**

**Description**

What defines religion? What might explain the practically universal impulse to recognize the divine? This course investigates a variety of religions, according to common dimensions held by them that run across cultures: the social; the ethical; the doctrinal; the ritual; the mythic; the experiential; and the artistic.

**CREL 210/2603 - Religions of the World (3 cr.)**

**Description**

An introduction to the academic study of religion. By looking at the history, beliefs, practices, institutions and cultural expressions of a number of different religions, students will broaden their understanding of religions other than their own, and of the diversity of the human religious experience. Students will learn to appreciate the variety of the religions of the world, and the similarities and differences between them.

**CREL 212/2605 - The Quest for the Historical Jesus (3 cr.)**

**Description**

Investigates the life and teachings of Jesus of Nazareth within the context of Second Temple Judaism and Greco-

Roman culture. Considers a range of pre-modern and modern interpretations of Jesus and the emergence of Christianity.

**Cross-listed**

Same as HIST 2604.

**When Offered**

Offered occasionally

**CREL 220/2606 - Hinduism and Buddhism in India (3 cr.)**

**Description**

This course will explore the major dimensions of the two most important religions in India from 1500 BCE to 1000 CE. Along with providing an introduction to these two traditions, the course will give particular attention to the ways in which these religions have interacted historically.

**CREL 230/2607 - Pilgrimage Traditions in the World's Religions (3 cr.)**

**Description**

This course examines pilgrimage as a unifying theme in exploration of human religiosity. While we will focus on what are called "ritual pilgrimages", such as the Islamic hajj, we will also explore pilgrimage more metaphorically, by looking at the allegorical, mythological, and visionary journeys. As frameworks for our analyses, we will also look at humanistic and social scientific interpretive and theoretical models concerning pilgrimage.

**CREL 333/3209 - Zionism and Modern Judaism (3 cr.)**

**Description**

The Zionist ideology and movement in its own terms, and in the context of modern Judaism. The course places Zionism in its historical and religious contexts, and examines its varieties. The Zionist movement is followed from its origins to the establishment of Israel. Related aspects of Israeli politics are then examined, with especial reference to ideological and religious debates

**Cross-listed**

Same as HIST 3208.

**CREL 320/3608 - Masters, Saints, and Saviors: Sacred Biography in the World's Religions (3 cr.)**

**Description**

This course will explore one of the most important subjects in religious literature, the lives of great spiritual figures. We will investigate a variety of biographical and autobiographical materials from several different religious traditions, examining both form and function and testing whether or not we can make useful cross-cultural comparisons.

**CREL 529/5609 - World Religions and the Study of Religion (3 cr.)**

**Prerequisites**

Prerequisite: Enrollment in the Islamic Studies MA program.

**Description**

This course will introduce students to the great world religions other than Islam, and will introduce them to current theories and methods in the academic field of Religious Studies.

**Cross-listed**

Same as ARIC 5245.

**CSCE 102/1000 - Introduction to Computers and their Applications (3 cr.)****Description**

Introduction to computer-related terms and concepts. Scope limitations of the computer capabilities. Ethics and social impact of using computers. Basic skills related to the familiarity and efficient use of computer input/output devices, operating systems and computer communications. Training on popular computer applications (e.g. word processing, spread sheet, database and presentation graphics). Limited programming experience in a high-level language.

**When Offered**

Offered in fall and spring.

**Notes**

This course is intended for arts students.

**CSCE 106/1001 - Fundamentals of Computing I (3 cr.)****Prerequisites**

College level preparation course in Mathematics or MACT 1111 .

**Description**

Introduces fundamental concepts and principles of computing systems, grand challenges in computing, analyzing and formulating solutions to multidisciplinary problems, basic algorithms for solving problems, as well as designing, implementing, and testing programs using one prime language and other supplementary languages. Using data and procedural abstractions as basic design principles, students learn how to design and implement basic data structures such as stacks and queues, and to apply various algorithms for operating on them. Also covers some numbering systems, data representation, and basic computer organization. The course uses the imperative and object-oriented paradigms.

**When Offered**

Offered in fall and spring.

**CSCE 110/1101 - Fundamentals of Computing II (3 cr.)****Prerequisites**

CSCE 1001 and concurrent with CSCE 1102

ECNG students not required to take CSCE 1102

**Description**

Introduces concepts and techniques for developing larger software systems. The object-oriented paradigm is further utilized using a modern programming language such as Java or C++. Covers topics that include classes and objects, inheritance, encapsulation, polymorphism, more algorithms, basic design patterns, generics, testing. Also covers the

design and implementation of data structures including but not limited to lists, trees, and graphs.

**When Offered**

Offered in fall and spring.

**CSCE 000/1102 - Fundamentals of Computing II Lab (1 cr.)**

**Prerequisites**

Concurrent with CSCE 1101

**Description**

The laboratory will contribute to the capacity building and practice of knowledge units covered in CSCE 1101 (Fundamentals of Computing II).

**CSCE 321/2202 - Analysis and Design of Algorithms (3 cr.)**

**Prerequisites**

CSCE 1101 and at least Concurrent with MACT 2131

**Description**

Analysis and complexity bounds of basic classes of algorithms. Basic algorithm design methodologies: Brute force, Transform and Conquer, Divide and conquer, and Greedy methods. Dynamic Programming, Backtracking and Branch and Bound methods. Applications to problems such as sorting and searching, traveling salesperson, knapsack, optimal merge patterns and graph algorithms. Introduction to the theory of complexity.

**When Offered**

Offered in fall and spring.

**CSCE 000/2203 - Analysis and Design of Algorithms Lab (1 cr.)**

**Prerequisites**

MACT 2131 or concurrent, and concurrent with CSCE 2202

**Description**

The laboratory will contribute to the capacity building and practice of knowledge units covered in CSCE 2202 (Analysis and Design of Algorithms).

**CSCE 230/2301 - Digital Design I (3 cr.)**

**Prerequisites**

PHYS 2211 or Concurrent

**Description**

Basic logic gates, Boolean algebra, logic minimization algorithms, modular design of combinational circuits, introduction to computer arithmetic, memory elements, sequential circuits, Finite State Machines analysis and design, top-down digital systems design approach, timing aspects of digital systems. Exposure to modern Electronic Design Automation tools, Hardware Description Languages and programmable logic devices. The laboratory component will cover experiments in digital electronics.

**When Offered**

Offered in fall and spring.

**CSCE 239L/2302 - Digital Design I Lab (1 cr.)****Prerequisites**

Concurrent with CSCE 2301 .

**Description**

The laboratory will cover experiments in digital design and experiments illustrating material of course CSCE 2301 .

**When Offered**

Offered in fall and spring.

**CSCE 231/2303 - Computer Organization and Assembly Language Programming (3 cr.)****Prerequisites**

CSCE 1101 and either CSCE 2301 or ECNG 2101

Cannot be concurrent with PHYS 2211

**Description**

Explaining the state of the art computer systems focusing on major components: CPU,I/O, and memory. In-depth discussion of the instructions set architecture of the MIPS microprocessors. This includes different types of assembly instructions doing basic arithmetic, data movement, decision making, and jumping. Discussing different performance matrices of microprocessors and how to measure and analyze performance and evaluate speedups. Going through basic computer arithmetic covering integer and floating point operations. Discussing I/O ports, I/O devices and controllers, DMA channels, priority interrupts. Also discussing different I/O technologies, such as magnetic disks, flash disks, and optical storage. It also discusses the latest trends in microprocessors design and programming (such as SIMD and MIMD).

**Cross-listed**

Same as ECNG 3502

**When Offered**

Offered in fall and spring.

**CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)****Prerequisites**

CSCE 1101

**Description**

Basic concepts, database system environment, DBMS. Components and architecture access structures, indexing and hashing, high-level data models, ER and EER model, the relational model, relational languages, relational algebra, relational calculus, SQL, introduction to functional dependencies and normalization, social and ethical context of databases.

**When Offered**

Offered in Fall and Spring

**CSCE 201/2502 - Information Technology (3 cr.)****Prerequisites**

Prerequisite: Sophomore standing or higher.

**Description**

Module 1: The Components of Information Technology: data technology, processing technology, and networking technology. Module 2: Computer Ethics and Social Issues. Module 3: Business, Economic and Development Impacts of Information Technology. Module 4: Computer Applications (in which students will be given the chance to create, modify and interact with sophisticated computer applications.)

**When Offered**

Offered once every year.

**CSCE 315/3101 - Programming Language (1-3 cr.)****Prerequisites**

CSCE 1001

**Description**

A programming language different from those studied in CSCE 1001 and CSCE 1101 will be presented according to the interest of both students and faculty.

**When Offered**

Offered occasionally.

**Repeatable**

Students may repeat this course with different languages but only a maximum of four credits can be counted toward the concentration requirements.

**CSCE 316/3102 - Programming in Java (3 cr.)****Prerequisites**

CSCE 1101

**Description**

This course offers intermediate programming concepts in the Java programming language to include virtual machines, dynamic type checking, object serialization, inheritance and polymorphism, file manipulation, interfaces and packages. Java Applets, event handling, multithreading and network-based application development in Java are also covered along with a set of selected topics such as remote method invocation and remote database access using the language.

**When Offered**

Offered occasionally.

**CSCE 317/3103 - Object Oriented Programming (3 cr.)**

**Prerequisites**

CSCE 1101

**Description**

In-depth study of a typical object-oriented programming language (C++) from a software engineering perspective, with emphasis on features supporting the development of large, efficient and reusable object-oriented applications.

Principles and practice of three software development paradigms: developing classes from scratch, reuse of existing classes, incremental extension of frameworks. Encapsulation, templates, polymorphism, dynamic binding and virtual methods, operator's overloading, complex associations, dynamic aggregation, inheritance (single and multiple), exception handling, the standard template library. Introduction to UML for describing program designs.

**When Offered**

Offered Occasionally.

**CSCE 325/3104 - Concepts of Programming Languages (3 cr.)**

**Prerequisites**

CSCE 1101

**Description**

Comparative study of abstraction, syntax, semantics, binding times, data and sequence control, run-time resources, translators, and storage of programming languages. Programming projects using selected programming languages to enhance practical aspects.

**When Offered**

Offered in fall and spring.

**CSCE 330/3301 - Computer Architecture (3 cr.)**

**Prerequisites**

CSCE 2301 and CSCE 2303

**Description**

The objectives of this course are to introduce the principles of Modern Computer Architecture and design. Topics to be discussed include Instruction Set Architectures, Arithmetic Logic Unit design, CPU data path design, CPU pipelining, memory hierarchy, cache and virtual memory, and introduction to I/O.

**Cross-listed**

Same as ECNG 4505.

**When Offered**

Offered in fall and spring.

**CSCE 339L/3302 - Computer Architecture Lab (1 cr.)**

**Prerequisites**

Prerequisite: Concurrent with CSCE 3301

**Description**



The laboratory will cover experiments in computer architecture and hardware design and experiments illustrating material of course CSCE 3301 .

**Cross-listed**

Same as ECNG 4508L

**When Offered**

Offered in fall and spring.

**CSCE 332/3303 - Fundamental Microelectronics (3 cr.)**

**Prerequisites**

PHYS 2211 and CSCE 2301 or concurrent

**Description**

Devices and Basic Circuits: Introduction to Electronics, Operational Amplifiers, Diodes, Bipolar Junction Transistors (BJT's), Field Effect Transistors (FET's), MOS and bipolar logic families, design parameter analysis, storage elements, interfacing logic families, Operational amplifiers.

**When Offered**

Offered in spring.

**CSCE 337/3304 - Digital Design II (3 cr.)**

**Prerequisites**

CSCE 2301 , CSCE 3303 .

**Description**

VLSI fabrication, Design of complex CMOS gates, Combinational and Sequential logic structures in VLSI; Semiconductor memories and array structures; Introduction of ASIC design techniques and tools; design and programming of FPGAs using CAD tools; timing in sequential circuits; essential hazards; races in sequential circuits; Digital systems design; Datapath and Control design; Modeling and simulation; Fault models and testing.

**When Offered**

Offered in spring.

**CSCE 333/3311 - Data and Computer Communications (3 cr.)**

**Prerequisites**

CSCE 1101 and PHYS 2211

**Description**

Overview the network protocol stack and TCP/IP. Data transmission technologies, transmission impairments and channel capacity. Basics of wired and wireless transmission media. Signal encoding techniques. Introduction to error detection and correction. LAN fundamentals, Ethernet LANs, WLANs and MAC protocols. Cellular networks fundamental concepts and evolution from 1G to 5G networks.

**When Offered**

Offered in fall and spring.

## **CSCE 435/3312 - Computer Networks (3 cr.)**

### **Prerequisites**

PHYS 2211

### **Description**

Covers the fundamentals of computer networking. Topics include Introduction to computer networks, historical perspective and types, switching techniques, the concept of layering, network performance metrics, data link layer, network layer, IP networking and addressing, and the transport layer.

### **When Offered**

Offered in the Fall and Spring.

## **CSCE 439L/3313 - Computer Networks Lab (1 cr.)**

### **Prerequisites**

Concurrent with CSCE 3311

### **Description**

Offers hands-on experience in the area of computer networks. This includes basic network components, equipment, and experiments on network monitoring and virtualization tools, link layer, network layer, transport layer and application layer protocols, along with well-known static and dynamic routing protocols, in use in the Internet today.

### **When Offered**

Offered in the Fall and Spring.

## **CSCE 345/3401 - Operating Systems (3 cr.)**

### **Prerequisites**

CSCE 1101 and CSCE 3301

### **Description**

Operating systems concepts and structure. The Kernel, interrupts, system calls. Process concepts, operations, and implementation. Threads. Concurrency, interprocess communication and synchronization. Process scheduling. Resources and deadlocks. Memory management: swapping, paging, segmentation, virtual memory. File system interface, protection. Case studies: Windows, Linux, and MINIX.

### **When Offered**

Offered in fall and spring.

## **CSCE 000/3402 - Operating Systems Lab (1 cr.)**

### **Prerequisites**

CSCE 1101 and CSCE 3301

### **Description**

Fundamentals of systems programming, standard administration tools, shell programming, Make utility, file I/O, access rights for files and directories, system data files and information, system configuration, Unix processes, process control,

synchronization, signals, daemons, interprocess communication, kernel adaptation and generation.

**When Offered**

Offered in fall and spring.

**CSCE 342/3421 - Fundamentals of Computing and Communication Systems (3 cr.)**

**Prerequisites**

CSCE 1001

**Description**

This course exposes attendees in breadth to the most viable systems relating to Information Technology, and their associated administration. This includes networking fundamentals and related management, operating systems, computer organization and architecture, hardware, firmware, and enterprise applications.

**When Offered**

Offered in fall.

**Notes**

This course is not available for either Computer Science or Computer Engineering students.

**CSCE 346/3422 - Introduction to Information Security (3 cr.)**

**Prerequisites**

CSCE 1101 .

**Description**

This course introduces foundations of information security. It addresses cyber-security issues and common threats, basics of network security, general security principles and practices, basics of cryptology and cryptanalysis, information security management, and other selected topics.

Not allowed for Computer Science or Computer Engineering students.

**When Offered**

Offered in spring.

**CSCE 465/3601 - Artificial Intelligence (3 cr.)**

**Prerequisites**

CSCE 2202

**Description**

The course will introduce students to the main foundational concepts and techniques used in Artificial Intelligence including searching and problem solving methods, representing knowledge, dealing with uncertainty, probabilistic reasoning, planning, learning decision rules from data, and statistical learning.

**When Offered**

Normally offered in fall.

**CSCE 363/3611 - Digital Signal Processing (3 cr.)**

**Prerequisites**

PHYS 2211 and junior standing.

**Description**

Characterizations of signals, ADC and DAC, Fourier series and Fourier transform for discrete and continuous time signals, sampling, Digital spectrum analysis, discrete transforms, digital filters, audio and image processing applications.

**When Offered**

Offered in spring.

**CSCE 341/3701 - Software Engineering (3 cr.)****Prerequisites**

CSCE 1101

**Description**

Basic concepts of software engineering project management, ethical and social issues as well as the software development life cycle. Techniques for software specification, design, implementation, validation, verification and documentation. State-of-the art tools for computer-aided software engineering (CASE tools) are used to support term projects.

**When Offered**

Offered in fall and spring.

**CSCE 447/4101 - Compiler Design (3 cr.)****Prerequisites**

CSCE 3104 .

**Description**

Principles and practices in the design of compilers. Lexical analysis. Syntax analysis, top-down and bottom-up parsing. Syntax-directed translation and syntax trees. Declarations, types, and symbol management. Run-time environments, storage organization, parameter passing, dynamic storage allocation. Intermediate languages and intermediate code generation. Code generation and optimization.

**When Offered**

Offered in spring.

**Notes**

Project: students construct a simple compiler that generates unoptimized code.

**CSCE 422/4201 - Theory of Computing (3 cr.)****Prerequisites**

MACT 2131 and Senior standing.

**Description**

Finite automata and regular expressions, context-free grammars and push-down automata, nondeterminism. Context-

sensitive grammars and the Chomsky hierarchy of grammars. Turing machine and the halting problem. Undecidable problems. Church's Conjecture and its implications.

**When Offered**

Offered in fall.

**CSCE 432/4301 - Embedded Systems (3 cr.)**

**Prerequisites**

CSCE 4411

**Description**

Embedded processor architecture and programming, I/O and device driver interfaces to embedded processors with networks, video cards and disk drives. Using operating systems primitives for concurrency, timeouts, scheduling, communication and synchronization, Real-time resource management techniques, and application-level embedded system design concepts such as basic signal processing and feedback control.

**When Offered**

Offered in fall and spring.

**CSCE 438L/4302 - Embedded Systems Lab (1 cr.)**

**Prerequisites**

Concurrent with CSCE 4301

**Description**

The laboratory will cover experiments in embedded systems illustrating material of course CSCE 4301 .

**When Offered**

Offered in fall and spring.

**CSCE 437/4313 - Local and Metropolitan Area Networks (3 cr.)**

**Prerequisites**

CSCE 3311

**Description**

Introduction to LAN, MAN and WAN. Topologies and transmission media. Protocol Architecture and Logical Link Control. Traditional LANs. High-Speed Ethernet-Like LANs, FDDI. ATM LANs. Wireless LANs. Network performance and management.

**When Offered**

Offered in spring.

**CSCE 436L/4314 - Local Area Networks Lab (1 cr.)**

**Prerequisites**

Concurrent with CSCE 4313

**Description**

The laboratory will cover experiments in Local Area Networks to support and illustrate the material of the course CSCE 4313 .

**When Offered**

Offered in spring.

**CSCE 445/4411 - Fundamentals of Distributed Systems (3 cr.)****Prerequisites**

CSCE 3401

**Description**

Introduction to distributed systems. Modeling, specifications, consistency, fault tolerance, interprocess communication, network and distributed operating systems, distributed mutual exclusion, distributed deadlock detection, load balancing and process migration.

**When Offered**

Offered in fall.

**CSCE 446/4421 - Computer Security (3 cr.)****Prerequisites**

CSCE 3401

**Description**

Fundamentals of computer security. Identification and authentication. Access control, different approaches for inclusion of a security kernel. Security in UNIX and Windows. How security is broken and how it is evaluated. Distributed systems security, World Wide Web security, and network security. Practical experience to be gained through an assigned project to evaluate the security of a real operational system.

**When Offered**

Offered occasionally.

**CSCE 453/4501 - Database Systems (3 cr.)****Prerequisites**

CSCE 2501

**Description**

Advanced relational database theory: functional dependencies, multivalued dependencies, join dependencies, inclusion dependencies. System catalog implementation, query optimization techniques, transaction processing, concurrency control, database security, backup and recovery strategies. Advanced data modeling (e.g. object-oriented databases), distributed and client server architectures, and further exposure to social and ethical issues in databases.

**When Offered**

Offered occasionally.

## **CSCE 456/4502 - Design of Web-based Systems (3 cr.)**

### **Prerequisites**

CSCE 2501 or MOIS 3201\*

\*for MICT students only

### **Description**

Introduction to the Web as a platform, the Web as an n-tier client-server architecture, basic components of a web-based application, developing static and dynamic web pages. Enhancing Web pages using Scripting languages. Developing Web-based applications. Using Server-extension techniques and tools. Introduction to XML and its associated technologies. Emerging technologies and tools on the web. Wireless Web protocols and techniques.

### **When Offered**

Offered in fall

## **CSCE 401/4503 - Internet-based Information Systems (3 cr.)**

### **Prerequisites**

MOIS 2101

### **Description**

The World Wide Web as a business domain, E-Business and E-Commerce, Network Options and Infrastructure, HTML/XML and WWW Site Design, Emerging technologies, WWW Tools, Internet Issues and Implications (Security issues, social and ethical issues, legal issues), Costs and Resources, Internet Services Providers.

### **When Offered**

Offered in fall and spring.

## **CSCE 427/4602 - Introduction to Artificial Neural Networks (3 cr.)**

### **Prerequisites**

CSCE 1101 , MACT 2123 and MACT 2132

### **Description**

An introduction to basic concepts in the design, analysis, and application for computational neural networks. Mathematical models of biological neurons. Multilayer perceptrons backward error propagation. Hopfield networks and Boltzmann machines. Radial-basis function networks. Kohonen self-organizing feature maps. Adaptive Resonance Theory networks.

### **When Offered**

Offered Occasionally.

## **CSCE 000/4603 - Fundamentals of Computer Vision (3 cr.)**

### **Prerequisites**

CSCE 110/1101 - Fundamentals of Computing II (3 cr.)

### **Description**

Image acquisition, image transformations, gray level operations, histogram equalization, spatial filtering, edge detection, line and circle detection, generalized Hough transform, connected components labeling. Haar features, object detection with Adaboost, applications: face detection, open CV programming.

### **CSCE 000/4604 - Practical Machine Deep Learning (3 cr.)**

**Prerequisites**

CSCE 2202  
MACT 1122

**Description**

Supervised and Unsupervised learning, Logistic and soft-max regression, Perception and multilayer neural networks, Back-propagation, Convolutional Neural Network (CNN), Recurrent Neural Network, Generative models, Reinforcement Learning, case studies.

### **CSCE 455/4621 - Computer Graphics (3 cr.)**

**Prerequisites**

CSCE 1101 , MACT 2132

**Description**

Overview of graphic systems and interactive devices. Output primitives and their attributes. Two-dimensional transformations, segments, windowing, and clipping. Introduction to three-dimensional representation and viewing.

**When Offered**

Offered occasionally.

### **CSCE 441/4701 - Object-Oriented Analysis and Design (3 cr.)**

**Prerequisites**

CSCE 3701 .

**Description**

The structure of complex systems. The evolution and elements of the object model. The nature of objects and classes. Relationships among classes and objects. Object-oriented analysis and design. Putting key object-oriented techniques to work in constructing large-scale software systems. Case studies covered to demonstrate the use of an object-oriented development process in the construction of software systems. Object-oriented metrics. Testing object-oriented software. Performance evaluation. Advanced topics including design patterns and component-based software development.

**When Offered**

Offered occasionally

### **CSCE 448/4702 - Secure Systems Engineering (3 cr.)**

**Prerequisites**

CSCE 3701 and CSCE 3401



**Description**

This course introduces the main security problems found in contemporary systems and addresses how such problems are introduced and how we may work towards their eradication. The course enables students to treat security issues as an important and integral part of system design and development. It also provides them with a solid understanding of the basic ideas and techniques used in assessing and addressing security risks.

**When Offered**

Offered in fall and spring.

**CSCE 495/4910 - Guided Studies in Computer Science and Engineering (1-3 cr.)****Prerequisites**

Prerequisite: consent of instructor.

**Description**

Under the guidance of a faculty member, the student carries on a reading, research, or a project on a specific computer-science topic. The student will present his/her results by submitting a report or passing an examination as determined by the supervisor.

**When Offered**

Offered in fall and spring.

**CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.)****Prerequisites**

Permission of instructor.

**Description**

Topics chosen according to special interests of faculty and major students. May be repeated for credit more than once if content changes.

**When Offered**

Offered in fall and spring.

**CSCE 490/4950 - Industrial Training (1 cr.)****Prerequisites**

Prerequisite: junior standing.

**Description**

Each student is required to spend a minimum of eight weeks in some related computer training in Egypt or abroad. A report followed by discussion is submitted to a departmental committee for evaluation.

**When Offered**

Offered in fall and spring.

**Notes**

Graded pass or fail

## **CSCE 491/4980 - Senior Project I (1 cr.)**

### **Prerequisites**

Instructor approval

### **Description**

Participating students select project topic according to their subject of interest and the availability of facilities and advisers. Students carry out necessary preliminary work, which involves initial design space exploration, and submit a progress report. Ethical responsibilities of a computing professional are covered by lectures and seminars and emphasized through the student's teamwork.

### **When Offered**

Offered in fall and spring.

## **CSCE 492/4981 - Senior Project II (2 cr.)**

### **Prerequisites**

CSCE 4980

### **Description**

Participating students carry on the plan of work they developed in CSCE 4980 . Students use all of their acquired knowledge toward the design, implementation, testing, and documentation of a product. Each participant gives an oral presentation of his/her results. On the approval of the supervisor, each group prepares and presents a complete package. Further ethical issues of the computing profession are covered and emphasized all over the course work.

### **When Offered**

Offered in fall and spring.

## **CSCE 525/5221 - Algorithms and Complexity Theory (3 cr.)**

### **Description**

Advanced data structures. An introduction to parallel algorithms. Amortized complexity. NP-Completeness and lower-bound theory. Cook's Theorem. Techniques for proving problems NP-complete. Complexity of parallel algorithms.

### **When Offered**

Offered in Spring.

## **CSCE 529/5222 - Design and Analysis of Parallel Algorithms (3 cr.)**

### **Description**

PRAM model and work-time presentation framework. Basic parallel algorithm design techniques: balanced problem decomposition, printer jumping, divide and conquer, partitioning, pipelining, accelerated cascading, symmetry breaking. Parallel searching and sorting. Parallel pattern matching. Randomized parallel algorithms.

## **CSCE 530/5231 - Advanced Processor Architecture (3 cr.)**

**Prerequisites**

CSCE 3301

**Description**

Advanced topics in modern microprocessor microarchitecture especially as they relate to systems and applications software. Modern "core" CPU design: Instruction Level Parallelism, (ILP: Instruction Level Parallelism via software), Dynamic Instruction Level Parallelism by hardware (Dynamic scheduling, Superscaling, Reservation stations, Instruction Reordering buffers, Speculative instruction execution, Out-of-order instruction execution and retirement), Static and Dynamic Branch prediction techniques & VLIW technology. CMP (Chip Multiprocessing), Chip multithreading design and applications. Basics of parallel software design issues and how they interact with the architecture. All topics are illustrated by state of the art Microprocessors.

**CSCE 535/5232 - High Speed Networks (3 cr.)****Description**

Review of stochastic processes and introduction to Markov chains. Analysis of basic queuing systems, e.g., M|M|1, M|M|m and M|M|m|m. Modeling and analysis of random access MAC schemes, e.g., Aloha and Slotted Aloha and example protocols, e.g., CSMA, CSMA/CA. Multicast routing and MANET routing protocols, e.g., OLSR and AODV. Fundamentals and algorithms of TCP congestion control, max-min fairness and queuing disciplines. Advanced topics in 5G networks, SDN and the Internet of Things (IoT) MAC and networking protocols.

**CSCE 545/5241 - Distributed Systems (3 cr.)****Description**

Models of concurrency, specifications of distributed systems, consistent global states, fault tolerance and related problems, interprocess communication, distributed file systems, replication mechanisms, distributed operating systems, real-time distributed systems, transputers, and case studies of distributed systems.

**CSCE 532/5242 - Parallel Computer Architecture (3 cr.)****Prerequisites**

CSCE 5231

**Description**

Analysis and design of high-performance computer systems, pipelining techniques, cache design, instruction level parallelism, parallel and vector architectures, shared memory multiprocessors, message passing multicomputers, data flow architectures, scalability and performance, software for parallelism.

**CSCE 000/5243 - Information and System Security (3 cr.)****Prerequisites**

CSCE 5241

(or concurrent)

**Description**

This course addresses relevant issue and case studies in modern information and system security. The objective is to

provide students with solid understanding and working knowledge of modern information security challenges, solutions, and research directions.

### **CSCE 000/5245 - Embedded Real-Time Systems (3 cr.)**

#### **Prerequisites**

Consent of instructor

#### **Description**

Covers both practical and theoretical aspects of developing embedded systems with real time constraints. Topics include real time operating systems, task management and synchronization, real time scheduling algorithms, performance analysis and optimization, real time communication, design for low power, interfacing to external devices, and device drivers.

### **CSCE 565/5261 - Advanced Artificial Intelligence (3 cr.)**

#### **Description**

Problem Solving by Search, Knowledge Representation and Reasoning, Planning, Quantifying Uncertainty, Probabilistic Reasoning, Learning from Examples, Learning Probabilistic Models, and Reinforcement Learning.

#### **Cross-listed**

Same as RCSS 5245.

### **CSCE 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)**

#### **Description**

Basic concepts of artificial neural networks, supervised learning networks, Back-propagation learning, Hebbian learning. Unsupervised learning networks, Self Organizing Map networks. Deep learning, Convolutional neural networks, restricted Boltzmann machines, and deep belief networks. Evolutionary computation, genetic algorithms, and some applications.

### **CSCE 561/5263 - Knowledge Engineering (3 cr.)**

#### **Description**

Introduction to knowledge based system development life cycle, acquiring knowledge from domain experts, text, and data, machine learning techniques used to automate the knowledge acquisition process, knowledge modeling approaches, design and implementation of knowledge based systems, knowledge based systems verification and validation techniques.

### **CSCE 569/5264 - Natural Language Processing and Machine Translation (3 cr.)**

#### **Description**

Introduction to syntactic and semantic analysis of natural languages with emphasis on English and Arabic. Issues on word sense disambiguation, parsing formalism, and discourse analysis; machine translation techniques: transfer, knowledge based and statistical approaches.

## **CSCE 564/5265 - Web Mining (3 cr.)**

### **Description**

Introduction to web data mining including web usage mining, structure mining, and content mining. Web mining techniques: data and text classification, data and text clustering, association, and path analysis. Applications of web mining: personalization, summarization, web page ranking, opinion mining, information extraction, topic tracking and others.

## **CSCE 567/5266 - Computer Vision (3 cr.)**

### **Prerequisites**

Approval of Instructor.

### **Description**

Image formation, image filtering and features detection, SIFT and HOG, segmentation, object detection with sliding windows, bag of words, OpenCV library, camera 3D to 2D projection, stereo vision, shape from X, object registration, model matching, and virtual reality.

## **CSCE 563/5267 - Digital Image Processing (3 cr.)**

### **Description**

Image acquisition, color representation, quantization, image transforms, enhancement, filtering, multi-spectral processing, image restoration, image segmentation, morphological transform, compression, and applications.

## **CSCE 555/5268 - Computer Graphics and Animation (3 cr.)**

### **Description**

Fundamental concepts and basic techniques of computer graphics. Algorithms and recent research in graphics and animation. A thorough survey of object modeling, realism, ray tracing, rendering, and light models. Modeling of animated objects, motion animation, and human animation.

## **CSCE 000/5269 - Pattern Analysis (3 cr.)**

### **Description**

Decision Theory, Linear Discriminants, Logistic Regression, Principal Components Analysis, Support Vector Machines, Vector Quantization, Mixture of Gaussian, Expectation-Maximization, Clustering, Mixture of Gaussian, Case Studies and applications: object classification.

## **CSCE 541/5271 - Advanced Software Engineering (3 cr.)**

### **Description**

Formal methods in software engineering, first-order logic, basic specification elements and rigorous proofs. Verification and validation. Testing and debugging techniques and tools. Reusability, modularity, top-down and bottom-up development approaches, object classification, support for concurrency and polymorphism.

### **CSCE 543/5272 - Advanced Software Quality (3 cr.)**

#### **Description**

Introduction to advanced topics in software quality such as aspects of quality in various development life cycles, software measurement, software quality metrics, testing, quality models, high maturity, better practices in the domain to produce high quality and reliable software, as well as case studies.

### **CSCE 000/5910 - Independent Studies in Computer Science and Engineering (1-3 cr.)**

#### **Prerequisites**

Consent of instructor

#### **Description**

Under the guidance of a faculty member, the student carries on a reading, research, or a project on a specific computer science topic. The student will present his/her results by submitting a report or passing an examination as determined by the supervisor.

### **CSCE 585/5930 - Selected Topics in Computer Science and Engineering (3 cr.)**

#### **Prerequisites**

Prerequisite: permission of instructor.

#### **Description**

Topics chosen according to special interests of faculty and students.

#### **Repeatable**

May be repeated for credit more than once if content changes.

### **CSCE 590/5940 - Seminar (1 cr.)**

#### **Description**

Seminars of research topics given by invited speakers as well as presentation and discussion of results obtained by graduate students during their research work.

#### **Notes**

Must be taken twice for credit. Graded pass or fail.

### **CSCE 591/5980 - Capstone Project in Computing (3 cr.)**

#### **Prerequisites**

Prerequisite: consent of instructor.

#### **Description**

Under the guidance of a faculty member, the student carries out a research project on a specific computer science topic. The student will present his/her results by submitting a report or passing an examination as determined by the

supervisor.

**Notes**

This course cannot be taken for credit by thesis-option M.Sc. students.

**CSCE 599/5981 - Graduate Thesis (3 cr.)**

**Description**

Consultation on problems related to student thesis.

**Notes**

Must be taken twice for credit.

**CSCE 642/6231 - Mobile and Pervasive Computing (3 cr.)**

**Prerequisites**

Approval of Instructor.

**Description**

Fundamentals, challenges, and state of the art research discussions in mobile and pervasive computing. To include topics related to the domain such as location management, data dissemination, context awareness, software engineering, middleware, security and privacy, sensing and actuation, applications, and research paper critique.

**CSCE 664/6261 - Advanced Data Mining (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Theoretical aspects of data mining techniques including classification, association, predication, and cluster analysis. Related fields from which data mining draws, like database technology, artificial intelligence, and machine learning, will be emphasized. Data mining applications will also be introduced based on the interest of the students.

**CSCE 692/6930 - Advanced Selected Topics in Computer Science (3 cr.)**

**Description**

Topics chosen according to special interests of faculty and students. May be repeated for credit more than once if content changes.

**CSCE 699/6980 - Research Guidance Dissertation (3 cr.)**

**Description**

Consultation on problems related to student thesis. To be taken 11 times for credit.

## **CENG 215/2251 - Drawing for Construction Engineering and Architecture (1 cr.)**

### **Prerequisites**

ENGR 1005

### **Description**

Architectural and structural drawings. Roads and hydraulic works drawings. Construction details. Electro-mechanical drawings for construction.

### **Hours**

One three-hour lab period.

### **When Offered**

Offered in fall and spring.

## **CENG 280/2311 - Construction Surveying (3 cr.)**

### **Prerequisites**

MACT 1122

### **Description**

Principles of plane surveying; methods of measuring distances, angles and differences in heights (levels); traverse computations; setting out horizontal and vertical curves; earthwork computation; setting out engineering structures and construction projects.

### **Hours**

Two class periods and three-hour lab period.

### **When Offered**

Offered in fall and spring.

## **CENG 000/3011 - Electrical and Mechanical Systems for Construction Engineering (4 cr.)**

### **Prerequisites**

ARCH 3562 , ENGR 2122

### **Description**

A study of electrical and mechanical systems used in both residential and commercial construction. Lectures cover the basic principles of electrical distribution, artificial lighting, fire protection, plumbing systems and heating, ventilating and air conditioning (HVAC) systems. Course content will include system design, component selection and utilization for energy conservation. Techniques of application and installation will be included as well as site visits and workshops.

### **When Offered**

offered in fall and spring

## **CENG 301/3111 - Structural Analysis (4 cr.)**

### **Prerequisites**



ENGR 2102 and ENGR 2112 or concurrent

**Description**

Analysis of statically determinate structures under static loads, member forces in trusses, shear and moment diagrams, live loads and influence lines, deflections, analysis of statically indeterminate structures by three-moment equation, the method of consistent deformation, slope-deflection, and moment distribution. Approximate analysis of statically indeterminate structures. Matrix force and displacement methods with computer applications.

**Hours**

Three class periods and three-hour tutorial.

**When Offered**

Offered in fall and spring

**CENG 302/3112 - Structural Analysis and Design Principles for Architects (3 cr.)**

**Prerequisites**

ENGR 2102

**Description**

Classification and analysis of determinate structures including; trusses, beams, frames, arches and cables. Computation of deflections. Analysis of structure using commercial software. Principles of limit states design. Properties of concrete and construction material. Distribution of loads and arrangement of structural elements in reinforced concrete buildings.

**When Offered**

Offered in fall and spring

**CENG 305/3151 - Structural Design for Architects I (3 cr.)**

**Prerequisites**

CENG 3112

**Description**

Reinforced Concrete Design: Flexural theory of reinforced concrete beams. Design of singly reinforced sections, design and detailing of: beams, solid slabs and short columns. Structural Steel Design: properties of steel, load and resistance factor design of steel structures, structural systems, and computation of loads and load combinations. Design of: Tension of compression members. Behavior of beams and beam columns. Types of Connections.

**When Offered**

Offered in fall and spring.

**CENG 306/3152 - Structural Design for Architects II (3 cr.)**

**Prerequisites**

CENG 3151

**Description**

Structural systems for gravity loads: flat slab, hollow block slabs, paneled beams, stairs, frames. Structural systems for

lateral loads: frames, shear wall and combined systems. Foundation systems: introduction to soil types and soil exploration, foundation design consideration, types of foundation systems, design of shallow foundations.

**When Offered**

Offered in fall and spring.

**CENG 307/3153 - Structural Design (4 cr.)**

**Prerequisites**

CENG 3111

**Description**

Properties of plain and reinforced concrete, behavior of composite sections, ultimate strength and working stress design of structural elements, beams, columns, one-way and two-way solid slabs, detailing of reinforcing steel. Concept of elastic design of steel structures, structural systems for steel buildings and bridges, elastic design and analysis of steel tension members, compression members, beams, columns, and connections.

**Hours**

Three class periods and three-hour tutorials.

**When Offered**

Offered in fall and spring

**CENG 323/3211 - Construction Materials and Quality Control I (4 cr.)**

**Prerequisites**

ENGR 2112

**Description**

Types and properties of construction materials and components. Concepts of quality control, statistical evaluation and corresponding experimental work. Aggregates types, sources and quality. Inorganic cements. Concrete mix design, admixtures and quality control. Asphalt cement, asphalt concrete mix design and quality control. Steel in construction. Masonry materials, timber, insulation materials and coatings.

**Hours**

Three class periods and three-hour lab period.

**When Offered**

Offered in fall and spring.

**CENG 331/3312 - Geology for Engineers (2 cr.)**

**Prerequisites**

CENG 2311

**Description**

Minerals and rock types, superficial deposits, interpretation of geologic maps, structural geology, geologic exploration, ground water cycle, geology of Egypt and greater Cairo.

**When Offered**

Offered in fall and spring.

## **CENG 311/3511 - Fundamentals of Hydraulic Engineering (3 cr.)**

### **Prerequisites**

ENGR 2122 and ENGR 3202 (or concurrent).

### **Description**

Introduction to water resources projects, pipelines and pipe networks, pumps, open channel flow, hydraulic structures, water flow in soil media, seepage, wells and dewatering systems.

### **Hours**

Two class periods and three hour lab period.

### **When Offered**

Offered in fall and spring.

## **CENG 454/4113 - Structural Mechanics (3 cr.)**

### **Prerequisites**

CENG 3153

### **Description**

Structural Mechanics: normal stress and strain due to normal force and bending moment, shear stress and strain due to shear force and torsion, shear center, shear stress in thin-walled sections, general stress state, principal stresses and stress invariants, failure criteria for brittle and ductile materials.

Stability of Structures: overall buckling of columns, local buckling of thin-walled sections, lateral torsion-flexure buckling of beams.

Structural Dynamics: single degree of freedom systems, damping, response to harmonic excitation, response to support excitation, response spectra, multi-degree of freedom systems, modal analysis, mass participation and earthquake analysis.

Introduction to fracture mechanics: Beams on elastic foundation and raft analysis; Introduction to theory of plates and shells.

## **CENG 000/4154 - Advanced Design of Reinforced and Prestressed Concrete Structures (3 cr.)**

### **Prerequisites**

CENG 452/4158 - Structural Systems and Advanced Design (3 cr.)

### **Description**

Prestressed concrete: basic concepts of prestressing, fibre stresses in a prestressed beam, load balancing, permissible stress in concrete and steel, prestressing systems, prestress partial losses, flexure, shear and torsion design of prestressed concrete elements, indeterminate PC structures, prestressed concrete slabs. Concrete water structures: design considerations and parameters, water tightness, analysis and design of circular and rectangular tanks.

## **CENG 426/4155 - Steel and Concrete Bridges (3 cr.)**

### **Prerequisites**

CENG 3153

**Description**

Types of bridges. Loads; dead, live, impact, wind and other loading. Basic design and construction of various types of bridges; truss, beam and plate girder, slab, box girder. bearings and expansion details.

**CENG 428/4157 - Tall Buildings and Large Span Structures (3 cr.)****Prerequisites**

CENG 3152 or CENG 3153

**Description**

Structural systems for modern tall buildings: gravity load systems; transfer floor systems; lateral load systems for resisting wind and earthquake forces; design considerations for tall buildings. Roof systems for large span areas and arenas: shell structures; folded plates; tensile structures and canopies.

**When Offered**

Offered occasionally.

**CENG 452/4158 - Structural Systems and Advanced Design (3 cr.)****Prerequisites**

CENG 3152 or CENG 3153

**Description**

Structural design process, structural performance criteria, choice of structural system, design topics for reinforced concrete and steel structures including: rigid frames, ribbed and flat floor systems, torsion, biaxial bending, deflections, composite construction.

**CENG 453/4212 - Construction Materials and Quality Control II (3 cr.)****Prerequisites**

CENG 3211

**Description**

Various types of advanced concrete, metals, and highway materials. Examples are concrete admixtures, special concretes, special construction alloys, soil stabilizers, and bituminous materials and high strength low alloy steels. Advanced mechanics of components incorporating innovative materials. Environmental-friendly use of materials and incorporation of waste materials. Advanced quality control techniques. Laboratory experiments are conducted for demonstration purposes.

**CENG 423/4252 - Methods and Equipment for Construction I (3 cr.)****Prerequisites**

ARCH 2551 or ARCH 3562 , CENG 3112 or CENG 3153 or with ARCH 3331 or CENG 3211.

**Description**

Techniques of building construction. Methods, materials, tools and equipment of construction. Traditional, mechanized and prefabrication construction systems. Applications on site management and safety, Selection of construction equipment. Applications on influence of construction methods on design and details. Emphasis in applications will be

provided based on student Program.

**Hours**

Two class periods and one three hour field trip or drawing lab period.

**When Offered**

Offered in fall and spring.

**CENG 424/4253 - Methods and Equipment for Construction II (2 cr.)**

**Prerequisites**

CENG 4252

**Description**

Civil construction; methods, materials, tools and equipment; traditional and modern construction technologies. Evaluation and selection of appropriate construction technology. Sizing, operation and maintenance of construction equipment, design of temporary construction elements such as: concrete formwork, scaffolding systems, cofferdams.

**Cross-listed**

Same as CENG 5226 with special course assignments for graduate students.

**When Offered**

Offered in fall and spring.

**CENG 411/4313 - Soil Mechanics (4 cr.)**

**Prerequisites**

ENGR 229/2112 - Strength and Testing of Materials (4 cr.) CENG 311/3511 - Fundamentals of Hydraulic Engineering (3 cr.)

**Description**

Soils' index properties and engineering classification; soil composition and structure; lab and field soil compaction; water seepage and water flow net in soil media, stresses in soil, soil stress-strain properties; consolidation in soil; shear strength of soils, basic theory of lateral earth pressure of soils; analysis of soil slope stability. Experimental testing, measurements and reporting.

**Hours**

Three class periods and three-hour lab period.

**When Offered**

Offered in fall and spring.

**CENG 461/4314 - Design and Construction of Foundations and Retaining Structures (3 cr.)**

**Prerequisites**

CENG 4313

**Description**

Earth pressure theories; bases for design of retaining structures; fundamental problems of slope stability; types of foundations systems and design criteria; design of shallow foundations and deep foundations; construction methods; effects of construction of nearby structures.

**When Offered**

Offered in fall and spring.

**CENG 462/4315 - Applications in Geotechnical Engineering (3 cr.)**

**Prerequisites**

CENG 4314 or concurrent.

**Description**

Geotechnical analysis and design concepts applied to engineering projects: stability of natural and man-made soil and rock slopes, reinforced earth, deep soil stabilization, cofferdams, mat foundation, deep foundation under various loading conditions.

**When Offered**

Offered occasionally.

**CENG 431/4351 - Transportation Engineering (3 cr.)**

**Prerequisites**

ENGR 2104 and CENG 3211

**Description**

Introduction to transportation planning and engineering; transportation planning tools, concepts of geometric and structural design and construction of highways, and concepts of geometric design of railways.

**When Offered**

Offered in fall and spring.

**CENG 481/4352 - Highway Facilities (3 cr.)**

**Prerequisites**

CENG 4351

**Description**

Analysis of factors in developing highway transportation facilities, traffic estimates and assignment, problems of highway geometric and design standards, planning and location principles, intersection design factors, structural design of pavement and highway maintenance.

**When Offered**

Offered occasionally.

**CENG 441/4410 - Introduction to Construction Management and Cost Estimating (3 cr.)**

**Prerequisites**

For construction engineering students: ENGR 3222, CENG 3153 and ARCH 3562 .

For architectural engineering students: ENGR 3222 and CENG 3151 .

**Description**

Introduction to construction management: participants involved types of construction project life cycle. Estimating techniques and procedures: approximate estimating, quantity surveying, detailed estimating procedure, costing of labor, material, equipment, overhead costs, cash flow analysis, financing costs, cost recording and cost accounts, Quality Management, and Safety Management; basics of company's organization and HR management.

**When Offered**

Offered in fall and spring.

**CENG 442/4420 - Construction Project Specifications, Bids, and Contracts (3 cr.)**

**Prerequisites**

CENG 4410

**Description**

Participants in a construction contract. Contract definition. Types of contracts; formation principles of a contract, performance or breach of contractual obligations. Analysis and comparison of the different kinds of construction contracts. Bidding logistics. Legal organizational structures. Different types and uses of specifications. Different forms of contracts utilized in construction.

**When Offered**

Offered in fall and spring.

**CENG 444/4430 - Risk Management and Bidding Strategies (3 cr.)**

**Prerequisites**

CENG 4410 and CENG 4440

**Description**

Introduction to Risk and Uncertainty. Process of Risk Management: Risk Identification, Risk Analysis (Qualitative and Quantitative), Risk Response Planning, Risk Monitoring and Control, Tools and Techniques: Decision Tree, modeling, optimization, linear programming, network optimization, and inventory models. Monte Carlo Simulation and Application. Accounting for Project Risks. Introduction to Risk Analysis packages (Crystal Ball, PERT Master). Analyzing the Bidding Behavior of Key Competitors and Estimating Optimum Markup.

**When Offered**

Offered in fall and spring.

**CENG 446/4440 - Techniques of Planning, Scheduling and Control (3 cr.)**

**Prerequisites**

CENG 4410 .

**Description**

Project definition and work breakdown structure, deterministic and probabilistic scheduling and control models and techniques. Resource allocation and levelling, optimal schedules, documentation and reporting, time and cost control, progress monitoring and evaluation. Computer applications.

**Cross-listed**

Same as CENG 5246 with special course assignments for graduate students.

**When Offered**

Offered in fall and spring.

**CENG 447/4450 - Design, Modeling and Simulation of Construction Systems (3 cr.)**

**Prerequisites**

CENG 4252

**Description**

Building Information Modeling, Computer modeling of construction processes, 4D Simulation of construction operations, Productivity modeling, measuring and forecasting, Sequencing and coordination of construction systems, Post-Optimality Analysis of Integer and Linear Programming Models in construction, discrete event simulation of construction processes.

**Hours**

Two one-hour class periods and three-hour lab period.

**CENG 448/4460 - Financial Management and Accounting for Construction (3 cr.)**

**Prerequisites**

CENG 4420

**Description**

Basic accounting terminology, accounting cycle and process, financial statements and analysis, unique aspects of accounting for the construction industry methods of revenue recognition for construction, percentage of completion computations, unbalanced items in construction: costs in excess and billings in excess.

**When Offered**

Offered in fall and spring.

**CENG 449/4470 - Contract Administration (3 cr.)**

**Prerequisites**

CENG 4420 or concurrent.

**Description**

Construction project parties' responsibilities pursuant to Civil Code and the Law of Tenders and Auctions (No. 89/1998), tendering procedures, contract negotiation and drafting, document control, international form of contracts (FIDIC), management of the variation process, Claims preparation and evaluation, disputes resolution methods.

**When Offered**

Offered occasionally.

**CENG 471/4551 - Environmental and Sanitary Engineering (3 cr.)**



**Prerequisites**

CENG 3511

**Description**

Water quality. Material balance relationships and water pollution control. Water demand. Drinking water: collection, treatment, distribution and quality assurance. Domestic and industrial wastewater collection, treatment and disposal. Environmental Impact Assessment.

**When Offered**

Offered in fall and spring.

**CENG 472/4552 - Design of Water Resources Systems (3 cr.)****Prerequisites**

CENG 4313

**Description**

Introduction to water resources engineering. Design of irrigation systems and canals. Hydraulic structures: types, functions, hydraulic design, environmental impact. Urban and rural drainage systems associated with public infrastructure projects: types, design considerations, and hydraulic design.

**When Offered**

Offered occasionally.

**CENG 473/4553 - Unit Operations in Environmental Engineering (3 cr.)****Prerequisites**

CENG 4551 concurrent.

**Description**

Theory and design of unit operations and processes in environmental engineering, emphasizing water and wastewater treatment; namely: physical, chemical and biological unit processes, sludge handling processes.

**Cross-listed**

Same as ENVE 5251, but with additional requirements for graduate students.

**CENG 474/4554 - Computer-aided design and construction of environmental and sanitary systems (3 cr.)****Prerequisites**

CENG 3511 and CENG 4410 .

**Description**

Sanitary, storm water and combined sewerage systems: selection, elements, layout, computer-assisted hydraulic modeling and design. Water supply and distribution systems: hydraulic modeling and design. Pipeline asset management, GIS application in pipeline management and Life Cycle Cost Analysis. Pipeline rehabilitation and repair methods. Planning and construction considerations.

**When Offered**

Offered in fall and spring.

**CENG 475/4555 - Solid and Hazardous Wastes Engineering (3 cr.)****Prerequisites**

Pre-requisites: Senior standing.

**Description**

Solid wastes - Nature, generation and collection. Local and regional management strategies including recycling and recovery of useful products, landfilling, and incineration. . Hazardous wastes - Nature, generation and collection. Risk assessment. Management strategies including source reduction, treatment, recovery, landfilling, and incineration.

**Cross-listed**

Same as ENVE 5254, but with additional requirements for graduate students.

Same as GREN 5213 .

**CENG 000/4556 - Design of water and wastewater treatment plants (3 cr.)****Prerequisites**

CENG 471/4551 - Environmental and Sanitary Engineering (3 cr.)

**Description**

Water impurities, Water quality regulations, drinking water standards; process and hydraulic design of water purification works: Flash mixing, flocculation, sedimentation, clariflocculator, sand filtration, membrane filtration, and disinfection. Wastewater characterization; process and hydraulic design of wastewater treatment works: Preliminary and primary treatment; secondary biological treatment units. Layout design of water treatment plants and wastewater treatment plants.

**CENG 000/4557 - Functional design and construction of tunnels and bridges (3 cr.)****Prerequisites**

CENG 481/4352 - Highway Facilities (3 cr.)

**Description**

Bridges and tunnels as part of road and/or rail networks, geometric features of bridges and tunnels, conceptual designs of substructure and superstructure of bridges and tunnels, geotechnical investigations; ramps, design of intersections and interchanges, earthwork configuration and stability, soil-structure interaction, methods of construction.

**CENG 494/4911 - Selected Topics in Construction Engineering (3 cr.)****Prerequisites**

Prerequisite: senior standing.

**Description**

Specialized topics in construction engineering will be selected and presented.

**When Offered**

Offered in fall and spring.

**CENG 480/4921 - Special Problems in Construction Engineering (1-3 cr.)****Prerequisites**

Prerequisite: consent of instructor and department chair on the basis of a well-defined proposal.

**Description**

Independent study in various problem areas of construction may be assigned to individual students or groups.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be repeated for credit if content changes.

**Notes**

Readings assigned and frequent consultations held.

**CENG 497/4951 - Practical Training (1 cr.)****Prerequisites**

Prerequisite: completion of 96 credit hours.

**Description**

Each student is required to spend a minimum of eight weeks in industrial training in Egypt or abroad. A complete account of the experience is reported, presented and evaluated. Professional ethics: theories and analysis of ethical case studies.

**When Offered**

Offered in fall.

**CENG 490/4980 - Senior Project I (1 cr.)****Prerequisites**

At least 4 of the 5 following courses CENG 3211 , CENG 4351 , CENG 4158 , CENG 4314 ,CENG 4551

**Description**

A capstone project. Topics are selected by groups of students according to their area of interest upon advisors' approval. Projects address solutions to open ended applications using an integrated engineering approach.

**When Offered**

Offered in fall and spring.

**CENG 491/4981 - Senior Project II (2 cr.)****Prerequisites**

CENG 4980 , any three courses from the following list: CENG 4410 , CENG 4420 , CENG 4440 , CENG 4460

**Description**

An applied cap stone project. Continuation of senior project I topics is encouraged. Actual construction projects are selected by groups of students upon advisors' approval for analysis. The management and technology aspects of construction are simulated and investigated.

**When Offered**

Offered in fall and spring.

**CENG 579/5121 - Assessment, Protection and Repair of Structures (3 cr.)**

**Description**

Types, mechanisms and analyses of deterioration of concrete and steel structures, approaches and means of damage assessment, assessing structural stability and integrity of existing structures, development of sound strategy for repair and restoration. Protection and repair materials, techniques, design and economic aspects.

**CENG 000/5151 - Advanced Design of Steel and Composite Structures (3 cr.)**

**Prerequisites**

Dept. Approval for undergraduate students

Admission to CENG graduate programmes

**Description**

Structural steel: LRFD design philosophy, structural steel systems, vertical and lateral resisting systems, construction of steel structures. Elements design: structural behaviour of members, local buckling and cross section classification, tension members, struts and axially loaded columns, bracing systems, beams, beam-columns and framed structures. Connections (bolted and welded): types of bolts, bolts subject to shear, tension and combined shear and tension, eccentric bolted connections, types of welds, weld subject to shear, tension and combined shear and tension, eccentric welded connections. Miscellaneous structural elements and systems: stairs, end gable columns and girts, portal frames, plate girders, composite steel concrete elements.

**CENG 000/5152 - Advanced Composite Materials in Infrastructure Applications (3 cr.)**

**Prerequisites**

Department approval for undergraduate students or Admission to CENG graduate programmes

**Description**

Advanced Composite Materials (ACMs) and Fibre Reinforced Polymers (FRPs), Mechanical properties, Flexural strengthening of reinforced concrete slabs using FRP strips, Flexural and shear strengthening of beams using FRP strips and sheets, strengthening of columns using FRP sheets, Concrete reinforced with FRP bars, ACMs new structures.

**CENG 577/5210 - The Finite Element Method in Structural Engineering (3 cr.)**

**Prerequisites**

Prerequisite: consent of instructor.

**Description**

Fundamentals of the Finite Element Method (Equilibrium Equations, Virtual Work and Potential Energy, Interpolation

and Shape Functions, Convergence, and Computer Programming), One-Dimensional Elements (Truss, Beam, and Frame Elements), Two-Dimensional Elements (Plane Stress and Plane Strain Elements, and Isoparametric Formulations), Three-Dimensional Elements (General and Axisymmetric Solids), Surface Elements (Flexure in Plates, General and Axisymmetric Shells), Analyses (Vibration Analysis, Stability Analysis, and Nonlinear Analysis), and Finite Element Surface Packages.

### **CENG 573/5220 - Advanced Construction and Building Materials (3 cr.)**

#### **Description**

Recent developments in the areas of concrete, highway materials and metals. Examples are concrete admixtures, light weight aggregates, polymers, prestressed concrete, soil stabilizers, bituminous materials and high strength low alloy steels. Advanced mechanics of components incorporating innovative materials. Environmental-friendly use of materials and recycling of solid waste.

### **CENG 571/5225 - Advanced Systems Analysis for Construction Engineering (3 cr.)**

#### **Prerequisites**

Consent of instructor.

#### **Description**

Systems analysis approach; systems modeling; systems approach to engineering and management; closed versus open systems; modeling construction organizations as open systems. Decision analysis: Artificial intelligence techniques: evolutionary algorithms, prediction and behavior detection, regression analysis, artificial neural networks, knowledge representation, fuzzy logic and fuzzy sets, fuzzy knowledge based systems.

#### **Notes**

Not open for students with MENG 5251 .

### **CENG 574/5226 - Methods and Equipment for Construction (3 cr.)**

#### **Description**

Civil construction; methods, materials, tools and equipment; traditional and modern construction technologies. Evaluation and selection of appropriate construction technology. Value engineering. Sizing, operation and maintenance of construction equipment. (Not open for AUC graduates.)

### **CENG 576/5227 - Advanced Systems for Construction (3 cr.)**

#### **Prerequisites**

Consent of instructor.

#### **Description**

Construction details, materials, equipment, manufacture, fabrication and erection of special building structures: high rise buildings, wide span structures, underground buildings, large scale projects, specialized buildings, etc. Construction organization, advanced construction materials with cost implications; Advanced Delivery Techniques for projects; Company organization and funding of projects.

### **CENG 565/5241 - Infrastructure Asset Management (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Urban infrastructure systems. It presents a generic framework for asset management that includes: information management and decision support systems, condition assessment, deterioration prediction, life cycle cost analysis, risk management, performance measures, and budget allocation. Elements of this framework are presented within the context of civil infrastructure systems; Roads, Buildings, Water networks, and Sewer networks.

**CENG 566/5242 - Simulation Applications in Construction (3 cr.)****Prerequisites**

Consent of instructor

**Description**

Simulation Paradigms, discrete event simulation, systems dynamics simulation, agent based simulation, elementary queuing theory applications in construction, validating simulation models, visualizing techniques in simulation, sampling from non-uniform distributions, introduction to special purpose simulation languages for construction, simulation modeling techniques and analysis.

**CENG 567/5243 - Construction Leadership and Management Skills (3 cr.)****Prerequisites**

Prerequisite: consent of instructor.

**Description**

Successful construction practices are impacted not only by the technical skills but also by the leadership and management personal skills of the project team. This course outlines indispensable leadership and management skills including time management, communication skills, capacity and team building as well as the ethical components in construction. International and local case studies are provided to illustrate these issues and quantify both the positive and negative impacts. A final project is submitted where with situational analyses and lessons learned.

**Notes**

Not open for credit for M.S. students.

**CENG 570/5244 - Advanced Construction Management (3 cr.)****Prerequisites**

Prerequisite: consent of instructor.

**Description**

The course covers advanced topics in the area of construction management including advanced scheduling techniques, cost schedule integration, bidding models applied to the construction industry emphasizing the difference in view points between owners and contractors, risk in construction, contingency and mark-up allocations, risk versus return relationship including models to determine the cost-of-capital for construction firms and projects.

### **CENG 572/5245 - Claims and Disputes in the Construction Industry (3 cr.)**

#### **Description**

The course provides an in-depth coverage of the litigious environment within the construction industry and outlines the appropriate techniques to handle such environment. Claims and disputes from both owners and contractors perspectives are covered. The course also outlines the use of techniques such as scheduling as mechanisms for the efficient resolution of claims.

### **CENG 575/5246 - Techniques of Planning, Scheduling and Control (3 cr.)**

#### **Description**

Project definition and work breakdown structure, scheduling and control models and techniques. Resource allocation and leveling, optimal schedules, documentation and reporting services, time and cost control, progress monitoring and evaluation. Computer applications. (Not open for AUC graduates.)

### **CENG 578/5247 - Resource Management for Construction Projects (3 cr.)**

#### **Prerequisites**

Consent of instructor.

#### **Description**

Resource management as an integral part of the construction management process. Management of materials; scheduling, handling, utilization, costing, accountability, procurement, warehousing, supply chain management, and inventory systems. Management of labor; tabulation, productivity, ergonomics, utilization, costing, and human resource management. Management of equipment; acquisition, production rates, utilization, matching and costing.

### **CENG 530/5261 - Contracts in Construction Industry (3 cr.)**

#### **Description**

Introduction to the basic construction industry and its problems. Participants in a construction contract, contract definition, types of contracts, formation principles of a contract, performance or breach of contractual obligations. Analysis and comparison of the different kinds of contracts used in construction. Bidding logistics. Legal organizational structures. Different types and uses of specifications.

### **CENG 531/5262 - Construction Management (3 cr.)**

#### **Description**

Introduction to construction management: participants involved types of construction project life cycle. Estimating techniques and procedure: approximate estimating, quantity surveying, detailed estimating procedure, costing of labor, material, equipment, overhead costs, financing costs, cost recording and cost accounts, Quality Management, and Safety Management.

### **CENG 532/5263 - Planning, Scheduling and Control (3 cr.)**

**Description**

Project definition and work breakdown structure, scheduling and control models and techniques. Resource allocation and leveling, optimal schedules, documentation and reporting, time and cost control, progress monitoring and evaluation. Computer applications.

**CENG 533/5264 - Management for Multi-National Environments (3 cr.)****Prerequisites**

CENG 5262

**Description**

Complexities of multinational Projects. Challenges in managing multinational Projects; crosscultural differences, communication, standards, approaches to problem solving. Cross-culture differences & engineering firms, avoiding cross-cultural pitfalls, taking advantage of cultural diversity. Distance management. Breaking into foreign markets.

**When Offered**

Offered in fall and spring.

**CENG 534/5265 - Risk Management and Bidding Strategies (3 cr.)****Prerequisites**

CENG 5262

**Description**

Introduction to risk and uncertainty. Process of risk management; risk identification, risk analysis (qualitative and quantitative), risk response planning, risk monitoring and control. Tools and techniques; decision trees, PERT, modeling, optimization, Monte Carlo simulation and application. Introduction to risk analysis packages (Crystal Ball, PERT Master). Analyzing the bidding accounting for project risks. Behavior of key competitors, estimating optimum markup.

**When Offered**

Offered in fall and spring.

**CENG 535/5266 - Claims and Disputes in the Construction Industry (3 cr.)****Prerequisites**

CENG 5262 .

**Description**

The course provides an in-depth coverage of the litigious environment within the construction industry, appropriate techniques to handle such litigations. Claims and disputes from both owners and contractors perspectives. Techniques of scheduling as mechanisms for the efficient resolution of claims.

**When Offered**

Offered in fall and spring.

**CENG 536/5267 - Systems Analysis for Construction (3 cr.)**



**Prerequisites**

CENG 5263

**Description**

Integration and application of systems science, operations research and systems methodologies. Design, production, and maintenance of efficient and reliable systems. Introduction to mathematical models. The formulation of the linear programming models. Solving of linear programming models using the graphical solution method, simplex technique, transportation and assignment problem. Decision making under uncertainty, minimum cost model, and sensitivity analysis.

**CENG 537/5268 - Resource Management for Construction Projects (3 cr.)**

**Description**

Resource management as part of the construction management process. Productivity in construction; conceptual and mathematical formulation of labor, equipment, and materials factors affecting productivity. Management of materials; scheduling, handling, utilization, procurement and acquisition costing, material management information systems, inventory analysis. Management of labor; productivity, ergonomics, utilization, costing, manpower planning and organization. Management of equipment; acquisition, production rates, utilization, matching, costing. Critical project resources.

**CENG 538/5269 - Procurement of Assets & Services for Construction Projects (3 cr.)**

**Description**

Articulation of requirements for new facilities and needs, facility definition and delivery, effective search and definition of resources, management of the process of acquisition, negotiation approaches and strategies, alternative solution and value optimization. International and local case studies.

**CENG 599/5290 - Research Guidance Thesis (3 cr.)**

**Description**

Consultation on problems related to student thesis. Must be taken twice for credit.

**CENG 580/5291 - Independent Study in Construction Engineering (3 cr.)**

**Description**

Independent study in various problem areas of engineering may be assigned to individual students or to groups. Readings assigned and frequent consultations held.

**Notes**

(Students may sign for up to 3 credits towards fulfilling M. Sc. requirements).

**CENG 592/5292 - Advanced Topics in Construction Engineering (3 cr.)**

**Prerequisites**

Prerequisite: consent of instructor.

**Description**

Topics to be chosen every year according to specific interests.

**Repeatable**

May be taken for credit more than once if content changes.

**CENG 611/6211 - Structural Stability (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Fundamental concepts in elastic stability: equilibrium equations, stability criteria and post-buckling behavior. Various aspects of instability: buckling of columns, frames, arches, plates and shells, dynamic buckling, nonlinear problems, torsion and flexural buckling. Approximate methods for stability analysis. Interactive buckling phenomena in light metallic constructions.

**CENG 612/6212 - Structural Dynamics (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Dynamics of discretized systems; one degree of freedom systems; free and forced vibration; response to base excitation, stochastic excitation, impact. Lumped - mass multidegree systems: free and forced vibration of two degrees of freedom systems in response to harmonic and step functions, pulses, and general type. Matrix formulation for multiple degrees of freedom, natural frequencies, Lagrange equations, modal analysis. Flexural vibrations of beams, plates and frames. Dynamic response to impact and moving loads.

**CENG 613/6213 - Earthquake Engineering and Seismic Design (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Earthquake ground motion and response spectra, dynamic response of buildings and structures to seismic loads, lateral load resisting systems, seismic design considerations, drift and lateral stability, code considerations, design of reinforced concrete, masonry and steel structures, design of nonstructural systems, structures with seismic mitigation systems: active and passive damping and base isolation.

**CENG 631/6222 - Specialty Materials for Construction (3 cr.)**

**Prerequisites**

Consent of instructor.

### **Description**

Review of applied mechanics of materials. Asphalt concrete; components, conventional and SUPERPAV characterization of asphalts, asphalt concrete conventional and SUPERPAV mix design, mechanistic and environmental performance. Special types of concrete; e.g. high strength, high durability, corrosion resistant, self compact. Non-conventional construction materials.

## **CENG 679/6223 - Preserving, Repair and Sustainability of Structures (3 cr.)**

### **Prerequisites**

CENG 5121 or Equivalent Course/Experience

### **Description**

Protection of masonry, wood, concrete and steel and composite structures. Preserving historic structures. Condition assessment using innovative techniques. Equations and formulae for condition assessment with lab field visits. Complex repair of structures subjected to moderate to severe damage. Durability and sustainability of strategic structures. Repair life cycle cost.

## **CENG 632/6231 - Highways Pavement Systems and Design (3 cr.)**

### **Prerequisites**

Consent of instructor.

### **Description**

Pavement systems, structures and design factors. Flexible pavements; materials characterization, traffic loading and volume, stresses and strains models, sensitivity analysis, pavement performance, reliability, design criteria, traditional and contemporary methods of design. Rigid pavements; stresses and deflections in rigid pavements due to curling, loading and friction, design criteria, methods of design, design of joints. Design project.

## **CENG 699/6290 - Research Guidance Dissertation (3 cr.)**

### **Description**

Consultation on problems related to student thesis. To be taken 11 times for credit.

## **CENG 680/6291 - Independent Study in Structural and Material Engineering (3 cr. max.)**

### **Description**

Independent study in various problem areas of structural and material engineering may be assigned to individual students or to groups. Readings assigned and frequent consultations held.

## **CENG 692/6292 - Advanced Selected Topics in Structural and Material Engineering (3 cr.)**

### **Description**

Topics chosen according to special interests of faculty and students. May be repeated for credit more than once if content changes.

## **CORE 110/1010 - Freshman Seminar (3 cr.)**

### **Prerequisites**

Taken concurrently with RHET 1010 .

### **Description**

This course is a cluster of distinct courses (topics may vary semester to semester) with shared goals and learning outcomes. All sections of CORE 1010 aim to introduce students to university-level academic study and the meaning and values of a liberal arts education. Through varied section topics, readings, films and other media, discussions and assignments, CORE 1010 will help students adapt and succeed in today's university environment, as they develop their skills in critical thinking, information literacy, teamwork, and effective reading and communication. Courses focus on issues of lasting value and current relevance for students, and address questions such as "Who am I?" "What do citizenship and civic responsibility mean?" "How do I know what is true?" and "What is a good life?"

### **When Offered**

Fall and Spring. Summer only for students repeating the course.

## **CORE 199/1099 - Selected Topics for Core Curriculum (3 cr.)**

### **Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

## **CORE 000/1130 - The Human Spirit (3 cr.)**

### **Description**

This interdisciplinary course explores the different facets of what it means to be human and how the human spirit is manifest in various human endeavors and situations. Students will discuss or debate readings in various genres, watch films, analyze various perspectives, write, and draw on their own experiences to formulate conclusions about how and why the answers to these essential and enduring questions involve complexity and multiple points of view.

## **CORE 000/1140 - Community Matters (3 cr.)**

### **Description**

This course aims to deepen students' understanding and broaden their perspective on the issues and methods of civic and community engagement. Students will analyze the needs of various groups and develop a critical, reflective understanding of the role of context, interconnectedness, and respect of difference. Some sections may integrate Community Based Learning; please check prior registration.

### **CORE 000/2096 - Selected Topics for the Core Curriculum in Global Studies (3 cr.)**

#### **Description**

Course addressing broad intellectual concerns and open to all students, irrespective of major.

### **CORE 299/2099 - Selected Topics for Core Curriculum (3 cr.)**

#### **Prerequisites**

RHET 1000

#### **Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

### **CORE 000/2142 - Profiles in Civic Leadership and Civic Project Development (3 cr.)**

#### **Prerequisites**

RHET 1020

#### **Description**

This course uses an interdisciplinary approach to examine human rights, social justice, civic engagement and leadership, with a special focus on the university and the opportunities it can provide for service learning and student leadership. Students will learn about the structure and role of various types of institutions including the state, international and civil society institutions within development planning and practice, as well as fund raising and grant writing. While others work on a Civic Leader Project, MEPI students will develop their "Civic Service Project", required formally in their senior year.

### **CORE 499/4198 - Selected Topic for Core Curriculum (3 cr.)**

#### **Prerequisites**

RHET 2010

#### **Description**

Interdisciplinary seminar addressing broad current topics and concerns from a variety of intellectual and professional perspectives; open and accessible to all senior students, irrespective of major.

### **SEMR 111/1011 - The Human Quest: Exploring the "Big Questions" (3 cr.)**

#### **Description**

This is an interdisciplinary survey course aimed at helping new undergraduate students acquire an attitude of engaged curiosity, a widened worldview, and enhanced self expression as they begin to discover how a university education can help them find their places in the world. Using an interdisciplinary approach combining geography, history, biology, political science, anthropology, sociology, literature, and the arts, it aims to introduce students to the process of raising and exploring life's enduring "Big Questions," through readings, music, debates, films, and technology, and thus they acquire some of the knowledge, skills, and attitudes needed by a university student in the 21st century.

**SEMR 112/1012 - "Who Am I?": Explorations in Consciousness and Self Across the Disciplines" (3 cr.)**

**Description**

Self-awareness allows us to perceive both limits and possibilities. This course will be a practical and theoretical exploration of different approaches to consciousness and the self in the sciences, psychology, philosophy and religion, among others.

**SEMR 123/1023 - Celebrating Ideas: A Voyage Through Books, film, Art and Theater (3 cr.)**

**Description**

This course aims at exposing students to a wide range of key landmarks in human intellectual and cultural development. This is achieved through reading a number of texts, each important, simulating, often groundbreaking and discussing the ideas and concepts embodied in these texts. The topics and themes raised through the readings will be further explored and enhanced through exposure not just to the written word but through film, art and theater, all modes in which humankind has been able to express its intellectual development and creative energy.

**SEMR 199/1099 - Selected Topics in Core Curriculum (3 cr.)**

**SEMR 000/1110 - Creative Thinking & Problem Solving (3 cr.)**

**Description**

Pathways 2 freshmen level course inter-disciplinary course taught by 5 instructors over 2 sections using a modular approach to themes and content.

The course examines the nature of creative thinking, problem solving and innovation, across a variety of contexts and disciplines, and seeks to awaken and foster students' creativity, as something innate in all of us. Students will participate in a variety of assignments and mini-projects over the course of the semester with both individual and group work, focusing on relevant and engaging real-life problems. The course brings a multi-disciplinary, modular approach to an examination of creativity as a 21st century skill vital for students in all fields of study.

**SEMR 200/2010 - Core Seminar (3 cr.)**

**SEMR 299/2099 - Selected Topics in the Humanities (3 cr.)**

**SEMR 300/3099 - Core Honors Seminar (3 cr.)**

**SEMR 410/4018 - East-West Dialogue: Cross-Cultural Perceptions and Reflections (3 cr.)**

**Description**

This course provides a unique opportunity for students at AUC to share their educational experience with students in the west. The medium for this shared experience will be videoconferences held over the Internet with university classes in the United States and other Western countries. For each videoconference, we will be reading the same texts as the

students at our partner institutions. The videoconferences provide not only the medium for the shared component of this course; they also suggest its substantive theme. For, while we encounter the apparent cultural other over the Internet, we will be exploring with them the question of our relationship to the other- especially how our perceptions of the other have developed over time and how they continue to influence the political interaction between "East" and "West" today.

**Cross-listed**

Same as POLS 4018

**Notes**

SEMR 4018 cannot be taken as a capstone class "within the major" by political science students.

**SEMR 411/4028 - The Arab Spring in Arab Eyes: Perceptions and Reflections from the Arab World (3 cr.)**

**Description**

This videoconference dialogue course offers a comparative view of the 2011 Egyptian Revolution in relation to the Arab revolts that have swept the region since the beginning of 2011, in what became known as the Arab Spring. This course shall use an interdisciplinary approach to explore the social, economic, political and cultural contexts that led up to these popular uprisings. In this light, AUC will be holding videoconferences with various partner universities and institutions in order for the class to share perspectives and first-hand experiences relating to the Arab Spring with the partners. Specific readings will be assigned by AUC and the partnering universities, offering a general introduction of the countries that will be studied and a specific background with regards to the linkage these countries/geographical areas have with the Arab Spring. This is an interdisciplinary course that can be relevant to students from different backgrounds and disciplines, especially those that have an interest in contemporary Middle East issues.

**SEMR 412/4038 - South-South Dialogue: Perceptions and Reflections from the Global South (3 cr.)**

**Description**

This videoconference dialogue course aims at offering a comparative view of and a fresh perspective on the 'Global South.' The course shall use an interdisciplinary approach to explore the social, economic, political and cultural contexts of some of the countries/regions that constitute what is known today as the 'Global South' in an attempt to outline the commonalities as well as the differences that exist within this global conglomerate of nation-states. In this light, AUC will be holding videoconferences with various partner universities and institutions in order for the class to share perspectives and first-hand experiences relating to the themes and topics of discussion with the partners. Specific readings will be assigned by AUC and the partnering universities to have a general introduction to the countries that will be studied and a specific background on the linkage these countries/geographical areas have with the Global South as an economic and a political amalgam. This is an interdisciplinary course that can be relevant to students from different backgrounds and disciplines, especially those that have an interest in contemporary development issues.

**DSCI 000/1411 - Fundamentals of Data Science I (3 cr.)**

**Description**

Introduction to the fundamentals of the data science domain. Fundamentals of the R programming language and related tools for usage in Data Science. Problem Solving using R. Basic statistics, data gathering, preparation, and analysis, data visualization, case studies, and some ethical issues.

**DSCI 000/1412 - Fundamentals of Data Science II (3 cr.)**

**Prerequisites**

DSCI 1411

**Description**

Fundamentals of the Python programming language and related tools for usage in Data Science. Further in-depth coverage of statistics relevant to the domain. More on data gathering, and preparation, with prime focus on analysis. More on machine learning, data visualization, and further case studies.

**DSCI 000/3411 - Monte Carlo Simulation (3 cr.)****Prerequisites**

DSCI 1412 ,MACT 2132 and MACT 3211

**Description**

This course is an introduction to fundamental tools in designing, conducting, and interpreting Monte Carlo simulations. Topics covered include Random number generation; Simulation from continuous distributions, Simulation from continuous distributions, Bootstrap and Jackknife; Simulation of Brownian motion; Markov Chain Monte Carlo. The course includes an applied project (a thorough application of simulation to real-world problems such as finance, statistics) using computer programming language such as R or Python).

**DSCI 000/3412 - Machine Learning (3 cr.)****Prerequisites**

MACT 4231

**Description**

Topics include: Support Vector Machines, Kernel PCA, Ensemble learning, bagging and boosting Vector Quantization, Mixture Modelling, and Expectation-Maximization, Introduction to Neural Networks. Case Studies: Face recognition, speech recognition, and more.

**DSCI 000/3413 - Biostatistics (3 cr.)****Prerequisites**

MACT 4231

**Description**

This course is an introduction to important topics in biological, medical, health, and environmental statistical concepts and reasoning. Topics include: Introduction to Biological data Processing and Analysis, Hypothesis testing, nonparametric tests, Logistic regression, Poisson regression, Statistical methodologies in analysis of survival data (Kaplan-Meier estimator, Cox's proportional hazards models, time-dependent covariates, multiple failure outcomes). Typical biomedical applications, including clinical trials. The course includes an applied project using computer programming language such as R or Python.

**DSCI 000/4411 - Fundamentals of Data Mining (3 cr.)****Prerequisites**

DSCI 3412



**Description**

Introduction to the fundamental concepts of data mining, motivation for and applications of data mining, text and web mining, and survey of techniques and models. Topics include: data pre-processing, frequent pattern mining, clustering, classification, and case studies using data sets taken from real-life applications, and use of data mining software.

**DSCI 000/4412 - Introduction to Big Data Technologies (3 cr.)****Prerequisites**

DSCI 1412

**Description**

The course introduces Big Data problems and associated frameworks and technologies. First, the course motivates the topic using real-world big data problems. Second, it sheds light on handling big data, from data collection, to monitoring, storage, analysis and reporting. The course also includes programming models used for scalable big data analysis. It also introduces one of the most common Big Data frameworks, namely Hadoop, in addition to the Map-Reduce Programming Model. Finally, it solves sample case studies using the covered Big Data analytics tools.

**DSCI 000/4413 - Analysis of Categorical Data (3 cr.)****Prerequisites**

MACT 2132 and MACT 3223

**Description**

The analysis of discretely measured responses such as counts, proportions, nominal variables, ordinal variables, discrete interval variables with few values, continuous variables grouped into a small number of categories, etc. Topics include: Detection of outliers in categorical data; Inference and distributions for discrete data; Inference for contingency tables; Generalized linear models for count data; Models for binary and multinomial response (logistic regression, Poisson regression, Loglinear models); Classification and regression trees; Cluster analysis for categorical data; The course includes an applied project using computer programming language such as R or Python.

**DSCI 000/4414 - Data Visualization (3 cr.)****Prerequisites**

DSCI 1412

**Description**

The amount and complexity of information produced in science, engineering, business, and everyday human activity is increasing at staggering rates. The course discusses visual representation methods and techniques that increase the understanding of complex data. Good visualizations not only present a visual interpretation of data, but do so by improving comprehension, communication, and decision making. In this course, you will learn how the human visual system processes and perceives images, good design practices for visualization, tools for visualization of data from a variety of fields, and programming of interactive visualizations using 3D.

**DSCI 000/4415 - Machine Deep Learning (3 cr.)****Prerequisites**

DSCI 3412

**Description**

Perceptron and multilayer neural networks, Gradient descent, Back-propagation, Convolutional Neural Network (CNN), pooling layers, CNN applications, Recurrent Neural Networks (RNN), vanishing gradient problem, case studies: object detection, and stock price estimation, GANs.

**DSCI 000/4416 - Capstone I (Data Science Senior Project I) (1 cr.)**

**DSCI 000/4417 - Capstone I (Data Science Project II) (2 cr.)**

**ECON 199/1099 - Selected Topics for Core Curriculum (3 cr.)**

**Prerequisites**

RHET 1000

**Description**

This course introduces the concept of economic rationality while exploring applications of this logic to historical and contemporary problems facing individuals, firms, and societies. The course will explore the fundamentally economic nature of the human condition specifically addressing issues such as scarcity, public goods, poverty and inequality, environmental conservation, underground markets, and health care.

**When Offered**

Offered in fall and spring.

**Notes**

This course does not count as part of Economics major or minor requirements.

**ECON 202/2011 - Introduction to Microeconomics (3 cr.)**

**Description**

Fundamental economic concepts and methods of economic analysis with emphasis on microeconomic issues. Analyzes basic principles of market economics including resource allocation, opportunity cost, core elements of demand and supply, market equilibrium, elasticity, pricing, market structure, and trade exchange. Labor and capital markets, market efficiency, regulation, and social welfare implications.

**When Offered**

Offered in fall and spring.

**ECON 201/2021 - Introduction to Macroeconomics (3 cr.)**

**Description**

Fundamental economic concepts and methods of economic analysis with emphasis on macroeconomic issues. Analyzes aggregate economic activity in relation to the level, stability and growth of national income. Topics analyzed include the determination and effects of national income, consumption, investment, unemployment, inflation, interest rates, and how these may be influenced by monetary, fiscal and other policies.

**When Offered**

Offered in fall and spring.

## **ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)**

### **Description**

Historical survey of the economic conditions, systems, and institutions of the Middle East with special emphasis on the period 1800-1945.

### **When Offered**

Offered in fall and spring.

## **ECON 216/2061 - Mathematics for Economists I (3 cr.)**

### **Prerequisites**

MACT 1111 or equivalent.

### **Description**

Algebraic methods. Calculus of a single variable. Composite functions, limits and asymptotes, continuity, simple and implicit differentiation, Taylor's theorem, maxima and minima and points of inflection, logarithmic and exponential functions. Introduction to integral calculus. Applications to economic theory and business finance.

### **When Offered**

Offered in fall and spring.

## **ECON 218/2081 - Statistics for Economists (3 cr.)**

### **Prerequisites**

MACT 2222 .

### **Description**

The course covers descriptive and sample inferential statistical techniques, including main descriptive statistics and data sources and types. Topics include point estimation and statistical estimators' desirable properties, hypothesis testing, correlation, and analysis of variance (ANOVA). Applications in Economics and Business are emphasized.

### **When Offered**

Offered in fall and spring.

## **ECON 302/3011 - Intermediate Microeconomic Theory (3 cr.)**

### **Prerequisites**

For Economics students ECON 2011 and ECON 3061

For Actuarial science students ECON 2011 and MACT 2132 or ECON 3061

For ACTS ECON 2011 and MACT 2132 or ECON 3061

### **Description**

Preferences, utility theory, and derivation of consumer demand. Convergence conditions in consumer choice. Slutsky decomposition. Supply, cost structure, factor inputs, and technology. Properties of production functions including the

Euler Theorem. Monopoly, duopoly (Bertrand and Cournot), oligopoly, monopolistic, and competitive markets. The extent of market entry. Labor choice, the capital asset pricing model, and technological innovation. Introduction to game theory. General equilibrium and welfare economics.

**When Offered**

Offered in fall and spring.

**ECON 301/3021 - Intermediate Macroeconomic Theory (3 cr.)**

**Prerequisites**

ECON 2021 and ( ECON 2061 or MACT 1122 ).

**Description**

This course covers aggregate economic behavior using Keynesian and Neoclassical macroeconomic analysis. Various theories of how a nation's income, employment and price level behave under static and dynamic conditions are examined. Topics covered include: income determination, unemployment, price stability, budget deficits, balance of payments equilibrium and economic growth, in addition to the impact of fiscal, monetary and exchange rate policy on macroeconomic performance.

**When Offered**

Offered in fall and spring.

**ECON 303/3041 - Monetary Economics (3 cr.)**

**Prerequisites**

FINC 2101 plus ECON 2021 and ECON 2011

**Description**

This course emphasizes the evolution of money, the payment system and the commercial banking. The role of central banks, use of monetary tools, the interaction between banking sector and financial markets in impacting domestic macroeconomic performance and the global economy. Topics include: monetary theory and policy; central banking; management of the banking system; financial regulations; and the nexus between monetary policy, financial markets and macroeconomic performance. The course combines theoretical formalization with empirical investigations.

**When Offered**

Offered in fall and spring.

**ECON 312/3053 - Economic Development (3 cr.)**

**Prerequisites**

ECON 2021 and ECON 2011

**Description**

Major economic problems of developing countries. Alternative explanations of underdevelopment and theories of development. Major domestic and international aspects of development including population growth, capital accumulation and international economic relations. Sustainable development.

**When Offered**

Offered in fall and spring.

**ECON 000/3054 - Environmental and Natural Resource Economics (3 cr.)****Prerequisites**

ECON 201 and ECON 2011

**Description**

The course discusses basic environmental and natural resource models and environmental policies as applied to energy, minerals, water, fisheries, pollution control, and sustainable development. It includes an experiential learning component.

**ECON 320/3055 - The Digital Economy: Information Technology, Knowledge and Intellectual Property (3 cr.)****Prerequisites**

ECON 201 and ECON 2011 .

**Description**

The course offers analysis of the economics of information technology, knowledge and intellectual property. Topics include: electronic readiness, knowledge measurement indices, the digital divide; economics of content: knowledge as a public good, static and dynamic costs and benefits of intellectual property rights; competition and intellectual property; open business models, innovation and entrepreneurship in the digital economy.

**When Offered**

Offered in fall and spring.

**ECON 316/3061 - Mathematics for Economists II (3 cr.)****Prerequisites**

MACT 1122 or ECON 2061

**Description**

The first part of the course is matrix algebra which covers the following: determinant, rank, matrix inverse, Cramer's rule, eigenvalues and eigenvectors. The second part discusses multivariate functions and partial derivatives as well as unconstrained and constrained optimization. Homogeneous and homothetic properties of multivariate functions are also discussed. The third part of the course is advanced integral calculus. Economic applications are emphasized throughout the course.

**When Offered**

Offered in fall and spring.

**ECON 308/3071 - Labor Economics (3 cr.)**

**Prerequisites**

ECON 2021 and ECON 2011

**Description**

The course offers a general treatment of modern theoretical and empirical labor economics. Topics to be covered include: operation of labor markets; wage determination; firm, industry and public sector labor demand; human capital investment; race and gender employment and wage discrimination; public policy effects. The relation of labor market outcomes and attendant public policy to poverty, income distribution and economic growth is covered. (The course includes community-based learning components)

**When Offered**

Offered in fall and spring.

**ECON 318/3081 - Introduction to Econometrics (3 cr.)****Prerequisites**

ECON 2081 and ECON 3061

**Description**

The course covers regression methods for analyzing data in economics, including multiple regression with indicator variables, regression with heteroskedastic and correlated errors, hypothesis and diagnostic testing. The course emphasizes practical applications using econometrics software.

**When Offered**

Offered in fall and spring.

**ECON 420/4000 - Independent Study (1-3 cr.)****Prerequisites**

Consent of instructor and unit head, senior standing.

**Description**

Guided reading, research, and discussion based on a subject of mutual interest to a student and faculty member.

**When Offered**

Offered in fall and spring.

**ECON 000/4002 - Senior Thesis (3 cr.)****Prerequisites**

Senior Standing.

Minimum GPA Requirement may apply.

**Description**

This course provides students with the opportunity to conduct original research work, in accordance with university regulation, on a selected topic of mutual interest between the student and the faculty supervisor. Individual guidance is then provided to the student on qualitative and quantitative research methodology, with the aim of producing a high-

quality, original thesis. After the submission of the thesis, the student presents a defense seminar in front of a panel of faculty members. Subsequently, the thesis is approved and finalized upon the successful incorporation of faculty comments and suggestions.

### **ECON 413/4012 - Feasibility Study (3 cr.)**

#### **Prerequisites**

ECON 2011 and ECON 2021

#### **Description**

This course develops the analytical tools and applied case study analysis to financial and economic project evaluation. Cost-benefit analysis, shadow pricing, multiple criteria for project feasibility, economic worth of investment projects, cash flow discounting, and financial and economic rates of return. Applications to real life cases including investment and development projects as well as entrepreneurship ventures and risk assessment.

#### **When Offered**

Offered occasionally

### **ECON 000/4013 - Behavioral Economics (3 cr.)**

#### **Prerequisites**

Concurrent with ECON 3011 or consent of professor

#### **Description**

The course will expose students to the science of behavioral economics. It will cover a range of topics including individual decisions, markets and public choice. Topics include extensions and shortcomings of the rational choice model and deviations from the Expected Utility Theory; Prospect theory and preference dependence; time preferences; social preferences, behavioral trust and fairness.

### **ECON 310/4014 - Public Economics and Policy Analysis (3 cr.)**

#### **Prerequisites**

ECON 2021 and ECON 2011

#### **Description**

This course covers analysis of public policy with special focus on Egypt and the MENA Region. It discusses issues related to market failure, equity and efficiency, public goods, tax policy and externalities. The course gives students the chance to do applied policy research in this area.

#### **When Offered**

Offered in fall and spring.

### **ECON 000/4015 - Applied Econometrics (3 cr.)**

#### **Prerequisites**

ECON 3081

#### **Description**

This is an application course where students use real world examples and put into practice theories they learned in statistics and econometrics courses. It concentrates on expanding students' experience of practical applications of key econometrics methods in the different fields of economics such as microeconomics, macroeconomics, labor, development, and program impact evaluation.

### **ECON 403/4031 - International Trade (3 cr.)**

#### **Prerequisites**

ECON 3021 and ECON 3011

#### **Description**

International Trade Theory: Mercantilist Theory, comparative costs, and post- Ricardian theories including economies of scale and imperfect competition. Protection Theory; Effective Protection. Terms of trade, national income and the balance of payments. Fluctuations in trade. Foreign exchange markets, exchange rates and adjustment in the balance of payments. International resource movements.

#### **When Offered**

Offered in fall and spring.

### **ECON 404/4041 - Financial Economics (3 cr.)**

#### **Prerequisites**

ECON 2081, ECON 3011 and FINC 2101 .

#### **Description**

This course provides a rigorous introduction to modern financial economics. It is designed to equip students with theoretical tools and practical case studies necessary to understand the dynamics of financial markets and their interaction with other spheres of the economy including asset pricing, risk management, and financial regulation schemes.

#### **When Offered**

Offered occasionally.

### **ECON 415/4051 - Seminar on Economic Development and Policy in the Middle East (3 cr.)**

#### **Prerequisites**

ECON 2021

#### **Description**

This course explores the application of key concepts relating to economic development and policy in the Middle East and North Africa. The focus is on evidence-based policy analysis in areas such as macroeconomic adjustment, trade relations, labor market performance, poverty and inequality.



**When Offered**

Offered occasionally.

**ECON 416/4061 - Mathematical Economics (3 cr.)****Prerequisites**

ECON 3061

**Description**

The course starts with a discussion of quasiconcave programming (Kuhn-Tucker theorem), then moves on to linear (first- and second-order) and nonlinear difference equations. This is followed by linear and nonlinear differential equations, including stability analysis, steady-state equilibrium, convergence and phase diagrams. In addition, systems of differential equations (the saddle path) are also studied. The final component of the course is dynamic optimization covering finite- and infinite-horizon problems as well as discounting. Economic applications are emphasized throughout the course.

**When Offered**

Offered in fall.

**ECON 418/4081 - Econometric Methods (3 cr.)****Prerequisites**

ECON 3081 and concurrent with ECON 4082

**Description**

The first part of the course covers extensions of the classical linear model including departures from the basic assumptions of the general model: multicollinearity, autocorrelation, heteroskedasticity, endogenous regressors and GMM estimation. The second part discusses models with limited dependent variables (e.g. logit and probit models) and their applications. The third part explores panel data, covering issues related to estimation and inference in panel datasets as well as applications.

**When Offered**

Offered in fall.

**ECON 418P/4082 - Practicum (1 cr.)****Prerequisites**

Concurrent with ECON 4081

**Description**

This practicum is structured to run parallel with ECON 4081. It is conducted as an application of the tools studied in ECON 4081 to solve practical problems using econometrics software.

**When Offered**

Offered in fall.

**ECON 405/4091 - History of Economic Thought (3 cr.)**

**Prerequisites**

ECON 2021 and ECON 2011

**Description**

This course investigates the historical evolution of economic theory by examining the development of Mercantilism, Physiocracy, Classical, Marxian, Neoclassical theory, Austrian-Keynesian and post-Keynesian economics.

**When Offered**

Offered in fall and spring.

**ECON 414/4094 - Economics of Egypt (3 cr.)****Prerequisites**

ECON 2021 and ECON 2011 . Junior standing or higher.

**Description**

This course is an application of economic tools to explore the performance, analyze major problems and propose reform agendas for the contemporary Egyptian economy. Among the topics discussed are the path of economic development, macroeconomic performance, sectorial behavior, and institutional restructuring since the Nasser era and up to the present time. The course gives the students a chance to conduct applied research and to design policy solutions related to challenges facing the Egyptian economy.

**When Offered**

Offered in fall and spring.

**ECON 411/4099 - Seminar: Special Topics in Economics (3 cr.)****Prerequisites**

Pre-requisites vary depending on the topic of the course

**Description**

Guided reading, research, and discussion of specific topics chosen by the instructor in theoretical policy or applied economics.

**When Offered**

Offered occasionally.

**Repeatable**

May be taken for credit more than once if content changes.

**ECON 521/5200 - Independent Study (3 cr.)****Description**

Guided reading, research, and discussion based on a subject of mutual interest to a student and faculty member. Must obtain the approval of the Director of Graduate Program and Chair of the Department.

**ECON 525/5201 - Research Workshop (3 cr.)**

**Prerequisites**

ECON 5211, ECON 5221 and ECON 5281.

**Description**

This course offers an overview of different research methods and processes, resulting in the completion and presentation of a major research paper by each student.

**When Offered**

Offered Fall and Summer

**ECON 599/5202 - Research Guidance and Thesis (6 cr.)****ECON 502/5211 - Advanced Microeconomic Theory (3 cr.)****Prerequisites**

ECON 4061

**Description**

Axioms of consumer preferences and rational utility representation. Derivation of Marshallian, Hicksian and Engel demands. Consumer theory under uncertainty. Advanced theory of the firm. Market structure and competition including Cournot, Bertrand, and Stackelberg competition for homogeneous and differentiated products. The Envelope Theorem and its applications including Roy, Sheppard, and Hotelling Lemmas. The equilibrium number of firms and business cycle behavior. General equilibrium theory.

**When Offered**

Offered in fall.

**ECON 519/5213 - Project Evaluation (3 cr.)****Prerequisites**

ECON 5251 or ECON 3011 or FINC 5201.

**Description**

Analysis of economic criteria (cost benefit analysis) applied in evaluating development projects for economic policy and planning, following a review of the project cycle from inception to impact evaluation.

**When Offered**

Offered in fall.

**ECON 520/5215 - Competitive Strategy and Game Theory (3 cr.)****Prerequisites**

ECON 3011, FINC 5201 and Consent of Instructor.

**Description**

Analysis of competitive strategy and game theory including Nash equilibrium and its refinements. Subgame perfection, Bayesian equilibrium, and information uncertainty. Repeated games. Game theory applications to various economic themes such as in trade, labor, industry, education, stock markets, insurance, and R & D.

**When Offered**

Offered in Spring.

**ECON 530/5217 - Health Economics in Developing Countries (3 cr.)****Prerequisites**

ECON 4061 or ECON 5282 .

**Description**

This course explores health economics and its unique features in relation to the developing world. Students will learn about the supply and demand for services provided by the health care sector and gain an understanding of the markets for health professionals and health care provider firms specifically extant in the developing world. The course will also explore the roles of insurance, managed care and HMO's, professional licensure, for-profit and not-for-profit provider firms, and asymmetric information problems in health care markets. Finally, the course will explore issues within the developing world pertaining to regulation, government financing of health care, and health care reform.

**When Offered**

Offered occasionally.

**ECON 531/5219 - Health Care Financing (3 cr.)****Prerequisites**

ECON 5282 or ( ECON 3021 and ECON 3011)

**Description**

This course explores how health care systems in the developing world raise revenue, the advantages and disadvantages of varying methods of doing so, and how health systems strike a balance between public and private revenue sources. The course also explores how policy makers choose which services to include in publicly-financed health systems, the allocation of resources to those 'purchasing' health care, and the degree to which there is a role for competition in this realm. This course will also explore how resources are allocated to health care providers and the incentives associated with different payment methods.

**When Offered**

Offered occasionally.

**ECON 501/5221 - Advanced Macroeconomic Theory (3 cr.)****Prerequisites**

ECON 4061

**Description**

Analysis of the equilibrium and disequilibrium macroeconomic activity of an open, monetized economy with a government sector. Theories of aggregate consumption and investment behavior.

**When Offered**

Offered in fall.

## **ECON 505/5231 - Advanced International Trade (3 cr.)**

### **Prerequisites**

ECON 5251 or (ECON 3021 and ECON 3011).

### **Description**

Analysis of topics in the pure theory of international trade. International aspects of monetary mechanisms, nature and effects of foreign investment, significance of trade theory and monetary movements for developing countries.

### **When Offered**

Offered in spring.

## **ECON 517/5233 - International Finance (3 cr.)**

### **Prerequisites**

ECON 5221

### **Description**

This course focuses on the fundamental open macroeconomic issues whether theoretical or empirical. Topics covered include the economics of exchange rates, models of speculative attacks, Mundell-Fleming model, regime credibility, predicting currency and financial crises, international capital flows, and international contagion.

### **When Offered**

Offered in spring.

## **ECON 504/5241 - Financial Economics (3 cr.)**

### **Prerequisites**

ECON 4061 and consent of instructor

### **Description**

Analysis of financial assets and institutions. The course emphasizes modern asset valuation theory and the role of financial intermediaries, and their regulation, in the financial system. State-preference theory and optimal portfolio decision mean-variance portfolio theory, measuring portfolio risk and return, Capital Asset Pricing model (CAPM), Arbitrage Pricing Theory (APT), Option Pricing Theory, the Black-Scholes formula, Asymmetric information and rational expectations, term structure of interest rates.

### **When Offered**

Offered in fall.

## **ECON 528/5242 - Financial Econometrics (3 cr.)**

### **Prerequisites**

ECON 4081 and ECON 5241 .

### **Description**

This course aims to advance students' understanding of modern econometric techniques related to financial issues. This course will cover frontier tools of financial econometrics and empirical finance. The interaction between financial

theory and econometric analysis is emphasized. Topics include: non-normality of financial data, volatility clustering and asymmetric volatility, time series models, Vector Autoregressive (VAR) models and continuous time and threshold models. The course is also designed to train students in formulating, estimating and testing models for financial time series using EViews software.

**When Offered**

Offered in spring.

**ECON 500/5251 - The Economic Setting for Development (3 cr.)**

**Description**

Does not count for credit in the M.A. degree in Economics. Foundation course dealing with macroeconomic variables and issues concerned with the functioning of an economy, in addition to selected microeconomic aspects pertinent to development. Special attention is given to concepts and tools applicable to challenges facing developing countries whose economies often lack the maturity of more developed countries in terms of institutional and policy settings.

**When Offered**

Offered in fall.

**ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)**

**Description**

This course explores the economic structures, institutions, and policy challenges in the Middle East and North Africa (MENA). Topics investigated include: the demographic transition, the participation of women in the workforce, regional migration, growth and structural change, poverty, inequality, and regional integration.

**When Offered**

Offered in spring.

**ECON 512/5254 - Economic Growth & Development (3 cr.)**

**Prerequisites**

ECON 3011 , FINC 5201 and consent of instructor

**Description**

Growth models and their limitations in developing countries, role of capital, investment, and inflation in economic development, non-economic factors, criteria, and choices of techniques in the process of development.

**When Offered**

Offered in fall.

**ECON 514/5256 - Ethical Issues in Development (3 cr.)**

**Prerequisites**

ECON 5251 or ECON 3021 .

**Description**

This course issues of an ethical nature that are related to the development process, decision-making and implementation of development projects. The course will first consider ethical and moral concepts and their philosophical underpinnings and review different schools of thought. Against this background, selected issues specific to development strategies and practices will be dealt with. The course will make use of case studies to illustrate and help analyze issues of concern.

**When Offered**

Offered occasionally.

**ECON 522/5257 - Economic Strategies for Sustainable Development (3 cr.)****Prerequisites**

(ECON 5251 and ECON 5282 ) or (ECON 3021 and ECON 3011 )

**Description**

This course explores economic strategies achieving balanced and sustainable development from Keynesian, Structuralist, and Neoclassical perspectives. Development policy concerned with short term resource allocation, medium term economic adjustments, and sustainable long term economic growth with technical progress will be studied. Comparative country studies will conclude the course.

**When Offered**

Offered in spring.

**ECON 590/5259 - Research Practicum (3 cr.)****Prerequisites**

Completion of at least 3 core courses.

**Description**

This course is a 200-hour assignment requiring that students gain extensive experience with a relevant development-related institution either locally or abroad. It is to be completed over a 4-6 week period providing students exposure and work experience in a development setting. Students are then required to prepare, under faculty supervision, a substantial research-based paper drawing on their practicum experience.

**When Offered**

Offered in spring.

**ECON 516/5261 - Mathematical Economics (3 cr.)****Prerequisites**

ECON 4061

**Description**

Introduction to economic models: models of the single sector, the trade cycle, growth with employment, medium- and long-term planning, and cyclical growth. Economic regulation, the treatment of technical progress, input-output models.

**When Offered**

Offered occasionally.

**ECON 508/5271 - Labor Economics (3 cr.)****Description**

The course delivers an advanced treatment of mainstream and alternative approaches to labor economics emphasizing an integration of theoretical and empirical models. Topics to be covered include the life cycle human capital models, search theoretic models, internal markets, reservation wages, migration, inequality, and poverty.

**When Offered**

Offered occasionally.

**ECON 518/5281 - Econometrics (3 cr.)****Prerequisites**

ECON 4081

**Description**

The course covers the theory and practice of time series econometrics, including ARMA and VAR models and their applications. Non-stationary time series is analyzed such as unit roots, co-integration and error correction model. Further topics are volatility models (GARCH models) that model the conditional variances and covariances of time series data. Forecast evaluation and model selection methods are also discussed.

**When Offered**

Offered in spring.

**ECON 507/5282 - Quantitative Methods (3 cr.)****Description**

The course aims to ensure that students understand, master and apply quantitative techniques used in modeling and decision-making related to development. More specifically, the course introduces the basic concepts of quantitative approaches to decision making. It also utilizes wide applications of quantitative techniques to analyze a variety of economic and social problems. Topics include: regression analyses, factor and cluster analysis, panel data and qualitative models.

**ECON 509/5291 - An Advanced History of Economic Thought (3 cr.)****Description**

This course will explore, using both primary and secondary sources, the ideas put forth by the great economic thinkers. Class discussion will center on the immediate social impact of these ideas and the factors influencing the course of their evolutionary or revolutionary change over time. Further, this class will encourage students to think critically about the writings of the great economists and explore the possibility that ideological bias is an inexorable feature of science.

**When Offered**

Offered occasionally.



## **ECON 506/5299 - Advanced Topics in Economics (3 cr.)**

### **Prerequisites**

Consent of instructor

### **Description**

Guided readings, research, and discussion in special topics in Economics. May be taken for credit more than once if content changes.

### **When Offered**

Offered occasionally.

## **EDUC 000/1099 - Selected Topics for the Core Curriculum (3 cr.)**

### **Description**

This course will consider current significant topics related to education. Open to all freshmen students.

## **EDUC 000/2011 - Education and Society (3 cr.)**

### **Description**

An introduction to a sustained inquiry into the social, cultural, historical and contemporary dynamics of education in the 21st century. Students will explore how formal and informal education relate to local, regional, and global trends. Using a model that employs disciplines from the humanities, social sciences, and STEM (science, technology, engineering, mathematics), students will examine, critique, and explain education in light of its origins, major influences, and consequences. Students will have the opportunity through readings to explore not only the social science focus of what actually happens in education, but also the cultural studies focus of the meaning people give to education. Students will explore potential solutions for relevant local and global educational issues.

## **EDUC 000/2021 - Fundamentals of Teaching and Learning (3 cr.)**

### **Description**

The overall goal of this course is to help students gain an understanding of the fundamental concepts of how students learn and how teachers teach. The former is achieved through a study of major classical and contemporary learning theories, while the latter is achieved through a study of knowledge of the fundamental teaching theories and what it takes to be an effective teacher. The connection between learning theories and teaching strategies will be made to link learning and teaching together. Students will be introduced to the main theories derived from neuro-scientific research. This focus will help students understand the roles of classroom teachers and how this should be based on explicit knowledge of learning theories. In addition, the basics of classroom assessment and lesson planning will be covered.

## **EDUC 000/2099 - Selected Topics in Core Curriculum (3 cr.)**

### **Description**

This course addresses contemporary issues in education and is open to all students regardless of major. May be taken more than once if content changes.

## **EDUC 000/3011 - Educating Children and Youth for a Sustainable Future (3 cr.)**

### **Description**

The natural resources available on planet earth are declining due to people's misuse of these resources. This course presents the knowledge, skills and dispositions children and youth need in order to successfully meet the challenges and opportunities that await them as agents of change in a sustainable global development context, to preserve the planet's resources. Through this course, students will achieve an understanding of education for sustainable development (ESD), how it is defined, why it is needed and how to infuse it into the educational system. ESD is perceived as a need for this generation and future generations in Egypt and elsewhere, for thinking about a future in which environmental, societal, and economic considerations are balanced, in the pursuit of development and improved quality of life.

## **EDUC 000/3021 - Educational Assessment and Instructional Design (3 cr.)**

### **Description**

The course is an introduction to educational assessment and its interdependent relationship with the design of instructional experiences. Traditional and alternative methods of assessment are covered, with the aim of helping students understand the design and implications of these assessments as well as apply some of them to instructional tasks. The course will also expose students to current issues related to the use of assessment in terms of policy, accountability, teaching, learning, and supporting diverse groups of students.

## **EDUC 000/3031 - Education, Civil Society and International Development (3 cr.)**

### **Prerequisites**

EDUC 2011 and EDUC 2021

### **Description**

This course explores the changing roles of civil society in education and development, with a special emphasis on intergovernmental organizations, NGOs, community-based associations, and grassroots movements. The course introduces students to different educational ideologies for analyzing the relationships among civil society, citizenship and human development. Included are the corresponding themes of: democratic citizenship; national and global models of education for a competitive global free market; local and global network of human rights and peace education; and environmental movements and education in a global civil society. This is an interdisciplinary course for students interested in philosophical, social, economic, political or global studies.

## **EDUC 000/4031 - Gender and Education (3 cr.)**

### **Description**

This class address the changing, but continuing patterns of marginalization, power, authority, and unequal expectations, opportunities, and treatment through educational systems for all students, female and male utilizing historical, contemporary, and cultural contexts. A number of ways will be explored on how gender is played out, structured, reproduced and transformed in contemporary formal settings (classrooms from preschool to university) and informal settings (non-classrooms). Foundational issues to be investigated including how gender complicates disciplinary knowledge (and vice versa), the (de) constructing and reinforcing of genders (via science and schooling), implications for teaching, society, and social justice as well as relationships among different cultural categories. Different narrative sources will be utilized including biography, popular culture, primary source materials, and artifacts. This will be a multi-disciplinary class with material drawn from sociology, gender & women's studies, history, and other fields, applied distinctly policy and practice.

### **EDUC 000/4098 - Selected Topics for Core Curriculum (3 cr.)**

#### **Description**

Participants in this seminar will consider a significant current educational issue from multiple academic and professional perspectives. Open to all senior students regardless of major.

### **EDUC 511/5201 - Foundations of Educational Research (3 cr.)**

#### **Description**

The fundamental aim of this course is to assist MA candidates to develop the knowledge and skills essential to the identification and critical evaluation of educational research relevant to their professional interests and contexts. In the process, learners will become familiar with key issues in qualitative and quantitative research in the field of international and comparative education, and be able to distinguish between good and poor research.

#### **Notes**

This pre-requisite course must be taken in the first or second semester of study.

### **EDUC 521/5202 - Social Foundations of Education (3 cr.)**

#### **Description**

Using a multidisciplinary approach, the course will examine the underlying issues within contemporary educational policies, practices and theories. The course will draw on humanities and social science disciplines to foster the development of MA student's interpretive, normative and critical perspectives on education both inside and outside of schools. It will also assist students as they explore the relationship of education (formal and informal) to societal, regional and global issues.

#### **Notes**

This pre-requisite course must be taken in the first or second semester of study.

### **EDUC 531/5203 - Introduction to International & Comparative Education (3 cr.)**

#### **Description**

This course introduces MA students to the origins and development of the field of international and comparative education. The course addresses current educational concerns both on local and international levels, such as purposes of schooling, educational access and opportunity, education accountability and authority, teacher professionalism, and impact of globalization on education. The course also explores the relationship between education and national development, and deepens student's understanding of methodological approaches to comparative and international education research.

### **EDUC 541/5204 - Human Development & Learning Theory (3 cr.)**

#### **Description**

This course provides an introduction to human growth and development from infancy to adulthood. Emphasis is placed on the integration of various aspects of development, including cognitive, linguistic, social-emotional, and motor. Students will study theoretical and empirical advances in learning, including neuro-cognitive research, to understand learning from formal (school, university) perspectives, as well as social, informal perspectives.

**EDUC 551/5205 - Foundations of Instructional Practice (3 cr.)****Description**

This course provides an introduction to methods of instruction at primary, secondary, and higher education levels. While pragmatic concerns such as classroom management, lesson planning, differentiation, modes of learning, and standards-based instruction will all be covered, the course will emphasize theories and empirical evidence regarding various strategies, techniques, and philosophies of instruction. Curriculum development, assessment, and student-centered learning approaches will be covered.

**EDUC 532/5211 - Globalization, Development, and Educational Reform in the Arab World (3 cr.)****Description**

This course surveys policy and reform issues of education in the Arab World, with focus on specific initiatives and how they fit into the context of policy, culture, and economics. The course will examine traditional and non-traditional methods of teaching, school organization, and educational policy-making and will seek to understand how globalized reform initiatives, often instigated through development projects, have impacted those methods. Resulting modes of governance, policy and practice will be analyzed.

**EDUC 533/5212 - Comparative Gender, Adolescent, Youth, and Human Development Policy (3 cr.)****Description**

This course will explore gender, adolescent youth, and human development policy from a global perspective. The course will examine issues of gender with regard to social and education disparities, as well as women's rights in comparative and international perspectives. It will also target the changing roles of youth and adolescents in society and the rights and responsibilities of young people. Particular attention will be given to the relationships between educational practices, systems, and policies and their relationship to life-work outcomes.

**EDUC 535/5213 - Educational Evaluation & Assessment (3 cr.)****Description**

Contemporary educators are expected to know how to assess and evaluate the knowledge and performance of students, teachers, staff members, and themselves. In today's reform-minded, information-based society, practitioners must be able to frame problems accurately, collect appropriate data, and analyze the information using acceptable approaches. This course will use a comparative approach, to help MA students learn to: (a) frame a problem using various approaches; (b) identify appropriate data; (c) analyze data; and (d) develop and evaluate alternative solutions to a defined problem. Students will also learn how to utilize current models and methods of assessment in educational contexts.

**EDUC 536/5214 - Human Rights-based Education (3 cr.)****Description**

This course surveys issues and specialized topics in human rights-based education policy, practice, and research. The course focuses on issues of educational availability and access in terms of gender, location, and fees; additionally, it

focuses on access to education in conflict areas. The course also focuses on the rights of children in both formal educational environments and within communities. The course will explore these issues through cases and empirical research.

### **EDUC 575/5215 - Educational Policy Analysis (3 cr.)**

#### **Description**

This course explores the policy cycle and contextual factors that influence decisions, by enabling and refining student's analytic skills. Topics will include the analysis of how policy is created; the ideal and actual forms of the policy cycle; how to create sustainable feedback systems; how to use appropriate analytic approaches to the study of data; and how to use appropriate analytic techniques to analyze policy choices.

### **EDUC 588/5216 - Research-Based Comparative Approaches to Educational Reform (3 cr.)**

#### **Description**

Following an interdisciplinary approach, the course focuses on the reform of educational policy and practices at national, regional, and international levels. The course aims at acquainting students with educational reform trends and approaches including sector reform and school-based reform; developing students' analytical skills of reform initiatives and outcomes in different countries; developing students' research skills related to the monitoring and evaluation of reform projects; and promoting the approach of lifelong learning among students as researchers and reflective practitioners.

### **EDUC 534/5217 - Strategic Educational Planning and Development (3 cr.)**

#### **Description**

Education and development are often considered strategically together. This course will examine, from an educational lens, the implications of educational planning in a country's development. In particular, the course will examine the role of educational policy on the economy, cultural hegemony, and politics. Students will study human capital theory in relationship to various educational strategies. Students will also understand the economic tradeoffs in education as a strategy for development.

### **EDUC 542/5221 - Transformative Leadership (3 cr.)**

#### **Description**

This course looks specifically at leadership in multiple educational venues within a global setting by looking at the cognitive (theoretical), intrapersonal (characteristics of a leader) and interpersonal (relational & contextual) aspects of leadership. This includes looking at organizations, team leading, formal and informal leadership. In this course students will investigate leadership theories, characteristics of leader and the synergy of leadership and organization. Students will examine elements of leadership and explore how effective leaders create successful school change and innovation. Students will analyze case studies and leadership styles. The course content and activities encourages and promotes students to be educational change agents. Students will study leadership traits, negotiation skills and change strategies in their own leadership and consider the effectiveness of these characteristics in different circumstances and/or cultural settings. Attention will also be directed to using facilitative power to make second order changes.

### **EDUC 544/5222 - School Governance and Management (3 cr.)**

#### **Description**

This course examines the allocation of resources to support both student and faculty learning and the effective management of school operations to insure a safe and secure environment, conducive to learning. The course will cover the application of research on effective schools, models of supervision and leadership theory and implementation; it will also investigate the interconnectedness of instructional supervision, educational leadership and school governance and management.

### **EDUC 546/5223 - Organizational Theory and Educational Institutions (3 cr.)**

#### **Description**

Educational organizations - schools in particular - are complex environments that are considered to have competing demands. This course seeks to identify the organizational facets of educational institutions that either enhance or obstruct meaningful educational reform. By examining sociological, political, economic, and technical features of educational organizations, this course will expose opportunities for leadership-based change in these organizations.

### **EDUC 573/5224 - Research-based Instructional Leadership (3 cr.)**

#### **Description**

The task of improving teaching and learning in the classroom is one that all school administrators face. This course explores the theory and practice of instructional supervision within a school culture and its critical importance to student achievement. It focuses on the principal as the instructional leader in the school.

### **EDUC 552/5231 - Online and Blended Learning Design and Instruction in Developing Countries (3 cr.)**

#### **Description**

Online and blended learning have become commonplace instructional modalities all over the world. Integrating them into developing countries and Arab contexts presents its own challenges and opportunities. The first part of the course will focus on research related to the latter. The main part of the course will focus on design, assessment, and teaching principles for online and blended learning. Students will engage in real-world projects that involve the application of these principles to their own contexts. The final part will discuss the implications of some trends such as MOOCs and social media for instruction in the region. The course is relevant for educators and designers in both K-12 and higher education settings.

### **EDUC 554/5232 - Literacy, Learning and Education (3 cr.)**

#### **Description**

The primary goal of this course is to introduce new views of what literacy and learning are, and the consequent changes in their relationship to education. Topics will include: differentiating elite from mass literacy; the role of literacy in schooling; the application of these concepts to instruction in classroom settings (Pre-K-12 and higher education); and how the continuing evolution of these concepts may change their relationship to education yet again in future.

**EDUC 556/5233 - Action Research (3 cr.)****Prerequisites**

EDUC 5201

**Description**

This course will lead students into action research, a form of self-reflective systematic inquiry by practitioners on their own practice. The process of action research will assist students in assessing needs, documenting the steps of inquiry, analyzing data, and making informed decisions that can lead to desired educational outcomes. The course will equip students with research tools that can be used to contribute to school renewal and instructional improvement. Students will also learn about the four types of action research: collaborative, critical, classroom, and participatory. Finally, the course will critically examine a selected number of case studies from various regions.

**EDUC 557/5234 - Reaching Diverse and Underserved Learners (3 cr.)****Description**

Traditional methods of teaching have been unable to meet the needs of all learners. Students with physical and learning disabilities, students for whom the language of instruction is not their first language, and students who come from impoverished backgrounds all tend to struggle to learn and demonstrate academic proficiency in traditional models of education. This course explores the methods of differentiation and the theoretical foundations of special education, second language instruction, and education of impoverished students. It provides an introduction to each of these areas by providing explicit classroom strategies while providing the underlying theoretical conditions for these strategies.

**EDUC 000/5236 - Education for Sustainable Development (3 cr.)****Description**

The overall goal of this course is to help MA candidates achieve a deeper understanding of Education for Sustainable Development as a societal need for Egypt with an emphasis on STE2 AM education. We will examine the goals, strategies, and elements of Education for Sustainable Development as we consider "What is Education for Sustainability?" Our work will focus on using the "lens of sustainability"-- considering the overlapping perspectives of the environment, the economy, equity and social justice- to frame learning in formal and non-formal/ informal education settings and partnerships and collaboration between them. What knowledge, skills and dispositions do students need in order to successfully meet the challenges and opportunities that await them as agents of change in an ESD global context? What pedagogies could be utilized to present ESD issues in an interdisciplinary manner bringing together disciplines of science, technology, engineering, arts, humanities, and mathematics? Through exemplars and case studies, participants will be provided with opportunities to critically evaluate ESD policies and practices through an international lens focusing on theories and pedagogical practices. Furthermore, there will be analysis to different curricula design for sustainability components and to the challenges they encounter. This will help focus on how to develop interdisciplinary learning material that is the core essence of ESD and STEAM education and relevant to the community local needs in Egypt.

**EDUC 000/5238 - Programs and Environments for Inclusive Education (3 cr.)****Description**

This course presents theoretical information as well as practical examples of programs and environments that can benefit all learners. Methods of instructional planning will be covered, with a focus on how teachers can provide enriched learning environments for all learners. There is a focus on both the cognitive and social-emotional

development of learners, in order to enable the educators enrolled in the class to create a cohesive community of learners in their future classrooms.

### **EDUC 562/5241 - Pedagogy & Theory of Modern Teaching & Learning in Higher Education (3 cr.)**

#### **Description**

This course provides students with an overview of trends, theories, principles, and practices in higher education instruction, including online learning and associated instructional models. Beginning with a focus on adult learning theory, as well as learning theories especially associated with traditional university-aged students, the course will provide both general and disciplinary-specific trends in content delivery and skill development. The course will examine new models of delivery in contexts of both learning theories and institutional missions. Students will conduct research projects that involve classroom observation, student outcome data analysis, and teacher and learner interviews, all with the purpose of providing specific guidance on instructional improvement from both an organizational and a classroom perspectives.

### **EDUC 563/5242 - Theories of Student Development in Higher Education (3 cr.)**

#### **Description**

This course examines patterns of intellectual, identity, and social development among older adolescents and adults, and how these relate to learning and development of desired outcomes of postsecondary education. It is designed to introduce graduate students to major theoretical perspectives, the research based on these theories, and how this body of theory and research can be used to guide the design of educational policies and practices in colleges and universities to promote college student learning and development.

### **EDUC 564/5243 - Policy and Administration in Higher Education (3 cr.)**

#### **Description**

This course provides an overview of both the organizational theories associated with higher education and the trends and practices in policy and administration of higher education. The course includes the role of governance and how it influences organizational structure, policy and leadership. In addition, the course provides comparative knowledge on the impact of policies and organizational structures on resource allocation, learning outcomes, student satisfaction, labor market satisfaction and other characteristics.

### **EDUC 000/5259 - Selected Topics in International & Comparative Education (3 cr.)**

#### **Description**

This course presents students with major education debates, practices and challenges which face educators around the world. The course addresses both persistent and emerging themes in learning, teaching, policy making, and educational leadership in schools and in higher education. The course may be taken twice if the topic is different.

### **EDUC 000/5265 - Applied Projects in Inclusive Education (3 cr.)**



**Prerequisites**

PSYC 5205 , EDUC 5204 , EDUC 5238

**Description**

This is a hands-on course that will help students integrate theoretical acquired knowledge into their professional practice. The course will enhance the student's ability to utilize reflective, experiential, and pragmatic pedagogic approaches in order to teach for diverse learners effectively. The course aims at promoting the facilitation of learning through peer observation, critical friends groups, and cognitive coaching. The 5265 course should be taken in the final semester of the diploma, after the student has completed PSYC 5205, EDUC 5204, and EDUC 5238. It can be taken concurrently with either PSYC 5255 or EDUC 5232

**Cross-listed**

PSYC 5265

**EDUC 595/5281 - Supervised Fieldwork (3 cr.)**

**Description**

This practical course provides participants with opportunities to interact in fieldwork settings, whether as classroom teachers or school-level educational leaders. Students complete 30 hours of supervised fieldwork, with the distribution of activities based on the student's background and interests, and with the agreement of the student's advisor. Each student must participate in at least three different types of fieldwork activities, which could include peer observation, group-based interaction, observation by a qualified supervisor or mentor, or other parallel activity. Required of MA students who have never taken a documented fieldwork course with extensive classroom and/or school-based experience.

**Notes**

This course will be graded Pass-Fail.

**EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)**

**Description**

Independent study in various areas of International & Comparative Education. To be assigned to individual students or to groups. Readings and assignments are required, and frequent consultations are held.

**EDUC 000/5288 - Comprehensive Exam (1 cr.)**

**Prerequisites**

Final semester before graduation

**Description**

Students prepare for comprehensive examinations, in lieu of a thesis.

**EDUC 593/5293 - Capstone Project (3 cr.)**

**Prerequisites**

EDUC 5201 and EDUC 5202 .

**Description**

Students undertake a capstone project related to their concentration, approved by student's advisor and two faculty readers. The capstone should be an applied project, firmly grounded in a theoretical framework and a rigorous literature review.

**EDUC 599/5299 - Research Guidance and Thesis (2 cr.)****Description**

Guidance and approval of thesis research.

**EGPT 199/1099 - Selected Topics for the Core Curriculum (3 cr.)****Description**

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.

**EGPT 202/2020 - Ancient Egypt: An Introduction (3 cr.)****Description**

An introduction to history, society, religion, art and architecture of Ancient Egypt, including a description of the nature and character of the field of Egyptology. The continuing impact of Ancient Egypt on subsequent societies and cultures including that of modern Egypt will be examined.

**When Offered**

Offered each semester.

**EGPT 203/2030 - Introduction to Egyptian Architecture (3 cr.)****Prerequisites**

Only open to declared architecture majors and Egyptology majors.

**Description**

A basic class on Egyptian architecture, comprised of a brief introduction to the culture of the ancient Egyptians, followed by a series of lectures dealing with Egyptian architecture, the typology of Egyptian architecture, and the role it played in Egyptian society and culture. The raw materials and tools used by the Egyptians will be covered, as well as some of the motifs used in the buildings, and their ideas about architecture, including their use of light, water, and space in the buildings. The course includes sections on temples, tombs, and, with a brief discussion of urban planning. The course will conclude with a section on Egypt's legacy to architecture, and how the use of the grammar of architecture changes over time. Field-trips will also constitute an important part of the course and will, in some cases, take the place of class-time.

**EGPT 299/2099 - Selected Topics for Core Curriculum (3 cr.)**

**Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**EGPT 204/2210 - Introduction to Archaeology (3 cr.)****Description**

The methods and theories of archaeological excavation and interpretation; archaeological evidence of human cultural development; archaeology as a social science.

**When Offered**

Offered occasionally.

**EGPT 250/2250 - Ancient Egyptian Literature in Translation (3 cr.)****Description**

The course will analyze Ancient Egyptian literary texts, including folk tales, myths, wisdom literature and poetry, in order to present ancient Egyptian culture through its literature and make students appreciate the depth and high level of this advanced culture in such an early period of Egypt's long history.

**When Offered**

Offered occasionally.

**EGPT 253/2251 - Hieroglyphics I (3 cr.)****Description**

The course introduces the student to the study of classical Egyptian script, grammar and hieroglyphic texts of the Middle Kingdom.

**When Offered**

Offered in fall.

**EGPT 254/2252 - Hieroglyphics II (3 cr.)****Prerequisites**

EGPT 2251

**Description**

The course is a continuation of EGPT 2251 . Students will concentrate on the verbal forms of classical Egyptian.

**When Offered**

Offered in spring.

## **EGPT 301/3010 - Temples, Tombs and Hieroglyphs (3 cr.)**

### **Prerequisites**

Instructor's consent

### **Description**

The class examines Egypt's history and geography and devotes special attention to the effect of geography and natural resources upon the development of Ancient Egyptian history, art, and civilization.

Prerequisites instructors consent

### **When Offered**

Offered occasionally.

## **EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)**

### **Prerequisites**

EGPT 2020 or consent of instructor.

### **Description**

The course covers the period between the Predynastic and the Middle Kingdom and includes: reliefs, statuary, architecture, and minor arts, illustrated with images. The class focuses on learning how to look at and to analyze Egyptian art and to place it in its context. This course involves a significant amount of memorization that enables the student to create a mental data-bank that is useful when putting excavated material in context and in analyzing Egyptian art. There will be field-trips to the museum and to Giza and Saqqara during the semester.

### **When Offered**

Offered in fall.

## **EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)**

### **Prerequisites**

EGPT 2020 or consent of instructor.

### **Description**

The course covers the period between the Middle Kingdom and the Ptolemaic Period. It includes: reliefs, statuary, architecture, and minor arts, illustrated with images. The class focuses on identifying the basic principles of Egyptian art and architecture, learning how to look at and to analyze Egyptian art and to place it in its context. There will be field-trips to the museum and to other sites, possibly including Luxor, during the semester.

### **When Offered**

Offered in spring.

## **EGPT 343/3211 - History of Ancient Egypt I: Pre-Dynastic Through Middle Kingdom Egypt (3 cr.)**

**Description**

This course covers the history of Egypt from the Predynastic period to the Middle Kingdom. The course focuses on the 'official' history of Egypt rather than the cultural/social history which is covered in a separate course. The scope of 'official' history includes: the rise of the Egyptian state, the different rulers of Egypt and their contributions to the state in terms of buildings, religious changes and foreign policy, the economy, social organization, and Egypt's foreign relations. Literary sources will be augmented by archaeological evidence. Field trips to archaeological sites in the Cairo area are an obligatory aspect of the course.

**When Offered**

Offered in fall.

**EGPT 344/3212 - History of Ancient Egypt II: Middle Kingdom through Ptolemaic Egypt (3 cr.)****Description**

This course covers the history of Egypt from the Middle Kingdom to the end of Pharaonic history. The course focuses on the 'official' history of Egypt rather than the cultural/social history that is covered in a separate course. The scope of 'official' history includes: the different rulers of Egypt and their contributions to the state in terms of buildings, religious changes and foreign policy, the economy, social organization, and Egypt's foreign relations. Literary sources will be augmented by archaeological evidence. Field trips to archaeological sites are an important component of the course.

**When Offered**

Offered in spring.

**EGPT 403/4030 - Independent Study in Egyptology (1-3 cr.)****Description**

Independent research projects in Egyptology, with consent of instructor and student's adviser.

**When Offered**

Offered every semester.

**EGPT 440/4040 - Ancient Egyptian Religion and Ethics (3 cr.)****Prerequisites**

Prerequisite: instructor's permission.

**Description**

The course will examine in detail the beliefs and religious institutions of the Ancient Egyptians. Special attention will be devoted to official and popular religions, and to their manifestation in architecture as well as in the literature of Ancient Egypt.

**When Offered**

Offered occasionally.

**EGPT 000/5030 - Independent Study and Guided Readings (3 cr.)**

**Prerequisites**

Department approval.

**Description**

Guided individual readings and/or research on a subject of mutual interest to student and faculty member that is beyond the scope of what is offered.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be taken only twice.

**EGPT 304/5100 - Culture and Society of Ancient Egypt (3 cr.)****Prerequisites**

HIST 2901 and HIST 2902 .

**Description**

The course identifies the basic structure of ancient Egyptian society and culture, and places special emphasis upon the interaction of economics, social organization, environment, law, politics, and religion.

**When Offered**

Offered occasionally.

**EGPT 510/5100 - Culture and Society of Ancient Egypt (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

The course will cover the cultural, technological, and social history of ancient Egypt, with an emphasis on using primary sources and, if appropriate, experimental work. The subject matter covered includes the social organization of Egypt, the economy, agriculture, food, medicine, crafts, building methods, family structure, etc.

**EGPT 341/5110 - Egypt in the First Millennium BC (3 cr.)****Prerequisites**

EGPT 3211 and EGPT 3212 , or instructor's consent.

**Description**

The course covers the history of Egypt during the first millennium BC (1069-332 BC), a period characterized by much internal conflict and long periods of foreign domination. It examines the factors that led to the demise of Egypt's New Kingdom, traces the rise of the Libyan and Nubian dynasties, and the subsequent annexation of Egypt by the Persian Empire. Special Attention will be devoted to the last dynasties of the Pharaonic tradition, Dynasties XXI-XXX.

**When Offered**

Offered occasionally.

**EGPT 000/5111 - Egyptomania (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

This course will enable students to recognize Egyptianizing art and architecture in Egypt and around the world and to understand its religious, social, and ideological origins. Students will also gain an understanding of Ancient Egypt's cultural impact on the world.

**EGPT 530/5120 - Graeco-Roman Egypt (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

This course will explore the history of Egypt in the Graeco-Roman period and the momentous confrontation between Greek and Egyptian culture between 300 BC and 700 AD.

**EGPT 342/5120 - History of Egypt in the Graeco-Roman Era (3 cr.)**

**Prerequisites**

EGPT 3211 and EGPT 3212 , or instructor's consent.

**Description**

The course will study the history of Egypt in the Graeco-Roman period and the momentous confrontations between Greek and Egyptian culture between 300 BC and 700 AD. It will also examine the social consequences of the spread of Christianity in Egypt and the rise of Coptic culture.

**Cross-listed**

Same as HIST 3903.

**When Offered**

Offered occasionally.

**EGPT 512/5130 - Art, Societies, and Cultures of the Ancient Near East (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

This course provides students with an overview of the prehistory and early historical periods of the ancient Near East. Considerable attention is given to the fundamental transitions which occurred in this region. In particular, we will

examine: (1) the first emergence of settled village life, hierarchical social organization and the domestication of plants and animals during the Neolithic period; (2) the rise of urban centers, temple and palace elites and writing; (3) the emergence and spread of the states and subsequent militaristic empires which became the dominant political force in the ancient Near East for several millennia. This course examines both archaeological and historical evidence with a heavy emphasis on material culture, primary archaeological and historical data and the process of scholarly interpretation.

## **EGPT 346/5130 - Societies and Culture of the Ancient Near East (3 cr.)**

### **Prerequisites**

EGPT 5120 and EGPT 3211 , or instructor's consent.

### **Description**

The course constitutes a historical overview of the societies and cultures of Egypt, the Mediterranean world and the Middle East, from the emergence of urban society in Iraq in the fourth millennium BC to the rise and fall of the great empires of Babylon, Assyria, the Hitties, Achaemenid Persia, Greece and Rome. Special attention will be paid to the position of Ancient Egyptian civilization within the wider context of Ancient Near Eastern history.

### **Cross-listed**

Same as HIST 3904.

### **When Offered**

Offered occasionally.

## **EGPT 348/5140 - Societies and Cultures of Ancient Nubia (3 cr.)**

### **Prerequisites**

Prerequisite: consent or of instructor.

### **Description**

The course will survey the emergence of food-producing societies in Nubia and the Sudan from 6000 BC, and will examine the development of Nubian civilization from the Kerma culture and the kingdoms of Kush and Meröe to the advent of Islam. Special attention will be devoted to the interaction between Egyptian and Nubian civilizations.

### **When Offered**

Offered occasionally.

## **EGPT 521/5140 - Societies and Cultures of Ancient Nubia (3 cr.)**

### **Prerequisites**

Consent of instructor.

### **Description**

This course is intended to serve as a broad survey of the development of history, culture and society in Nubia and the Northern Sudan from the earliest era of food production (ca. 6000-4000 BCE/BC) to the development of the medieval kingdoms of Nubia (ca. 600-700 CE/AD). Special attention will be devoted to the question of the relations - cultural, commercial, technological, political - between Ancient Egypt and Ancient Nubia. For the purposes of this class, the term "Nubia" will mean the long stretch of the Nile Valley that extends between the Nile's First Cataract (located in



Southern Egypt just south of the city of Aswan) and its Sixth Cataract (located in the Sudan some distance north of the city of Khartoum). The term "Nubian" will describe the people of this specific area as well as all the distinctive languages and cultures that flourished here from the beginning of recorded history to the early modern period.

### **EGPT 400/5150 - Introduction to Coptic (3 cr.)**

**Prerequisites**

EGPT 2252

**Description**

Coptic represents the last stage of the ancient Egyptian language. The course will include reading of selected texts in two Coptic dialects.

**When Offered**

Offered occasionally.

### **EGPT 505/5150 - Introduction to Coptic (3 cr.)**

**Prerequisites**

EGPT 2252 or basic hieroglyphs.

**Description**

Coptic represents the last stage of the ancient Egyptian language. The course will include reading of selected texts in two Coptic dialects.

**Cross-listed**

Same as EGPT 5150.

**When Offered**

Offered occasionally.

### **EGPT 353/5151 - Hieroglyphics III (3 cr.)**

**Prerequisites**

EGPT 2252

**Description**

Students will read a number of Egyptian texts and learn how to translate and interpret written documents.

**When Offered**

Offered every fall.

### **EGPT 500/5151 - Hieroglyphics III (3 cr.)**

**Prerequisites**

EGPT 2252 or equivalent.

**Description**

Students will read a number of Egyptian texts and learn how to translate and interpret written documents.

**When Offered**

Offered every fall.

**EGPT 401/5152 - Introduction to Hieratic (3 cr.)**

**Prerequisites**

EGPT 2252

**Description**

Hieratic is a script derived from hieroglyphics used mainly on papyrus. The course is a study of this script through reading selected texts literary, religious, or administrative- related to daily life in ancient Egypt .

**When Offered**

Offered occasionally.

**EGPT 402/5153 - Hieroglyphics IV (3 cr.)**

**Prerequisites**

EGPT 5151 .

**Description**

The course consists of further reading of Egyptian texts with an introduction to the new Egyptian language of the later periods of Pharaonic history. In order to introduce students to epigraphy, they are required to copy and study texts from the Cairo Museum.

**Cross-listed**

Same as EGPT 5153.

**When Offered**

Offered in spring.

**EGPT 501/5153 - Hieroglyphics IV (3 cr.)**

**Prerequisites**

Hieroglyphics I-III or equivalent

**Description**

The course consists of further reading of Egyptian texts with an introduction to the new Egyptian language of the later periods of Pharaonic history. In order to introduce students to epigraphy, they are required to copy and study texts from Cairo Museum.

**Cross-listed**

Same as EGPT 5153.

**When Offered**

Offered in spring.

**EGPT 000/5154 - Late Egyptian (3 cr.)****Description**

This class introduces students to the language and literature of Egypt's New Kingdom. Late Egyptian is a unique stage of Egyptian in which the vernacular found its way into the textual record. By the end of this course, students will be able to read a variety of literary and non-literary texts.

**EGPT 445/5160 - Selected Topics in Coptic Studies (3 cr.)****Description**

This course allows instructors to offer a topic in Coptic Studies. The topic will be chosen from year to year in coordination with the departments concerned and the dean of the School of HUSS, and according to the individual interests and areas of expertise of the instructors. Topics chosen may include various aspects of Coptic art and history, monasticism, folklore, or other subjects.

**Cross-listed**

Same as ARIC 5132, ANTH 4499, HIST 4905, SOC 4499, and EGPT 5160.

**When Offered**

Offered in fall.

**Repeatable**

The course may be taken more than once if the topic changes.

**Notes**

Students in these majors may petition preferably before registration to have the course included in their major requirements.

**EGPT 539/5160 - Selected Topics in Coptic Studies (3 cr.)****Description**

This course allows instructors to offer a topic in Coptic Studies. The topic will be chosen from year to year in coordination with the departments concerned and the dean of the School of HUSS, and according to the individual interests and areas of expertise of the instructors. Topics chosen may include various aspects of Coptic art and history, monasticism, folklore, or other subjects.

The course may be taken more than once if the topic changes.

Students in these majors may petition preferably before registration to have the course included in their major requirements.

**Cross-listed**

Same as ARIC 5132, ANTH 4499, HIST 4905, SOC 4499, EGPT 5160.

**EGPT 459/5170 - Selected Topics in Cultural Resource Management and Museology (3 cr.)****Prerequisites**

Prerequisite: consent of instructor.

**Description**

The course deals with different types of cultural heritage present in Egypt and their physical and cultural environment, and with the various methods of managing them in order to ensure their proper preservation while making them accessible to tourists and scholars. At the instructor's discretion, the course may also provide an understanding of the role of museums in the modern world and the basic methodology and practice of museum management.

**Cross-listed**

Same as EGPT 5170.

**When Offered**

Offered occasionally.

**EGPT 545/5170 - Selected Topics in Cultural Resource Management and Museology (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

The course deals with different types of cultural heritage present in Egypt and their physical and cultural environment, and with the various methods of managing them in order to ensure their proper preservation while making them accessible to tourists and scholars. At the instructor's discretion, the course may also provide an understanding of the role of museums in the modern world and the basic methodology and practice of museum management.

**Cross-listed**

Same as EGPT 5170.

**When Offered**

Offered occasionally.

**EGPT 540/5180 - Advanced Method and Theory: Archaeological and Historical (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

This seminar is geared to providing a methodological basis and theoretical approach for both the disciplines of archaeology and history. More time and emphasis will be put on the archaeological, however, as it is the more basic discipline in Egyptology.

**EGPT 491/5191 - Field Work (3 cr.)****Prerequisites**

Permission of instructor.

**Description**

Preference will be given to majors in Egyptology, anthropology, archaeology. Inquiries concerning the course must be made no fewer than seven months prior to the start of the summer semester for participation in archaeological and/or epigraphic fieldwork in Egypt. Sites and projects will vary.

**Cross-listed**

Same as EGPT 5191.

**EGPT 591/5191 - Field Work (3 cr.)****Prerequisites**

Permission of instructor.

**Description**

Preference will be given to majors in Egyptology. Field-work may take the form of epigraphy, excavation, survey, or museum work. Inquiries concerning the course must be made no fewer than seven months prior to the start of the summer semester.

**Cross-listed**

same as EGPT 5191.

**EGPT 519/5199 - Selected Topics in Ancient Egyptian Art and Culture (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

The topic of this course changes regularly and can be taken more than once. The subject matter chosen for the course can be any aspect of ancient Egyptian art, architecture, archaeology and culture.

**EGPT 499/5199 - Selected Topics in Egyptology (3 cr.)****Prerequisites**

Prerequisites: junior standing and/or consent of instructor.

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit when content changes.

**EGPT 522/5220 - Ancient Egyptian Religion and Ethics (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

This course will investigate ancient Egyptian religious beliefs and practices, their origin, and development. The great mythic Solar Cycle of creation and Osirian Cycle of betrayal and revenge, death and rebirth are discussed, as well as the place of the myriad local and minor Gods and Goddesses within Egyptian mythology. The interaction of sacred and secular in Egyptian society is considered through the nature of divine kingship, large temple institutions, and funerary foundations. The relationship between the state cults and private worship by noble and commoner is explored, and the nature and potency of ancient Egyptian magic and curses investigated. The nature and development of Egyptian funerary beliefs are also detailed.

**EGPT 525/5230 - Settlement and Daily Life in Ancient Egypt (3 cr.)****Description**

This seminar introduces students to the material culture of the ancient Egyptians, specifically that of their settlements and daily life. The seminar concentrates on the archaeological evidence from settlements of the three most important periods of ancient Egyptian civilization: the Old, Middle and New Kingdoms. The seminar will first discuss urban settlement patterns in ancient Egypt, and secondly the processes by which material assemblages form in settlements. The plans and structure of dwellings will also be considered along with the material evidence found inside of them.

**EGPT 526/5240 - Death and Burial in Ancient Egypt (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

This course will cover the funerary practices and beliefs of ancient Egypt from the Old Kingdom to the Graeco-Roman period. The subject matter covered will include the process of mummification and the spells used during the operation; the development of coffins, sarcophagi, amulets, canopic jars, canopic chests, shabtis, and other tomb furnishings; the evolution of the tomb, both royal and private, and any symbolic values that might be attached to the decoration and architecture; funerals, the cult of the dead, economic foundations supporting the tomb, and the religious rituals associated with funerals, the afterlife, and the mortuary cult. Experimental archaeology (mummification) might be involved in this class.

**EGPT 532/5310 - Classical Art and Archaeology (3 cr.)****Description**

This course examines the techniques and methods of Classical Archaeology as revealed through an examination of the major monuments and artefacts of the Greek and Roman world from Prehistory to the Late Empire. Architecture, sculpture, fresco painting, and the minor arts are examined at such sights as Mycenae, Olympia, Athens, Pompeii, and Rome.

**EGPT 531/5320 - The Romano-Byzantine World and Egypt (3 cr.)****Prerequisites**

Consent of the instructor.

**Description**

This course is designed to familiarise students with the material and historical culture of the Late Antique and Byzantine periods, with an emphasis on the geographical area of the eastern Mediterranean and Egypt. This course includes direct experience with actual works of Late Antique and Byzantine visual culture.

**EGPT 533/5330 - Coptic Art and Architecture (3 cr.)****Prerequisites**

Consent of the instructor.

**Description**

A course designed to introduce students to Coptic art and architecture, with an emphasis on monasticism. Field trips are required.

**EGPT 541/5420 - Material Culture: Looking at Artifacts in Context (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

The course will provide an overview of different types of objects from funerary, ritual, and quotidian contexts, with special museum sessions. It is designed to familiarize students with different types of material culture of ancient Egypt so that they can identify and work with objects confidently, in museums or on excavations.

**EGPT 542/5430 - Site Analysis (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

This course is intended for students to learn about the history of a site in preparation for working at it, or on excavated material from it. They will choose sites and research its excavation history, as well as tracing back any documentation culled from the accounts of Eastern and Western travellers and historians. Understanding, using, and critiquing site reports will form part of the course, as well as learning to ask questions of the data. Site visits, local accounts, and modern imaging techniques should be used in order to understand and explore the past and present of the chosen site.

**EGPT 560/5440 - The Iconography of Ancient Egypt (3 cr.)****Prerequisites**

A course In Egyptian art.

**Description**

The civilization of ancient Egypt left behind a vast material culture, both inscribed and decorated. An important part of a student's understanding of ancient Egypt is to be able to recognize and understand the attributes and symbols recorded and depicted on ancient Egyptian monuments. This class is designed to draw upon students' understanding of hieroglyphs, art and religion, and apply their knowledge to the comprehension of the iconography in tombs, temples, and in the minor arts.

### **EGPT 504/5510 - Advanced Hieratic (3 cr.)**

#### **Prerequisites**

EGPT 5152 or equivalent.

#### **Description**

The class consists of more advanced readings from the different stages of the hieratic writing, the different hands encountered, and the different categories of texts. Although this course will focus primarily on Palaeography, the translation of these texts will also familiarize students with aspects of the culture they may not necessarily have come across as undergraduates. They will also enhance their training in grammar and improve their knowledge of the Ancient Egyptian Language in general.

### **EGPT 502/5520 - Introduction to Demotic (3 cr.)**

#### **Prerequisites**

Equivalency to advanced hieroglyphs.

#### **Description**

Demotic is a cursive script derived from Hieratic, and rooted in Hieroglyphics. It emerged in the 7th century B.C. and remained in use in parallel with Hieroglyphics and Hieratic, and later also with Coptic until the Byzantine Period, when the latter language took over. The Egyptian Language in its Demotic manifestation has further developed and new grammatical forms and vocabulary have appeared. In this class students will learn Demotic and work on a series of different texts.

### **EGPT 503/5530 - Ptolemaic Hieroglyphs (3 cr.)**

#### **Prerequisites**

EGPT 2251 EGPT 2252 or equivalent.

#### **Description**

Ptolemaic Hieroglyphs are mostly used for historic or religious texts of the Greco-Roman Period. Although the hieroglyphic signs are mostly known, the scribes assign different phonetic values to them based on a different system that needs to be understood and practiced. Religious texts in the Greco Roman Period are written in a more elaborate manner, with more details and explanatory glosses and are, therefore very important for a better understanding of Ancient Egyptian religion and its development across time.

### **EGPT 506/5540 - Advanced Coptic Texts (3 cr.)**



**Prerequisites**

Basic Coptic.

**Description**

An advanced course in Coptic that permits students to read a variety of texts. The subject matter changes regularly, and the course can be taken more than once as long as the material is different.

**EGPT 561/5550 - Advanced Readings in Ancient Egyptian Religion Texts (3 cr.)****Prerequisites**

EGPT 2251 EGPT 2252 EGPT 5151 EGPT 5153

**Description**

This course is designed to study ancient Egyptian religious texts in depth, including their form, their content, their various usages, whether in temple rituals, in funerary religion, or in magical compositions etc. and the development of the religious expression across history. By the end of the course students should have learned about religion as well as modes of expression of certain beliefs, as well as grammatical structures unique to sacred forms of expression.

**EGPT 562/5560 - Advanced Readings in Historical Literature from the Old Kingdom to the Late Period (3 cr.)****Prerequisites**

EGPT 2251 EGPT 2252 EGPT 5151 EGPT 5153

**Description**

This course is designed to cover readings from all period of Egyptian history to expose students to different types of historical literature, and to allow them to be able to select the period they prefer for further research.

**EGPT 598/5991 - Research Seminar: Research Design and Writing (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

The course is intended to give students an opportunity to clarify and structure their thesis planning, particularly by way of identifying the major problem they wish to explore, its possible scope and dimensions, and justifying the theoretical perspectives and methodology appropriate for the purpose. This course will also ensure that students are taught the expectations and the culture of their specific academic discipline so that they can participate successfully in it.

**EGPT 599/5992 - Thesis (3 cr.)**

**Prerequisites**

Completion of required coursework.

**Description**

For the MA degree in Egyptology a thesis of 25,000 words, exclusive of Bibliography and appendices is required on a topic that has been approved by the thesis committee. The committee should be made of the chief and second advisor. Additional advisors will be added if extra specialties are needed.

**ECNG 210/2101 - Digital Logic Design (3 cr.)**

**Prerequisites**

CSCE 1001 . Concurrent with ECNG 2108L

**Description**

The nature of digital logic and numbering systems. Boolean algebra, Karnaugh map, decision-making elements, memory elements, latches, flip-flops, design of combinational and sequential circuits, integrated circuits and logic families, shift registers, counters and combinational circuits, adders, subtracters, multiplication and division circuits, memory types. Exposure to logic design automation software. Introduction to FPGAs and HDL.

**When Offered**

Offered in fall, spring and summer.

**ECNG 215/2105 - Circuit Analysis I (3 cr.)**

**Prerequisites**

PHYS 1021

**Description**

Ohm's law, Kirshoff's law, Mesh current method, node-voltage method, superposition theorem, reciprocity theorem, Thevenin's theorem, Norton's theorem, maximum power transfer theorem, compensation theorem, T and II networks, transformation equations II to T and T to II. Transients in RC and RL circuits, time constants, mutual inductance and transformers. Time domain behavior of inductance and capacitance, energy storage.

**When Offered**

Offered in fall and spring.

**ECNG 216/2106 - Circuit Analysis II (3 cr.)**

**Prerequisites**

ECNG 2105 and concurrent with MACT 2141 and ECNG 2109L

**Description**

Alternating current circuit analysis using complex numbers (phasors), complex impedance and complex admittance. Series resonance and parallel resonance, half power points, sharpness of resonance, the Q-factor, maximum power to an alternating current load, Decibels, power level measurements. The s-plane and poles and zeroes of the transfer function. Forced and natural response of circuits using complex frequency analysis. Three-phase circuits. Two-port networks and the y, z, h and ABCD parameters. Reciprocal networks. Laplace transform techniques.

**When Offered**

Offered in fall and spring.

**ECNG 218L/2108L - Digital Logic Design Lab (1 cr.)**

**Prerequisites**

Concurrent with ECNG 2101

**Description**

The laboratory component will cover experiments in digital design and experiments illustrating material of course ECNG 2101 including an FPGA-based project.

**When Offered**

Offered in fall, spring and summer.

**ECNG 219L/2109L - Circuit Analysis Lab (1 cr.)**

**Prerequisites**

Concurrent with ECNG 2106

**Description**

Experiments illustrating material of course ECNG 2106.

**When Offered**

Offered in fall and spring.

**ECNG 315/3105 - Electronics I: Basic Electronic Devices & Circuits (3 cr.)**

**Prerequisites**

ECNG 2106

**Description**

Devices and Basic Circuits: Introduction to Electronics, Operational Amplifiers, Active Filters, Diodes, Bipolar Junction Transistors (BJT's) (DC and small signal analysis), MOS Field Effect Transistors (MOSFET's) (DC and small signal analysis).

**When Offered**

Offered in fall and spring.

**ECNG 316/3106 - Electronics II: Analog Circuits (3 cr.)**

**Prerequisites**

ECNG 3105 , concurrent with ECNG 3109L .

**Description**

Differential and Multistage Amplifiers, Frequency Response, Feedback, Output Stages and Power Amplifiers, Analog Integrated Circuits, Filters and Tuned Amplifiers, Signal Generators and Waveform Shaping Circuits.

**When Offered**

Offered in fall and spring.

**ECNG 318/3108 - VLSI Design (3 cr.)****Prerequisites**

ECNG 2101 and ECNG 3105

**Description**

Introduction to fabrication techniques for silicon very large integrated circuits (VLSI), Introduction to MOS transistor. Details of CMOS inverter, transmission gates. Design of Complex CMOS gates; combinational and sequential design techniques in VLSI. CMOS technology and rationale behind various design rules. Design and synthesis using hardware description languages(HDL) such as Verilog. Use CAD tools to design, layout, check and simulate some basic circuits. Design, layout and simulation of a project.

**Hours**

Two class periods and one three-hour lab period.

**When Offered**

Offered in fall and spring.

**ECNG 319L/3109L - Electronics Lab (1 cr.)****Prerequisites**

Concurrent with ECNG 3106 .

**Description**

Experiments illustrating material of course ECNG 3106

**When Offered**

Offered in fall and spring.

**ECNG 320/3201 - Signals and Systems (3 cr.)****Prerequisites**

ECNG 2106, MACT 2141 and CSCE 1101

**Description**

Basic properties of signals and systems, linearity, stability, step and impulse response, superposition integral, block diagrams, Fourier series and Fourier transform for discrete and continuous time signals, sampling theorem, Z-transform.

**When Offered**

Offered in fall and spring.

**ECNG 321/3202 - Automatic Control Systems (3 cr.)****Prerequisites**

ECNG 3201

**Description**

Principles of closed-loop feedback control systems, control systems design criteria, block diagrams, signal flow graphs, state space representation of linear systems, general feedback theory, transfer functions of control systems, Routh criterion, root locus theory and methods. Several experiments are conducted in the Control Lab to illustrate material covered in the course.

**When Offered**

Offered in Fall and Spring.

**ECNG 341/3401 - Electromagnetic Theory (3 cr.)**

**Prerequisites**

PHYS 2221 and MACT 2124

**Description**

Electric field and potential. Gauss's law; divergence. Conductors, dielectrics and capacitance. Poisson's and Laplace's equations. Electrostatic analogs. Magnetic field and vector potential. Time varying fields; displacement current. Maxwell's equations in differential form, Poynting's theorem and Electromagnetic waves in vacuum and in matter.

**Cross-listed**

Same as PHYS 3023.

**When Offered**

Offered in fall and spring.

**ECNG 352/3502 - Computer Organization and Assembly Language Programming (3 cr.)**

**Prerequisites**

CSCE 1101 and either CSCE 2301\* or ECNG 2101

\*Can be taken concurrently

**Description**

Explaining the state of the art computer systems focusing on major components: CPU, I/O, and memory. In-depth discussion of the instructions set architecture of the MIPS microprocessors. This includes different types of assembly instructions doing basic arithmetic, data movement, decision making, and jumping. Discussing different performance matrices of microprocessors and how to measure and analyze performance and evaluate speedups. Going through basic computer arithmetic covering integer and floating point operations. Discussing I/O ports, I/O devices and controllers, DMA channels, priority interrupts. Also discussing different I/O technologies, such as magnetic disks, flash disks, and optical storage. It also discusses the latest trends in microprocessors design and programming (such as SIMD and MIMD).

**Cross-listed**

Same as CSCE 2303.

**When Offered**

Offered in fall and spring.

**ECNG 360/3601 - Power and Machines (3 cr.)**

**Prerequisites**

ECNG 2106 and ECNG 3401

**Description**

Power system components, basic concepts and operating characteristics of transformers, DC and AC machine fundamentals, theory of operation and basic concepts of induction motors, transmission line construction and operation, renewable energy sources, fault analysis and protection system elements, Electrical Installations in Buildings, Elements of Power Electronics, Switching, Converters, Applications of PE in Power systems (FACT, SVC), Harmonics in Power Systems.

**When Offered**

Offered in fall and spring.

**ECNG 410/4101 - Solid-State Devices (3 cr.)****Prerequisites**

Prerequisite: consent of instructor.

**Description**

Theory of semiconductor surfaces, field effect transistors, application in static logic design, semiconductor sensors and transducers.

**When Offered**

Offered occasionally.

**ECNG 413/4103 - Testing of Digital Circuits (3 cr.)****Prerequisites**

ECNG 2101

**Description**

Basic concepts behind testing digital circuits. Causes of permanent and temporary failures. Test pattern generation techniques including exhaustive, Pseudo-exhaustive, Path sensitization, Critical path, Random and Pseudo-random Testing. Design for testability methods for testing Integrated Circuits. Techniques for testing Printed circuit boards.

**When Offered**

Offered occasionally.

**ECNG 414/4104 - High Level Digital ASIC Design Using CAD (3 cr.)****Prerequisites**

ECNG 3105

**Description**

Design of digital application-specific integrated circuits (ASICs) using synthesis CAD tools. Topics include the following: design flow, hierarchical design, hardware description languages such as VHDL, synthesis, design verification, IC test, chip-scale synchronous design, field programmable gate arrays, mask programmable gate arrays, CMOS circuits and IC process technology. For the project, students will design and implement a significant digital

system using field programmable gate arrays.

**Hours**

Two class periods and one three-hour lab period.

**When Offered**

Offered occasionally.

**ECNG 415/4105 - Integrated Circuit Fabrication: Materials and Processes (3 cr.)**

**Prerequisites**

ECNG 3106

**Description**

Microfabrication techniques for silicon very large integrated circuits (VLSI), unit processes including lithography, native film growth, diffusion, ion implantation, thin film deposition and etching. Metal interconnects. Process integration for CMOS, BiCMOS, ECL and MEMS.

**When Offered**

Offered occasionally.

**ECNG 420/4301 - Fundamentals of Communications I (3 cr.)**

**Prerequisites**

ECNG 3201 , MACT 3224 ,ENGR 3202 , concurrent with ECNG 4314L

**Description**

Review of signal representation and classification, time and frequency domains, Fourier transform; Energy and power spectral density. Basics of analog communication: amplitude, angle, and pulse modulation; modulators and demodulators; frequency division multiplexing. Introduction to digital communication: Review of sampling and quantization; pulse code modulation (PCM), Delta Modulation, Differential PCM, time division multiplexing, line codes; the matched filter. Introduction to Random Processes. Noise in communication systems.

**When Offered**

Offered in fall and spring.

**ECNG 421/4302 - Fundamentals of Communications II (3 cr.)**

**Prerequisites**

ECNG 4301

**Description**

Fundamentals of Digital Communications. Geometric Representation of Signals; Binary and M-ary Modulation and their Performance Analysis and Spectral Efficiency M-ary Baseband Transmission. Introduction to Information Theory and Source and Channel Coding; Channel Capacity; Block and Convolutional Codes. Introduction to Spread-Spectrum Communications and Discrete Multitone (DMT). Several experiments are conducted in the Communication Lab to illustrate the material covered in the course.

**When Offered**

Offered in fall and spring.

## **ECNG 404L/4304L - Photonics and Optical Communication Laboratory (1 cr.)**

### **Prerequisites**

Concurrent with ECNG 4310 .

### **Description**

Experiments in fiber optics illustrating concepts pertaining to fiber dispersion, attenuation measurements, characterization of light sources (LEDs and Laser diodes) and detectors (photodiodes), optical multiplexing and demultiplexing, optical and interferometric sensors.

### **When Offered**

Offered occasionally.

## **ECNG 432/4306 - Computer Communication Networks (3 cr.)**

### **Prerequisites**

ECNG 4301 .

### **Description**

Introduction to communication networks including basic networking concepts, OSI and TCP/IP models; Transport layer protocols, Data link layer, multiple access, wireless LANs; Network layer including logical addressing, Internet Protocol (IP), data forwarding and routing.

### **When Offered**

Offered in fall and spring.

## **ECNG 433/4308 - Telecommunications Systems (3 cr.)**

### **Prerequisites**

ECNG 4301 and ECNG 4306

### **Description**

Telephone system fundamentals including infrastructure, transmission, switching, capacity planning and DSL systems; Voice over IP network basics including major techniques such as H.323 and SIP; Satellite communications including configurations and characteristics of satellite communication systems, Services, Orbits and Satellite networks.

### **When Offered**

Offered occasionally.

## **ECNG 434/4310 - Optical Communication Systems (3 cr.)**

### **Prerequisites**

ECNG 3401 and PHYS 2221 , concurrent with ECNG 4304L .

### **Description**

Operating principles of optical communication systems and fiber optic communication technology. Characteristics of optical fibers, laser diodes, and laser modulation, laser and fiber amplifiers, detection and demodulation, dispersion compensation, and network topologies. System topology, star networks, bus networks, layered architectures, all-optical



networks.

**When Offered**

Offered occasionally.

**ECNG 436/4312 - Mobile Communication Systems (3 cr.)**

**Prerequisites**

ECNG 4302

**Description**

The development, structure, and techniques of mobile communications systems. Propagation models in mobile communications. Cellular Networks and their capacity. Coding and diversity for wireless communications. Wireless communication standards; control signaling; MAC-related concepts. Wireless LAN's.

**When Offered**

Offered occasionally.

**ECNG 439L/4314L - Communications Lab (1 cr.)**

**Prerequisites**

Concurrent with ECNG 4301

**Description**

Experiments illustrating material of course ECNG 4301 .

**When Offered**

Offered in fall and spring.

**ECNG 442/4402 - Electromagnetic Waves (3 cr.)**

**Prerequisites**

ENGR 1005 , CHEM 1005 and ECNG 3401 .

**Description**

Review of Maxwell's equations. Transmission lines. Signal matching, Smith chart, Stub matching. Parallel plate, rectangular, and optical waveguides. Antennas and radiation of electromagnetic energy. Boundary Value problems. Several experiments are conducted in the Microwave Lab to illustrate material covered in the course.

**When Offered**

Offered in fall and spring.

**ECNG 447/4407 - Microwave Systems (3 cr.)**

**Prerequisites**

ECNG 4402

**Description**

Introduction to microwave engineering and wave equation review. Wave propagation and cutoff considerations. Transmission line power and mode limits. Planar and microstrip lines. Obstacles in transmission lines. Impedance matching and tuning. Quarter-wave transformer design. Microstrip transitions. Transmission line and cavity resonators. Sattering-parameters and applications. Microwave transistor amplifier gain and stability design. Microwave filter design by insertion loss method.

**When Offered**

Offered occasionally.

**ECNG 453/4503 - Microcontroller system design (3 cr.)**

**Prerequisites**

ECNG 2101 ,ECNG 3106,ECNG 3502 and concurrent with ECNG 4509L .

**Description**

Microcontroller architecture (ARM, Motorola 68HC11). Interrupts, serial and parallel Input/Output, Timers, Analog-to-Digital and Digital-to-Analog conversion, Watchdog timers, I/O expansion, Interfacing to keypads and display devices, AC control, Introduction to RISC and CISC.

**When Offered**

Offered in fall and spring.

**ECNG 455/4505 - Computer Architecture (3 cr.)**

**Prerequisites**

ECNG 2101 ,ECNG 3502 concurrent with ECNG 4508L .

**Description**

The objectives of this course are to introduce the principles of Modern Computer Architecture and design. Topics to be discussed include Instruction Set Architectures, Arithmetic Logic Unit design, CPU data path design, CPU pipelining, memory hierarchy, cache and virtual memory, and introduction to I/O.

**Cross-listed**

Same as CSCE 3301.

**When Offered**

Offered in fall and spring.

**ECNG 456/4506 - Industrial control systems (3 cr.)**

**Prerequisites**

ECNG 2101 and ECNG 3202 (for ECNG students); MENG 4756 (for MENG students).

**Description**

PLCs and DCS in industrial automation, Basic components of a PLC and DCS, Programming of PLCs by ladder logic, Internal markers, Timers, Counters, PLC program development for control applications, Interlocking and sequential logic, Advanced Sequential Control Techniques, Data handling instructions, A/D and D/A PLC modules, Industrial communication busses.

**When Offered**

Offered occasionally.

**ECNG 458L/4508L - Computer Architecture Lab (1 cr.)****Prerequisites**

Concurrent with ECNG 4505

**Description**

The laboratory will cover experiments in computer architecture and hardware design and experiments illustrating material of Course ECNG 4505 .

**Cross-listed**

Same as CSCE 3302.

**When Offered**

Offered in fall and spring.

**ECNG 459L/4509L - Microcontroller system design lab (1 cr.)****Prerequisites**

Concurrent with ECNG 4503

**Description**

Experiments illustrating material of course ECNG 4503

**When Offered**

Offered in fall and spring.

**ECNG 460/4601 - Product Design and Development (3 cr.)****Prerequisites**

Senior level standing.

**Description**

The focus of the course is integration of the marketing, design, and manufacturing functions to create a new product.

The course is intended to provide you with the following benefits:

- Competence with a set of tools and methods for product design and development.
- Confidence in your own abilities to create a new product.
- Awareness of the role of multiple functions in creating a new product (e.g. marketing, industrial design, engineering, production).
- Ability to coordinate multiple, interdisciplinary tasks in order to achieve a common objective.
- Reinforcement of specific knowledge from other courses through practice and reflection in an action-oriented setting.
- Enhanced team working skills.

**ECNG 480/4920 - Special Problems in Electronics and Communications Engineering (1-3 cr.)**

**Prerequisites**

Consent of instructor and departmental approval

**Description**

Independent study in various problem areas of electronics engineering may be assigned to individual students or to groups. Readings assigned and frequent consultations held.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be repeated for credit if content changes.

**ECNG 494/4930 - Selected Topics in Electronics and Communications Engineering (3 cr.)****Prerequisites**

Senior standing.

**Description**

Course content will be selected each semester from current developments in the field of electronics engineering.

**When Offered**

Offered occasionally

**ECNG 497/4950 - Industrial Internship (1 cr.)****Prerequisites**

Completion of 8 weeks of industrial training AFTER the completion of 100 credit hours

**Description**

Each Student is required to spend a minimum of eight weeks in industrial training in an ECNG related field. The training may be in Egypt or abroad, but at least four weeks must be with a single employer. A complete account of the experience is reported, presented and evaluated. Each Student is also required to be trained for 15 hours in the Mechanical Engineering workshops to the study fundamentals of manufacturing processes (forming, welding and machining) prior to, or while, taking the course.

**When Offered**

Offered in fall and spring.

**ECNG 490/4980 - Senior Project I (1 cr.)****Prerequisites**

Prerequisite: senior standing.

**Description**

A capstone project. Topics are selected by groups of students according to their area of interest and the advisor's approval. Projects address solutions to open-ended applications using an integrated engineering approach.

**When Offered**

Offered in fall and spring.

**ECNG 491/4981 - Senior Project II (2 cr.)****Prerequisites**

ECNG 4980

**Description**

A continuation of the capstone project.

**When Offered**

Offered in fall and spring.

**ECNG 510/5210 - Advanced Solid-State Devices (3 cr.)****Prerequisites**

Graduate standing in engineering and physics. Electromagnetics, vector algebra, differential equations, and MATLAB programming.

**Description**

This course covers crystal structures, band gap theory, ionic equilibrium theory, fundamentals of carrier transport, compound semiconductors III-V. This course will make special emphasis on the properties of various types of junctions (p-n junctions, heterojunctions, metal-semiconductor junctions) leading to various electronic devices such as field effect transistors (FETs), metal oxide-semiconductor FETS (MOSFETs), high electron mobility transistors (HEMTs), etc. Short Channel effects and nanoscale phenomena will be emphasized throughout the course and their impact on device modeling in analog and digital circuits.

**Cross-listed**

Same as NANO 5261.

**ECNG 000/5214 - Advanced ASIC Design (3 cr.)****Prerequisites**

ECNG 3105 or equivalent

**Description**

The course addresses the complete design flow using of digital ASIC chips using state-of-the-art technologies, implementations, methodologies, and CAD tools. The course utilizes hardware descriptive language (HDL)-based design and introduces the design of large-scale systems and the associated methodologies and tools. Recent advancements due to Moore's law have resulted in significant challenges in physical design, including interconnection, power consumption, reliability, and verification. These challenges are explored at a fundamental level as well as solutions in modern CAD tools.

**ECNG 516/5216 - Analog Integrated Circuit Design (3 cr.)****Prerequisites**

ECNG 3106

**Description**

Design techniques for analog and mixed-signal VLSI circuits. Amplifiers: operational amplifiers, transconductance amplifiers, finite gain amplifiers and current amplifiers. Linear building block: differential amplifiers, current mirrors, references, cascoding and buffering. Performance characterization of linear integrated circuits: offset, noise, sensitivity and stability. Layout considerations, simulation, yield and modeling for high-performance linear integrated circuits. CAD tools: Cadence.

**ECNG 517/5217 - Digital Integrated Circuit Design (3 cr.)****Prerequisites**

ECNG 3105 and ECNG 3106

**Description**

The Diode (DC and Dynamic Behavior), The MOSFET (DC and Dynamic Behavior as well as short channel effects), The CMOS inverter (Static and Dynamic Behavior - Power / Speed Tradeoffs), Combinational Logic Gates (Static CMOS Design, Transistor Sizing, Static vs. Dynamic logic styles, Power / Speed Tradeoffs), Sequential Logic Circuits ( Static and Dynamic circuits/flipflops, Power / Speed Tradeoffs), Low Power Circuit Techniques, Memory circuit design and power / reliability consideration, arithmetic logic blocks (adders/ multipliers) and its design.

**ECNG 518/5218 - Advanced Integrated Circuit Design (3 cr.)****Prerequisites**

ECNG 3108

**Description**

The objective of this course is to provide the students with the knowledge of designing emerging nanoelectronic devices and using these devices to build future computing systems. After an introduction to CMOS devices and circuits, the course will cover CMOS design and simulation topics. More attention will be paid to the applications of these devices in the implementation of future computers. The memory and logic architectures that take advantage of the properties of the emerging devices will be discussed. Particularly, signal integrity and timing issues, as well as power consumption will be emphasized.

**Cross-listed**

Same as NANO 5262.

**ECNG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)****Prerequisites**

ECNG 3108 or equivalent content form other similar courses

**Description**

Nano-meter CMOS devices (short channel effects, velocity saturation, device leakage, thermal effects, degradation effects NBTI, etc), Dynamic, short-circuit, and leakage power consumption of CMOS circuits, low power design, DC-DC converters and power management, Classic I/O Modeling and design, The interconnect bottle-neck (modeling and

analysis), Noise in integrated circuits, Approximate temporal information in RC and RLC trees (Elmore, Wyatt, Penfield-Rubinstien delay models, and equivalent Elmore delay for RLC trees), Model order reduction (AWE, PRIMA, numerical issues, stability, etc), 3-D Modeling, Thermal effects in integrated circuits, Power distribution network models, electromigration,  $Ldi/dt$  noise, and RI drops, High-speed clock distribution network issues: Retiming, register allocation, skew control, and clock scheduling.

### **ECNG 553/5223 - Fault-Tolerant Computing and Reliability Modeling (3 cr.)**

#### **Prerequisites**

ECNG 4503

#### **Description**

Faults, errors, fault modeling, redundancy techniques, error detecting and correcting codes, self-checking circuits, reliability and availability modeling, performability.

### **ECNG 525/5225 - Digital Signal Processing (3 cr.)**

#### **Prerequisites**

ECNG 3201 or equivalent.

#### **Description**

Fundamentals of digital signal processing and filter design. Topics covered include Z-transform, Discrete Fourier transform (DFT), fast Fourier transform (FFT), finite impulse response (FIR) filter design, infinite impulse response (IIR) filter design, multirate signal processing, polyphase structures, short-time Fourier analysis, applications to communication systems and speech processing.

### **ECNG 556/5226 - Networked Control Systems Design & Applications (3 cr.)**

#### **Prerequisites**

ECNG 3202 and ECNG 4306

#### **Description**

Introduction to Networked Control Systems, real-time systems, network architecture, wired and wireless network protocols, international standards, NCS in industrial control, NCS in terrestrial transportation systems, Study of different software packages and simulation tools for NCS.

#### **Cross-listed**

Same as RCSS 5234.

### **ECNG 522/5230 - Probability and Stochastic Processes with Applications (3 cr.)**

#### **Prerequisites**

MACT 3224 or equivalent.

#### **Description**

Review of probability and sampling methods; modeling of random experiments; linear and nonlinear transformations of random vectors; discrete-time and continuous-time random processes; analysis and processing of random signals;

Markov chains. Applications will span diverse areas such as communication networks, genetics, financial markets, ... etc. A project on selected applications will be assigned.

### **ECNG 520/5231 - Advanced Digital Communications (3 cr.)**

#### **Prerequisites**

ECNG 4302 and ECNG 5230 or equivalent.

#### **Description**

Digital communications over noisy and dispersive channels. Topics covered include digital modulation over band-limited channels and Inter-Symbol Interference (ISI); partial-response signaling; continuous-phase modulation; pulse shaping; flat fading channels; time- and frequency domain equalization. Implementation complexity will be discussed and a simulation project is included.

### **ECNG 521/5233 - Wireless Communication Systems (3 cr.)**

#### **Prerequisites**

ECNG 4302 or equivalent.

#### **Description**

Communication over wireless channels. Topics include indoor and outdoor propagation models and path loss analysis; time- and frequency-selective fading channels; Fading countermeasures including diversity, Rake, adaptive modulation and coding, and interleaving; spread-spectrum communications; synchronization; current topics will be discussed and wireless communications standards will be cited. Simulation projects and literature readings are included.

### **ECNG 524/5234 - Enabling Technologies for High Data Rate Communications (3 cr.)**

#### **Prerequisites**

ECNG 5230 or equivalent.

#### **Description**

MIMO and space-time coding; multicarrier modulation, OFDM, OFDMA, and SC-FDMA; interference suppression; current and emerging topics will be discussed. Wireless standards will be cited including 4G, WLAN/MAN/RAN. Practical receiver techniques will be discussed. Simulation projects and literature readings are included.

### **ECNG 526/5236 - Information Theory and Coding (3 cr.)**

#### **Prerequisites**

ECNG 4302 or equivalent.

#### **Description**

Introduction to information theory and source and channel codes and their decoders. Topics include measures of information, entropy, and channel capacity in single and multiple antenna systems; Shannon's source and channel coding theorems; Rate distortion theory; Linear block codes including Reed-Solomon codes; convolutional codes;



Turbo codes and LDPC codes. Emphasis on decoder implementation and reference to usage of different codes in communications standards.

### **ECNG 530/5238 - Advanced Computer Networks (3 cr.)**

#### **Prerequisites**

ECNG 4306 or equivalent.

#### **Description**

An overview of the internet layered architecture and functionality, network architecture classifications, advanced routing strategies with emphasis on state-of-the-art routing techniques, multimedia networking, quality of service (QoS) issues, securing network access via techniques such as VPN, some wireless building blocks of the internet-of-things e.g. MANET and WSN.

### **ECNG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)**

#### **Prerequisites**

ECNG 4402 or equivalent.

#### **Description**

Microwave circuit theory and techniques. Emphasis on microwave integrated circuits (MIC). Maxwell's equations, planar transmission lines, transmission line theory, impedance, scattering and transmission parameters, Smith chart, impedance matching, power dividers and directional couplers, active two port networks, devices for microwave amplification. Low noise amplifier design, power amplifier design, stability of microwave circuits.

### **ECNG 547/5247 - RF and Microwave Systems (3 cr.)**

#### **Prerequisites**

ECNG 5241 or equivalent.

#### **Description**

The general hardware components, system parameters, and architectures of RF and microwave wireless systems. Practical examples of components and system configurations. Communication systems are used to illustrate the applications. Design of basic RF transceiver systems. Requirements allocation to RF units.

### **ECNG 548/5248 - RF Integrated Circuit Design (3 cr.)**

#### **Prerequisites**

ECNG 5241 or equivalent.

#### **Description**

Introduction to RF terminology, technology tradeoffs in RFIC design. Architecture and design of radio receivers and transmitters. Low noise amplifiers, power amplifiers, mixers, oscillators, and frequency synthesizers.

## **ECNG 549/5249 - Antennas Design and Applications (3 cr.)**

### **Prerequisites**

ECNG 5241 or equivalent.

### **Description**

Introduction to frequency spectrum, Maxwell's equations, propagation in free space, infinitesimal dipole antennas, antennas parameters. Aspects of wired antenna will be covered: small dipole, finite length dipole, image theory, monopole, folded dipole, matching techniques, infinitesimal loop antenna, small loop antennas, and helical antennas. Review on rectangular waveguides, rectangular horn, equivalence theory, Love's equivalence theory, H-plane sectoral horn, E-plane sectoral horn, pyramidal horn, parabolic reflectors. Two element array, uniform array, array factor, broadside and end fire arrays, phase scanning arrays, non uniform array, Binomial array, Dolph-Chebyshev array in addition to broadband antennas such as Yagi-Uda, log-periodic antennas. The course will introduce the fundamentals of microstrip antennas.

## **ECNG 570/5271 - New Product Design and Development (3 cr.)**

### **Description**

The course covers the following topics: Development Processes and Organizations, Identifying Customer Needs, Product Specifications, Concept Generation, Concept Selection, Concept Testing, Product Architecture, Industrial Design, Design for Manufacturing, Prototyping, Robust Design, Patents and Intellectual Property, Product Development Economics, Managing Projects. The focus of the course is integration of the marketing, design, and manufacturing functions to create a new product.

## **ECNG 571/5272 - Technology and Innovation Management (3 cr.)**

### **Description**

This is a case based course drawing on best practices in industry and the most up to date and important general management technology and innovation management academic material. Students should be prepared to discuss major technology issues covered in the readings each class. This course is designed to develop strong technology management skills to help managers make good decisions in regard to technology strategy and implementation of technology within their firms. This course is designed to develop general managers with strong abilities to lead in various technological environments and manage the innovation process and projects across and within their own function effectively.

### **Cross-listed**

Same as MGMT 5309.

## **ECNG 572/5273 - Strategic Management of Innovation (3 cr.)**

### **Description**

Innovation is regarded as a critical source of competitive advantage in an increasingly changing environment. Innovation is production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. This course will study the theory and practice of innovation as a process and an outcome based on a comprehensive model of innovation which consists of three determinants: innovation leadership, managerial levers and business processes. The course will examine the impact of accelerating innovation on cost, product quality and marketability; organizational changes required to couple R&D with marketing and

commercialization; and the managerial skills and professional expertise needed to develop a sustainable innovation practice within an organization.

**Cross-listed**

Same as MGMT 5308 and GREN 5222 .

## **ECNG 573/5274 - Entrepreneurship and Innovation (3 cr.)**

**Description**

Innovation lies at the heart of economic growth in the modern world. Entrepreneurs with the ability and resourcefulness to establish their own business are critical to the process of innovation. Innovation is not just about starting a new business but it is also about creating and developing innovative ways of management. Whether you are thinking of starting a new venture or developing innovative mechanisms of management in a large organization, you will need to understand Entrepreneurship and Innovation.

This course takes students through the various aspects of starting, managing, and growing a business. Whether you want to start a new venture, a new project, or develop an innovative way of management. You will need to write a business plan? This course will teach you how to write a business plan, its benefits and how does it differ from a feasibility study.

Opportunity identification, clear business and market definition, segmentation, and entry, building a team and creating a suitable organizational form, avoiding common pitfalls, and various strategies for starting or growing a business , are among the numerous facets of entrepreneurship covered in the course.

Methods employed include individual and group case analysis, writing a business plan, interviews with, and talks by, entrepreneurs, and profiling of successes and failures

**Cross-listed**

Same as GREN 5204 and MGMT 5307 .

## **ECNG 580/5910 - Graduate Independent Study (1-3 cr.)**

## **ECNG 594/5930 - Advanced Topics in Electronics and Communications Engineering (3 cr.)**

**Description**

Students are allowed to register for this course for a maximum of two times, if content changes.

## **ECNG 599/5980 - Thesis**

## **ECNG 661/6211 - Nanoscale CMOS (3 cr.)**

**Description**

The increasing complexity of nanoscale CMOS technology imposes important constraints on the design of analog integrated circuits: while circuit performance using downscaled CMOS is largely improved in terms of speed, other analog figures of merit, such as transistor gain, are degraded. Reduced voltage headroom often requires the adoption of ultra-low-voltage techniques particularly in moderate inversion. Furthermore, variability is an important bottleneck impairing design in scaled technologies. The course covers issues ranging from technology and compact modeling aspects, to analog circuit design retargeting and methodologies for variability reduction using digital tuning, and

optimization aspects on the system level.

### **ECNG 619/6219 - Design and Analysis of High-Performance Integrated Circuits (3 cr.)**

#### **Prerequisites**

Consent of instructor.

#### **Description**

Issues that arise in the design and analysis of VLSI circuits at high speeds. Examples are: impact of variations, power management, static and statistical timing analysis, clock distribution and Model Order Reduction. The course will stress intuition in VLSI circuits rather than using blind trial and error approaches. Historic development in key topics and the current state-of-the-art status of these topics, enforcing scientific thinking and problem solving approaches using these real life examples.

### **ECNG 625/6235 - Detection, Classification, and Estimation Theory (3 cr.)**

#### **Prerequisites**

ECNG 5230

#### **Description**

Bayesian parameter estimation; linear least squares Estimation; Cramer-Rao lower bound; minimum variance unbiased estimator (MVUE); maximum likelihood estimation (MLE); Kalman filtering; statistical decision theory: Bayes, min-max, Neyman/Pearson, simple and composite hypotheses; optimum (map) demodulation; application to coherent communications, signal processing, and classification including coherent and non-coherent signal detection; M-ary hypotheses testing.

### **ECNG 694/6930 - Advanced Selected Topics in Electronics and Communications Engineering (3 cr.)**

#### **Prerequisites**

Consent of instructor.

#### **Description**

Advanced topics selected from current developments in electronics engineering.

### **ECNG 622/6931 - Advanced Topics in Wireless Communications (3 cr.)**

#### **Prerequisites**

ECNG 5233

#### **Description**

The course covers advanced and current topics in wireless technology: Practical issues in wireless receiver design including receiver gain optimization, noise figure and intermodulation products, and automatic gain control; Non-idealities in OFDM technology including phase noise, and frequency and phase offset. Selected current and emerging

technologies are also covered. Simulation projects and literature readings are required.

### **ECNG 699/6980 - Research Guidance Dissertation (3 cr.)**

#### **Description**

Consultation on problems related to student thesis. To be taken 11 times for credit.

### **ENGR 101/1001 - Introduction to Engineering (1 cr.)**

#### **Description**

History of engineering. Engineering fields of specialization and curricula. The engineering profession: team work, professionalism, ethics, licensing, communication and societal obligations. Engineering support personnel and activities. Engineering approach to problem solving. Examples of major engineering projects. Course project.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

The course must be taken in the year of admission to the engineering program.

### **ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)**

#### **Description**

Introductory descriptive geometry. Orthographic and pictorial drawing. Sectional views, auxiliary views, and conventions. Dimensioning. Free hand sketching, and both manual and computer-aided drafting.

#### **Hours**

One class period and one three-hour lab period.

#### **When Offered**

Offered in fall and spring.

### **ENGR 212/2102 - Engineering Mechanics I (Statics) (3 cr.)**

#### **Prerequisites**

MACT 1122 and PHYS 1011

#### **Description**

Fundamentals of mechanics. Equilibrium of particles, forces in space, equivalent systems, equilibrium of rigid bodies, distributed forces, center of gravity, internal actions, analysis of simple structures and machine parts. Friction. Moment of inertia.

#### **When Offered**

Offered in fall and spring.

### **ENGR 214/2104 - Engineering Mechanics II (Dynamics) (3 cr.)**

**Prerequisites**

MACT 2123 and ENGR 2102

**Description**

Kinematics and kinetics of a particle, system of particles, and rigid bodies. Energy and momentum methods. Engineering applications.

**When Offered**

Offered in fall and spring.

**ENGR 229/2112 - Strength and Testing of Materials (4 cr.)****Prerequisites**

ENGR 2102

**Description**

Concept of stress and strain in components, mechanical behavior of materials under tensile, compressive, and shear loads, hardness, impact loading, fracture and fatigue. Analysis of stresses and the corresponding deformations in components, axial loading, torsion, bending, and transverse loading. Statically indeterminate problems. Transformation of plane stresses, and Mohr's circle..

**Hours**

Three class periods and one three-hour lab period

**When Offered**

Offered in fall and spring.

**ENGR 261/2122 - Fundamentals of Fluid Mechanics (3 cr.)****Prerequisites**

PHYS 1021 and ENGR 2104

**Description**

Fluid properties, fluid statics, fluid flow. Conservation of momentum, energy, continuity and Bernoulli's equations. Viscous efforts for laminar and turbulent flow. Steady state closed conduit and open channel flow.

**Hours**

Two class periods and one three-hour lab period.

**When Offered**

Offered in fall and spring.

**ENGR 313/3202 - Engineering Analysis and Computation I (3 cr.)****Prerequisites**

CSCE 1001 and MACT 2141

**Description**

Solution of sets of linear equations, roots of equations, curve fitting (interpolation), numerical integration and differentiation, numerical solution of ordinary differential equations, boundary value problems and introduction to the

finite difference method of computer programs for problem solving. It includes a programming based project.

**When Offered**

Offered in fall and spring.

**ENGR 318/3212 - General Electrical Engineering (3 cr.)**

**Prerequisites**

PHYS 1021 and MACT 2123

**Description**

Active, reactive and apparent power, three-phase systems, electrical measurements, transformers, motors: types, performance and selection generation, transmission and distribution of Electrical Energy, protective and earthing systems, energy management and cost.

**When Offered**

Offered in fall and spring.

**ENGR 345/3222 - Engineering Economy (3 cr.)**

**Prerequisites**

MACT 1122

**Description**

Economic and cost concepts, the time value of money, single, multiple and series of cash flows, gradients, functional notation, nominal and effective interest rates, continuous compounding, rates of return. Computation and applications, economic feasibility of projects and worth of investments, comparison of alternatives. Replacement, depreciation and B.E. analysis. Introduction to risk analysis.

**When Offered**

Offered in fall and spring.

**ENGR 364/3322 - Fundamentals of Thermofluids (3 cr.)**

**Prerequisites**

PHYS 1011 . Open for Electronics Engineering major only.

**Description**

Introduction to thermodynamics concepts and definitions; pure substance and ideal gases; the first law of thermodynamics, the concepts of the second law of thermodynamics, continuity; momentum and energy equations; introduction to laminar and turbulent flows; flow in conduits; introduction to turbomachinery; conduction heat transfer: one-dimensional and fins; forced and natural convection heat transfer.

**When Offered**

Offered in fall.

## **ENGR 000/3920 - Special Problems in Engineering ( 1 cr.)**

### **Prerequisites**

Consent of instructor and approval of the associate dean for undergraduate studies based on a well-defined proposal.

### **Description**

Independent study in various problem areas related to the offered general engineering (ENGR) courses to supplement the transferred topics in that particular course to match the corresponding ENGR course at AUC.

### **When Offered**

Fall and Spring

## **ENGR 494/4990 - Entrepreneurial Development and Innovation (3 cr.)**

### **Description**

This capstone course provides a general introduction to Entrepreneurship and New Venture Creation. It develops a perception of being an "entrepreneur" in the mind of the student. Students analyze the concepts, elements, processes and behaviors associated with successful entrepreneurship, and develop an insight into how to evaluate and launch ventures and enterprises in all sectors, including business, culture, and society. The course is structured around lectures, interactive sessions, visiting speakers, case study analysis, and community-based learning. The skills of critical and creative thinking, communication, presentation, analysis, synthesis and persuasion are emphasized.

## **ENGR 000/5101 - Cross Talk: Implementation Science and Engineering (3 cr.)**

### **Prerequisites**

Senior, graduation senior, interdisciplinary graduate

### **Description**

This course has been designed to provide multiple opportunities for students to explore the interdisciplinary potential of their chosen career path. This course will demonstrate through contemporary literature, class discussion, essential participatory interactions with colleagues and presentations relevant to their major, the value of cross talk between disciplines to provide and implement solutions relevant to today's global community. Each class will be focused on a specific topic or body of knowledge that bring together the natural, behavioral and social sciences together with engineering to articulate a holistic approach to addressing problems in medicine, sustainability, disease diagnosis and mitigation and safety of the built environment with ethical responsibility of earth stewardship. Students will be expected to participate through discussion, questions and a brief capstone presentation. The faculty will set the stage each week in a specific area by providing background information suitable to engage all students, regardless of didactic background. Thus, this course has been designed to build upon concepts relevant to the major and place them in the context of non-traditional application in what has come to be known as implantation science.

## **ENGR 511/5202 - Computational Methods in Engineering (3 cr.)**

### **Description**

Numerical solution of sets of algebraic and transcendental equations, eigen system analysis, numerical integration and differentiation. Numerical solution of ordinary differential equations, numerical solution of partial differential equations, optimization methods. Applications using MATLAB.

## **ENGR 518/5204 - Engineering Statistics (3 cr.)**



**Description**

Probability distributions, sampling distributions, estimation, test of hypotheses, regression, correlation, and nonparametric statistics.

**ENGR 512/5210 - Experimental Methods in Engineering (3 cr.)**

**Description**

Types of experiments. Physical models: type, scale, material selection. Experimental setups. Measurements: electrical measurements and sensing devices; pressure and flow measurements; temperature and thermal measurements; force, strain and motion measurements; computer data storage. Design of experiments: review of statistical inference, single factor experiments, randomized block and Latin square designs, factorial designs. Regression.

**ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.)**

**Description**

Solid, industrial and hazardous waste generation and control, with an emphasis on sustainable engineering practices such as environmental impact assessment and performance, waste management, pollution prevention, waste minimization, cleaner production, energy recovery, recycling and reuse.

**Cross-listed**

Same as GREN 5202 .

**ENGR 590/5940 - Graduate Thesis Seminar (3 cr.)**

**Prerequisites**

Completion of 9 cr hrs

**Description**

Seminars on research topics, research methodology, proposal and thesis writing. The course is intended to serve as a forum in which graduate students can present and discuss their research work and learn various research skills.

**ELIN 98/0101 - Intermediate English (0 cr.)**

**ELIN 99/0102 - Advanced English (0 cr.)**

**ELIN 120/0301 - Intermediate English (for Graduates) (0 cr.)**

**ENGL 100/0210 - Academic English for the Liberal Arts (0 cr.)**

**Description**

ENGL 0210 is a non-credit, concurrent, conference-centered course in which classes meet four days a week for a total of 12 (in-class) instructional hours, in addition to weekly conferences with the teacher. A student who for any reason misses more than the number of hours specified in the ENGL 0210 attendance policy will be dropped from the course. A student who is dropped will be allowed to retake the course the following semester. Sessions are devoted to the comprehension and summary of university-level texts, the introduction to basic research tools, the writing of essays on science and humanities topics and remedial grammar, within the context of individual teacher-student conferences.

Students taking ENGL 0210 may enroll in no more than two academic courses with a maximum of 7 academic course credits. Any student who withdraws from ENGL 0210 must also withdraw from the two other academic courses.

For new students, placement in Academic English for the Liberal Arts is determined by their score on the International English Language Testing System (IELTS) or Test of English as a Foreign Language Internet-Based Test (TOEFL-iBT). For students enrolled in the intensive English program, placement in Academic English for the Liberal Arts is determined by their scores on the IEP exit test. All students who have been admitted into ENGL 0210 must satisfactorily complete the course work within a time period not to exceed two full semesters and a summer session. Students taking ENGL 0210 in summer may not enroll in any other academic course.

### **ENGL 123/0310 - Effective Writing (for Graduates) (0 cr.)**

### **ENGL 124/0311 - Academic Reading (for Graduates) (0 cr.)**

### **ENGL 125/0312 - Listening and Speaking (for Graduates) (0 cr.)**

### **ENGL 199/0399 - Selected Topic for Core Curriculum (3 cr.)**

#### **Description**

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.

#### **Notes**

May be taken concurrently with ENGL 0210 .

### **ECLT 123/1023 - Experiencing Creativity: Texts and Images**

#### **Description**

The course introduces short literary works juxtaposed to texts and visual material from different fields of knowledge in order to train students to read, differentiate, and interpret texts and images.

### **ECLT 199/1099 - Selected Topics for Core Curriculum (3 cr.)**

#### **Description**

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.

### **ECLT 200/2010 - Introduction to Literature (3 cr.)**

#### **Description**

For students interested in literature but not necessarily intending to major in the field, this course will enable the student to acquire the tools and learn the methods which would help him/her understand poetry, fiction and drama and develop a deeper appreciation of great literary texts from various places and times.

### **ECLT 201/2011 - Survey of British Literature (3 cr.)**

#### **Description**

The course introduces students to a selection of major works in British Literature from its beginnings to the present. It instructs students to analyze and interpret influential novels, plays, poems, and essays. The course presents the development of British literature historically while emphasizing the cultural and aesthetic dimensions of the texts.

### **ECLT 202/2012 - Global Literature in English (3 cr.)**

#### **Description**

The course explores modern literature written in English by native and non-native speakers (African, Arab, American, British, European, Indian, and Asian writers). This course emphasizes the stylistic analysis, theoretical examination, and historical context of shorter texts to develop an appreciation for the globalization of English-language literary production, and for the role of postcolonial writers.

### **ECLT 209/2019 - Introduction to American Studies (3 cr.)**

#### **Description**

This interdisciplinary course is designed to introduce students to key events and texts in the history and culture of the United States. Using films, literature and historical texts, the course will examine American culture within a historical context.

#### **Cross-listed**

Same as HIST 2019.

### **ECLT 299/2096 - Selected Topics for the Core Curriculum in Global Studies (3 cr.)**

#### **Prerequisites**

RHET 1000

#### **Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

#### **When Offered**

Offered occasionally.

### **ECLT 299/2097 - Selected Topics for the Core Curriculum in Arab World Studies (3 cr.)**

#### **Prerequisites**

RHET 1000

#### **Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

### **ECLT 299/2099 - Selected Topics for the Core Curriculum in Humanities (3 cr.)**

#### **Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**ECLT 301/3001 - Medieval Literature (3 cr.)**

**Description**

The course introduces the student to the literary culture and counter-culture of the Middle Ages through reading selected autobiographical and fictional texts from St. Augustine, Abelard, Heloise, Dante, Chaucer, Attar and *The Arabian Nights*.

**ECLT 302/3002 - Literature of the Renaissance (3 cr.)**

**Description**

A survey of Renaissance authors, beginning with Petrarch and the origins of the Renaissance in Italy. The course traces this cultural revolution as it spread from Italy to other parts of the European continent and finally to Tudor England.

**ECLT 303/3003 - Seventeenth-Century Literature (3 cr.)**

**Description**

The literary developments that followed the Renaissance are explored, culminating in discussion of John Milton and his epic masterpiece, *Paradise Lost*.

**ECLT 304/3004 - Eighteenth-Century Literature (3 cr.)**

**Description**

Dominant modes in European literature and thought between 1660 and 1760.  
Works not originally written in English will be read in English translations.

**ECLT 305/3005 - Romanticism (3 cr.)**

**Description**

Major European and American ideas and literary works of the period 1760-1848.  
Works not originally written in English will be read in English translations.

**ECLT 306/3006 - Nineteenth-Century European Literature (3 cr.)**

**Description**

Major European works of fiction, poetry and drama from the period between 1789-1914.  
Works not originally written in English will be read in English translations.

**ECLT 308/3008 - Modern European and American Literature (3 cr.)**

**Description**

Selected readings of American and European authors representing literary trends from 1900 to the present

**ECLT 310/3010 - American Literature to 1900 (3 cr.)**

**Description**

Selected readings of literary works beginning with pre-Columbian oral traditions and moving from the colonial era to the early national period through to the late nineteenth century.

**Cross-listed**

Same as AMST 3010.

**ECLT 311/3011 - Modern American Literature (3 cr.)**

**Description**

Works of twentieth-century American writers. The reading list may be chosen to reflect changing ethnic and cultural phenomena and will vary from year to year.

**Cross-listed**

Same as AMST 3011.

**ECLT 344/3014 - Literature and Philosophy (3 cr.)**

**Description**

The course concentrates on the intersection of the literary mode with the philosophical quest in Eastern and Western writing. Students are trained to analyze philosophical myths, tales, poems and dialogues as well as grasp the symbolic structures and expository techniques of philosophers.

**Cross-listed**

Same as PHIL 3014.

**ECLT 330/3030 - Literature and Cinema (3 cr.)**

**Description**

The course investigates the relationship between literature and cinema and how they complement each other in representing textually and visually a broad theme, a historical period, or a national concern.

**Cross-listed**

FILM 3030

**ECLT 332/3032 - World Literature (3 cr.)**

**Description**

The course covers seminal literary works in both Western and non-Western canons, assigned in editions of excellent English translations.

### **ECLT 333/3033 - African Literature (3 cr.)**

#### **Description**

The course concentrates on modern literature of the African continent with special emphasis on sub-Saharan literary works, including their correspondence to North African literature. Texts by prominent writers from Africa (men and women/ black and white) will be analyzed in relation to the indigenous culture and oral creativity, as well as in relation to the colonial and post-colonial experience.

### **ECLT 345/3045 - Literature and Gender (3 cr.)**

#### **Description**

The course investigates gender roles in literary texts and the image of women in different historical periods and cultural settings. Readings include Feminist and anti-Feminist literary and theoretical texts drawn from the North and the South.

### **ECLT 346/3046 - Third World Literature (3 cr.)**

#### **Description**

The course analyzes Third World literary texts from Asia, Africa and South America in their historical context and their contribution to post-colonial discourse.

### **ECLT 348/3048 - Contemporary Literature (3 cr.)**

#### **Description**

The course explores literary texts which marked the period following World War II as well as very recent European and American works in a comparative context.

### **ECLT 352/3052 - Recurrent Themes in Literature (3 cr.)**

#### **Description**

The course revolves around a selected literary theme (such as Romance, Friendship, or Loss among others), recurring in different cultures and regions of the world or/and recurring through the ages. The literary theme might be in one genre (drama, fiction, or poetry) or in a combination of genres.

### **ECLT 353/3053 - Modern Drama (3 cr.)**

#### **Description**

A study of mainly European drama in the period from Ibsen to the present, including plays by Shaw, Chekhov, Strindberg, Pirandello, Brecht, Sartre, Beckett, Pinter and others, and dealing with related developments in theatre, cultures and society.

### **ECLT 360/3060 - Shakespeare (3 cr.)**

#### **Description**

Analysis of Shakespearean drama, including tragedy, comedy, history and romance. The course begins with an examination of the theatrical and historical content in which Shakespeare lived and wrote. It then focuses on individual plays, paying attention to the details of Shakespearean language, as well as to the broader issues of power, politics and gender.

### **ECLT 370/3070 - Creative Writing (3 cr.)**

#### **Description**

A course on literary writing designed to accommodate the needs of diverse students. Emphasis is on developing one's own story-telling, play-writing, and/or poetic skills by studying the craft of influential authors from different regions and traditions. The students will meet and interact with Cairo-based emerging and established creative writers as part of their course work.

### **ECLT 347/3099 - Selected Topics (3 cr.)**

#### **Description**

Examination of specific topics in genre and other areas of special interest and expertise of the faculty. May be repeated for credit if content changes. In recent years, the following have been offered under this heading: *The Arabian Nights*, The Lyrical Mode (in English, Arabic and French), Autobiographies, Literature and Cultural History, Literature and the Visual Arts, Literature and Urban Culture, Theory of Narrative, The European Novel, Figures of the Scared, T. S. Eliot, The Bloomsbury Group and Albert Camus.

### **ECLT 409/4009 - Greek Classics in Translation (3 cr.)**

#### **Description**

Major works of Greek literature since 700 B.C., chosen on the basis of merit and influence and studied in the most artistic translations.

#### **Cross-listed**

Same as ECLT 5106.

### **ECLT 410/4010 - Classics of the Ancient World (3 cr.)**

#### **Description**

Major works in ancient Near Eastern and Latin literatures studied in the most artistic translations.

#### **Cross-listed**

Same as ECLT 5107.

### **ECLT 411/4011 - History of Literary Criticism (3 cr.)**

#### **Description**

Study of central documents in the tradition of Western literary criticism, from Plato to the Romantics.

#### **Cross-listed**

Same as ECLT 5108.

### **ECLT 412/4012 - Modern Literary Criticism (3 cr.)**

**Description**

Analysis of the major trends in modern literary theory, such as Russian formalism, new criticism and post-structuralism.

**Cross-listed**

Same as ECLT 5109.

### **ECLT 447/4099 - Capstone Seminar: Selected Topics (3 cr.)**

**Description**

Examination of specific themes and other topics of special interest. This course is designed to meet the requirements of a capstone seminar for the core curriculum. May be repeated for credit if content changes.

### **ECLT 000/5101 - Visual, Literary, and Critical Approaches to Gender in MENA (3 cr.)**

**Description**

The course immerses students in the literary, historical, and theoretical debates within the academic fields of Middle East gender and women's studies. Interdisciplinary approaches as well as varieties of theoretical positions and visual representations are discussed critically. Acknowledging the entanglements of regions, scholarly debates and political struggles, this course locates the Middle East/North Africa (MENA) within its worldly context.

**Cross-listed**

GWST 5101

**When Offered**

Offered yearly.

**Repeatable**

Not repeatable

### **ECLT 506/5106 - Greek Classics in Translation (3 cr.)**

**Description**

Major works of Greek literature since 700 B.C., chosen on the basis of merit and influence and studied in the most artistic translations.

**Cross-listed**

Same as ECLT 4009.

### **ECLT 507/5107 - Classics of the Ancient World (3 cr.)**

**Description**

Major works in ancient Near Eastern and Latin literatures studied in the most artistic translations.



**Cross-listed**

Same as ECLT 4010.

**ECLT 508/5108 - History of Literary Criticism (3 cr.)**

**Description**

Study of central documents in the history of literary criticism, from Plato to the Romantics.

**Cross-listed**

Same as ECLT 4011.

**ECLT 509/5109 - Modern Literary Criticism (3 cr.)**

**Description**

Analysis of the major trends in modern literary theory, such as Russian formalism, new criticism and post-structuralism.

**Cross-listed**

Same as ECLT 4012.

**ECLT 510/5110 - Renaissance Writers (3 cr.)**

**Description**

Detailed study of the works of selected British or European writers from Petrarch to Shakespeare.

**ECLT 512/5112 - Seventeenth-Century Writers (3 cr.)**

**Description**

Detailed study of the works of selected seventeenth-century European and British writers.

**ECLT 514/5114 - Eighteenth-Century Writers (3 cr.)**

**Description**

Selected works of major eighteenth-century writers.

**ECLT 516/5116 - The Romantic Movement (3 cr.)**

**Description**

Selected critical problems in the Romantic movement..

**ECLT 517/5117 - Nineteenth-Century Writers (3 cr.)**

**Description**

Works of selected major nineteenth-century novelists and poets.

**ECLT 523/5123 - Modern Poets (3 cr.)**

**Description**

Readings and analyses of works of major British, European, and American poets from the beginnings of the Symbolist and Imagist movements to the present.

**ECLT 531/5131 - The Modern Novel (3 cr.)**

**Description**

Works of selected novelists of the twentieth century.

**ECLT 540/5140 - Readings in American Literature (3 cr.)**

**Description**

Guided reading.

**ECLT 542/5142 - Readings in French Literature (3 cr.)**

**Description**

Guided reading.

**ECLT 543/5143 - Readings in British Literature (3 cr.)**

**Description**

Guided reading.

**ECLT 545-546/5199-5299 - Selected Topics (3 cr.)**

**Description**

Guided reading, research, and discussion. In recent years, the following courses have been offered under this heading: The Arabian Nights, The Lyrical Mode (in English, Arabic and French), Autobiographies, Literature and Cultural History, Literature and the Visual Arts, Literature and Urban Culture, Theory of Narrative, The European Novel, Figures of the Scared, T. S. Eliot, The Bloomsbury Group and Albert Camus.

**When Offered**

5199 offered in fall, 5299 in spring.

**Repeatable**

May be repeated for credit if content changes.

**ECLT 555/5255 - Research Methods in Literature (3 cr.)**

**Description**

The course introduces scholarship, debates, methods, and professional trends in the field of literary studies, considering questions of theory, application, interdisciplinary, and textuality. The goal of this course is to train students in the methods that they will use to conduct literary research in their papers and theses, giving careful attention to library resources and academic style.

**ECLT 588/5288 - Comprehensives (no cr.)**

**Description**

Individual consultation for students preparing for the comprehensive examination.

**ECLT 599/5298 - Research Guidance and Thesis (no cr.)**

**ENTR 303/3201 - Principles of Entrepreneurial Finance (3 cr.)**

**Description**

This course teaches about financing of new entrepreneurial ventures. The course will examine both the entrepreneur's and investor's perspective with special emphasis on the venture capital process.

**ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)**

**Prerequisites**

MGMT 3201 or BADM 2001

**Description**

This is an interdisciplinary course combining skills from all areas of business. It focuses on the creation of new business ventures with an emphasis on personal rather than corporate goals. Special focus is placed on problems encountered by the entrepreneurs in the Middle East and development of solutions to those problems. The course also prepares students for intrapreneur or entrepreneur business careers in startups and small and large corporations. It offers and understanding of the stages of business formation and what activities are appropriate at each stage of business development to meet financial goals including preparations of feasibility studies for business start-ups.

**ENTR 417/4301 - Entrepreneurship Lab: Developing and Launching a New Venture (3 cr.)**

**Prerequisites**

MKTG 302/2101 - Principles of Marketing (3 cr.) ; ENTR 303/3201 - Principles of Entrepreneurial Finance (3 cr.) or FINC 303/2101 - Business Finance I (3 cr.) ; ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)

**Description**

This course is specially intended for non-business students, minors in entrepreneurship, and students writing business plans for new ventures. It concentrates on the mechanics of constructing a creative, realistic and effective business plans for a new concept that the student team has generated and developed. Thus, it is intended as a "hands-on" experience that explores the process that a person must go through to put together a proper business plan for a start-up

venture.

### **ENTR 418/4302 - Corporate Entrepreneurship (3 cr.)**

#### **Prerequisites**

ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)

#### **Description**

The course aims at understanding the DNA of entrepreneurial firms through answering the questions of what are the characteristics of renowned corporates, why there is a need for developing corporate venturing and how to construct the elements of an entrepreneurial ecosystem. The course will stress on the related issues to creating intrapreneurship through strategic, culture, human resources as well as other managerial functions. The course will also tackle strategies for sustaining competitive advantage within the business world.

### **ENTR 419/4303 - Social Entrepreneurship (3 cr.)**

#### **Prerequisites**

ENTR 4102

#### **Description**

This course introduces students to the social entrepreneurship phenomenon which combines the passion of a social mission with an image of business-like discipline, innovation, and determination. The course discusses how social entrepreneurial practices blur the traditional lines between nonprofit enterprise, government and private sector contributes to the generation of a unique set of opportunities and challenges that characterize this new landscape of entrepreneurship.

### **ENTR 420/4501 - Family Business (3 cr.)**

#### **Prerequisites**

ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)

#### **Description**

This course will examine the causes and consequences of the creation of family fortunes, with a focus on the practical implications for family decision-making and how to create an institutional organization. The course will address challenges facing the family business with an insight on the succession planning and governance. The course will present several case studies of successful family business as well as failures with a stress on the cultural aspects associated with the local Egyptian one. The course also discusses the organizational behavior issues related to family businesses and what are their impacts on the business sustainability.

### **ENTR 421/4502 - Innovation and Technology (3 cr.)**

#### **Prerequisites**

ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)

#### **Description**

The course is designed for business students; in a quest to understand the role of innovation and technology in entrepreneurial organizations as well as in society. The course will cover the different types of innovation in an

organization with a special focus on business model innovation. The concept of technology will be addressed through understanding the fundamentals of product/service and process innovation as well as technology management in prominent organizations. Also the concept of intellectual property rights management and protection as well as new product/service development will be covered as contemporary concepts affecting the organizational effectiveness.

### **ENTR 000/4503 - Digital Strategy (3 cr.)**

#### **Prerequisites**

ENTR 4102

#### **Description**

This course focuses on the key skills, tools, methods, needed for creating effective digital innovations and building digital platforms that will boost customer acquisition and engagement and the diverse business models for sustaining these platforms. The course will deliberately expose the students to a large number of digital tools and tactics with the aim of addressing digital strategy from a 360 degree view analyzing and improving the design and content of every touch point of your digital platforms.

### **ENTR 470/4970 - Special Topics in Entrepreneurship (3 cr.)**

#### **Prerequisites**

Consent of Instructor.

#### **Description**

Considers selected topics of current relevance in Entrepreneurship.

#### **Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree.

### **ENVE 561/5250 - Water Quality Control (3 cr.)**

#### **Description**

Water quality parameters: standards and analysis; theory and basic processes for modeling fate and transport of pollutants in surface water bodies; integrated water pollution control strategies.

### **ENVE 562/5251 - Unit Operations in Environmental Engineering (3 cr.)**

#### **Description**

Theory and design of unit operations and processes in environmental engineering, emphasizing water and wastewater treatment; namely: physical, chemical and biological unit processes, sludge handling processes.

#### **Cross-listed**

Same as CENG 4553 but with additional requirements for graduate students.

### **ENVE 564/5252 - Air Pollution Control Engineering (3 cr.)**

#### **Description**

Air pollutants sources, sinks, and residence time. Costs of air pollution. Control strategies and systems design. Mathematical models of air pollution. Monitoring and control instruments.

### **ENVE 565/5253 - Air Pollution and Combustion (3 cr.)**

#### **Description**

Air pollution and combustion, combustion generated pollutants, greenhouse effect, fuel alternatives, effects of air pollution on health and vegetation, other forms of energy sources, technologies for emission reduction and control.

### **ENVE 566/5254 - Solid and Hazardous Wastes Engineering (3 cr.)**

#### **Description**

Solid wastes - Nature, generation and collection. Local and regional management strategies including recycling and recovery of useful products, landfilling, and incineration. Hazardous wastes - Nature, generation and collection. Risk assessment. Management strategies including source reduction, treatment, recovery, landfilling, and incineration.

#### **Cross-listed**

Same as CENG 4555 but with additional requirements for graduate students.

Same as GREN 5213 .

### **ENVE 567/5255 - Environmental Chemistry (3 cr.)**

#### **Description**

Chemical principles for quantitative solution of environmental engineering problems with a focus on aqueous systems. Concept of chemical equilibrium is developed to determine mass distribution of environmentally significant substances. Applications of acid-base, coordination, oxidation-reduction, and organic distribution reactions are developed for water and wastewater systems.

### **ENVE 568/5256 - Noise Pollution Fundamentals, Measurements and Control (3 cr.)**

#### **Description**

Properties of sound waves in free fields and enclosures; effects of noise on people; quantitative measurement of noise characteristics and impact; noise reduction indoors and outdoors; noise control regulations.

### **ENVE 569/5258 - Groundwater Hydrology and Contamination (3 cr.)**

#### **Description**

Groundwater and well hydraulics with applications to water supply and control of contaminants; groundwater contamination; development, solution and application of contaminant transport equations; groundwater remediation; introduction to unsaturated flow.

### **ENVE 580/5910 - Independent Study in Engineering (3 cr.)**

#### **Description**

Independent study in various problem areas of engineering may be assigned to individual students or to groups.

Readings assigned and frequent consultations held.

**Notes**

(Students may sign for up to 3 credits towards fulfilling M. Sc. requirements).

**ENVE 592/5930 - Advanced Topics in Engineering (3 cr.)**

**Prerequisites**

Prerequisite: consent of instructor.

**Description**

Topics to be chosen every year according to specific interests.

**Repeatable**

May be taken for credit more than once if content changes.

**ENVE 599/5980 - Research Guidance Thesis (3 cr.)**

**Prerequisites**

ENGR 5940

**Description**

Consultation on problems related to student thesis.

**Repeatable**

Must be taken twice for credit.

**ENVE 662/6250 - Advanced Treatment Processes (3 cr.)**

**Description**

Description, design, and applications of advanced technologies for removal of contaminants from environmental media; membrane technologies - nanofiltration, ultrafiltration, reverse osmosis, membrane bioreactors; adsorption; biological activated carbon; biofilters; pulsators; tube settlers; advanced oxidation processes - ozonation, UV radiation, photo-oxidation, chemical oxidation and reduction; cryogenic and thermal processes.

**ENVE 680/6910 - Independent Study in Environmental Engineering (3 cr. Max.)**

**Description**

Independent study in various problem areas of environmental engineering may be assigned to individual students or to groups. Readings assigned and frequent consultations held.

**ENVE 692/6930 - Advanced Selected Topics in Environmental Engineering (3 cr.)**

**Description**

Topics chosen according to special interests of faculty and students. May be repeated for credit more than once if content changes.

### **ENVE 699/6980 - Research Guidance Dissertation (3 cr.)**

#### **Description**

Consultation on problems related to student thesis. To be taken 11 times for credit.

### **EMBA 601/5601 - Change Management and Global Transformation (1.75 cr.)**

#### **Description**

This module focuses on planning, implementing and managing change in a fast-changing dynamic environment of today. It assists executives to understand challenges, tools, and burdens associated with initializing and implementing major changes in the organization. It addresses change efforts, reconstructing and reengineering and organizational adaptation decisions and developing action plans for making smooth transformation process and preventing resistance to change from employees and providing effective leadership of people in the organization.

### **EMBA 602/5602 - Team-work & Communication (1.75 cr.)**

#### **Description**

The module focuses on team building and growth, performance, effective strategies for better group decision making, team leadership, resolving conflict within and across teams, evaluating and rewarding teams performance and developing a team-focused organizational culture. It aims at improving participants' ability to lead high-performing teams through effective design and development. They will gain in-depth knowledge of practices of successful teamwork and will examine why other teams fail to deliver their expected results. They will learn how organizations can encourage innovation, strategic decision-making, and co-operation with other organizations through the use of teams and effective communication.

### **EMBA 603/5603 - Data Analysis and Analytical Decision Modeling for Optimizing Decisions (2 cr.)**

#### **Description**

This module focuses on exploring the use of sample data, survey, regression analysis, decision models and statistical methods for estimating, predicting, and forecasting and making business decision. It will also include applications to total quality management, polling, employee attitude surveys, market research, operation and finance. It improves participants modeling skills, which are the key to success. Participants learn about weaknesses and strengths of quantitative models. It provides them with a reality check on the forecasts, enables 'what if' analysis and provides an integrated view of business, and is a key step in valuation.

### **EMBA 604/5604 - Managerial Economics (1.75 cr.)**



**Description**

This module covers the basics of microeconomics (supply, demand, market price and output, production, cost and market equilibrium) and the international macroeconomics and monetary environment within which business operate. It provides intensive overview of economic analysis of firms, industries, markets, forms of competition, role of industry structure, the influence of government policies. It provides framework that participants use to understand the performance of international economies and financial markets, linkage among countries through trade, exchange rates and the balance of payment, business cycles and recessions, inflation and deflation, and the effects of the governments' macroeconomic policies.

**EMBA 605/5605 - Strategic Accounting (1.75 cr.)**

**Description**

The module addresses corporate financial reports as an important means of communication with investors and with managers in making tactical and strategic decisions. It focuses on the development, analysis and use of these reports and what assumptions and concepts accountants use to prepare them, and why they use those assumptions and concepts. It introduces basic costs concepts and develops techniques such as cost drivers, activity-based accounting, customer profitability, value-add and values chain analysis, and target costing. Other topics may include mergers and acquisitions, purchase and pooling, free cash flow and financial statement analysis, studies the nature, design and decision-facilitating role of cost systems and focuses on the effects of strategy, technology and the environment on cost system designs. Tools such as budgets, variance analysis, benchmarking, transfer pricing and balanced scorecard are used to illustrate planning, control and performance measurement systems that facilitate successful implementation of organization's strategies

**EMBA 606/5606 - Financial Management (2 cr.)**

**Description**

It introduces the basic principles of finance. It addresses topics as discounting techniques and applications, evaluation of capital expenditure, estimating cost of capital, bond and stock valuation and investment decisions under uncertainty. Participants are expected by the end of this module to apply basic valuation formulas to standard financial instruments.

**EMBA 607/5607 - Corporate Financial Management (1.75 cr.)**

**Description**

It analysis corporate financial decisions. It introduces the structure of markets, the evaluation of assets and concepts of risk-adjusted returns. It addresses essential topics as market efficiency, capital structure, dividend and stock repurchase policy, and firms' use of options and convertible securities. By the end of this module, participants should be able to understand the underlying analytical framework for corporate finance.

**EMBA 608/5608 - Talent Management, Coaching & Mentoring (1.75 cr.)**

**Description**

The act of management is all about amplifying the human capability of an organization. This module addresses the people side of business from a general management perspective. Within the context of newer thinking in "Talent

management and Organizational Performance", the module integrates concepts from strategy, organizational behavior, talent management, motivation, incentives, empowerment, leadership, organizational design, and transformation. It assist the participants in developing a deeper understanding of how human capability (talent) can be amplified or dampened by the enabling or disabling attributes of the intangible assets of a company (structure, leadership, culture, information, networks, beliefs, values, and reward systems); and it equips the participants with management practices, approaches and coaching and mentoring skills, that can be employed to optimize the various inter-related levers of talent and organizational performance.

## **EMBA 609/5609 - Managerial Decision Making and Operation Management (2 cr.)**

### **Description**

This module introduces operation from the general managers' point of view rather than operation specialist. It approaches the integration, efficiency and effectiveness of managerial functions in support of development of the organization's strategic goals, improving business decisions and achieving competitive advantage. It discusses operating systems: production process, process design and flow analysis, inventory concepts and models, time-to-market and responsiveness, project management, effects of uncertainty and waiting lines in producing an organization's products and services. It focuses on quality management and statistical quality controls, as well as recent process-improvement ideas. Case studies are used to highlight central issues.

## **EMBA 610/5610 - Global Marketing Management (International Live-in Module) (2.75 cr.)**

### **Description**

The module examines strategies over the product lifecycle including growth strategies for mature and declining markets, and defensive strategies. It addresses the importance of companies being market-driven and customer focused and presents current theories and practices of marketing management. Participants will be able to have an integrative strategic view of marketing, including the impact of globalization, information technologies and challenges to implement them.

## **EMBA 611/5611 - Competitive & Corporate Strategy (International Live-in Module) (2.75 cr.)**

### **Description**

Corporate Strategy focuses on business policy by a firm and the development and implementation of a business strategy that will allow the firm to achieve its goals and objectives. Achieving these goals and objectives usually occurs within a competitive context, in which other rival organizations seek similar if not the same ends (e.g. market share, profits, control of scarce resources, etc.). How a firm stands against its rivals' attempts and how it develops and implements a competitive strategy. Topics include industry analysis and competitive advantage as it derives from the firm's strategic investments, resources allocation, and organizational coalitions.

## **EMBA 612/5612 - E- Business & Managers' Toolkit (2 cr.)**

### **Description**

The module examines application of information resources and technology in organizations. The objective is to familiarize participants with key concepts in the use and management of Information Technology (IT). Topics covered include selected aspects of hardware, software, organizing data and information, telecommunication, electronic commerce, transaction processing systems, decision support systems, business intelligence systems and systems development. Participants will learn how do information technologies create value and affect the structure of competition.

### **EMBA 613/5613 - Leadership & Management (1.75 cr.)**

#### **Description**

The leadership module moves participants to a deeper understanding of their leadership competencies and personality style through further analysis of assessments with Center for Creative Learning (CCL) coach. Participants will be able to integrate managerial skills and effective concepts of leadership (Traits, Competencies and Ethics) of the work place. They will learn how to understand to better coach others when in leadership role and how to flex their styles as needed to lead others more effectively. They will be able to refine and update their personal development goals, as needed in response to circumstances on the job and further feedback in providing leadership solutions.

### **EMBA 614/5614 - Innovation and Creating the Best Practices of Tomorrow (1.75 cr.)**

#### **Description**

It explores a broader, more inclusive view of innovation, enabling the manager to employ innovation as a more effective competitive weapon, leading to an understanding of state-of-the-art "Innovation Process Management" within and between firms and across geographies. It addresses how to make creative energy the goal of the organization and energizes the staff to be creative and see problems not as obstacles but as opportunities for innovation.

### **EMBA 615/5615 - Global Supply Chain Management and Operational Excellence (2 cr.)**

#### **Description**

This module is about supply chain management from suppliers to customers to clients, how to link it with marketing and business strategy and develop Global Business Networks. It addresses operational excellence as a competitive strategy, customer service versus operational efficiency from "built-to-forecast" to "build-to-order" and behavioral operational management

### **EMBA 616/5616 - Negotiation & Conflict Management (1.75 cr.)**

#### **Description**

It focuses on negotiation as an important process in resolving conflicts that may arise from differences in interests such as goal, priorities or competition from limited resources. It examines stakes, power, interdependence, trust, coalitions, communication, and personal negotiation styles. Participants practice cross-cultural negotiations, dispute resolution, coalition formulation. It addresses multiparty negotiations, extremely competitive negotiations and negotiations via

Information Technology (IT).

### **EMBA 617/5617 - Entrepreneurial Management (1.75 cr.)**

#### **Description**

It covers the challenges involved in managing entrepreneurial ventures, whether they are start-ups, small entrepreneurial firm or units within larger, well-established companies. It focuses on the behaviors and attributes required to operate successfully within entrepreneurial environment. The module addresses the concepts, theory of practice of entrepreneurship in a dynamic international environment. It helps participants to understand the risks and rewards that accompany entrepreneurial activities and develop the skills of leadership while enhancing their own practice.

### **EMBA 618/5618 - Doing Business With The East (International Live-in Module) (2.75 cr.)**

#### **Description**

The module is live-in week in Hong Kong. Participants will be prepared for new challenges and opportunities that they will face in the business world, especially in China and Asia. The modules include introduction to Asia/China Business, Economic, social and political environments. Emphasis will be on China's current Economy Development, Change in Business environment and managing in a Chinese context.

### **EMBA 619/5619 - Doing Business With The East (International Live-in Module) (2.75 cr.)**

#### **Description**

The module will be a continuation of above topic. There will be an overview about the Legal and Regulatory issues, managing Joint-Venture Partnerships, Entry strategies, Marketing and Human Resources challenges in China. Practical cases on Legal and Regulatory issues and on Successful Negotiation in China will be studies. Participants will be able to visit companies during their study.

### **EMBA 620/5620 - Corporate Governance & Social Responsibility (2 cr.)**

#### **Description**

This module focuses on how corporate governance, as a set of processes, customs, policies, laws and institutions, affects the way the organization is directed and controlled. It examines how the quality of corporate governance system influences prices shares of the company and the cost of raising capital and how it complies with the legal and regulatory requirements. It addresses some important topics as the separation of ownership and control, property rights, reconciling conflicts between stakeholders and the role of the board of directors in ensuring accountability, fairness and transparency in the firm's relationship with all its stakeholders.

### **EMBA 621/5621 - Business & Legal Environment (1.75 cr.)**

### **Description**

This module relates business to its legal environment. It provides broad analysis of how laws influence management decisions and strategies, how to review the characteristics of various legal structures and how to set the legal framework for doing business. It focuses on how business decisions and transactions should comply with the law. It familiarizes participants with certain basic legal concepts relating to doing business on national and international levels.

## **EMBA 622/5622 - Development & Rationale for Competitive Law (1.75 cr.)**

### **Description**

This module looks at how competition law fits in a larger context of economic policy. It covers the development and rationale for international competition law for firms, with reference to developing countries' competition law as well as relevant provisions in the Egyptian competition policy and covers agreements between firms (cartels, joint ventures, mergers), monopolization, and public enforcement of law by competition authorities, private enforcement in the courts and the coordination of private and public enforcement.

## **EMBA 623/5623 - Adapting to Global Environment - Integration Consultation Project (4 cr.)**

### **Description**

Participants undertake a successful "consulting" project within their own organization, identifying a challenge or an opportunity they seek to address and undertaking the appropriate analysis leading to a recommended course of action. Participants are encouraged to apply and integrate several analytical tools and organizational skills learned in various courses of the program. It provides concrete tools and concepts for projects management. The module is taught in an interactive case-based format. Participants are expected to actively participate while providing insights from their own experiences with project management. Participants will understand why many projects fail, know the critical success factors, be able to define and analyze work breakdown structures and critical paths for projects, and understand the impact of uncertainty on project management.

## **EMBA 000/5624 - Independent Study - Selected Topics in Management (1-3 cr.)**

### **Description**

This module has been designed for professionals who want to improve their management skills, either to improve their roles or to progress within their current company. It also offers students the opportunity to develop their critical thinking on different topics and how they relate them to organizational issues of opportunity, inclusion, creativity and innovation and organizational effectiveness, etc.

This will be delivered through supervised guided readings, research, and discussions on specific selected topics in Executive Management studies.

## **FILM 199/1099 - Selected Topics for Core Curriculum (3 cr.)**

### **Description**

Course addressing broad intellectual concern and accessible to all first-year students as part of the Primary Level Core.

**When Offered**

Offered occasionally.

**FILM 299/2099 - Selected Topics for Core Curriculum (3 cr.)**

**Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**FILM 220/2120 - Introduction to Film Art (3 cr.)**

**Description**

An introduction to the art of cinema, covering basic film language, aesthetics, history and theory. Narrative feature (fiction), documentary (non-fiction), and avant-garde modes are analyzed in detail, and relevant films are screened in class to stimulate learning and discussion.

**When Offered**

Offered during Fall and Spring

**Notes**

Required for the Major and Minor in Film.

**FILM 000/2121 - Introduction to Film Production (3 cr.)**

**Description**

This introductory filmmaking course teaches Film students pre-production skills and techniques.

The best directors, the most creative cinematographers and the most promising actors cannot produce a quality film without solid pre-production. On that account, participants in this course will be taken through the various stages of pre-production, from finding a strong story concept to writing a screenplay for production. Students will learn how to conduct research on their stories and how to build and create characters and write dialogues. They will be introduced to the craft of storytelling, story development and story structure in film. In addition, they will learn how to present their story concepts in the form of an exposé and a treatment. Assigned readings will complement practical knowledge and provide background to the craft of cinematic storytelling. The course will consist of lectures and exercises, take-home assignments, presentations and group critiques. An overview will be provided of all pre-production needs, from budgeting to crewing and scheduling. By the end of the course, students will write a screenplay and be able to pitch their story concepts for potential production during the following semester.

**FILM 000/2122 - Introduction to Film Criticism (3 cr.)**

**Prerequisites**

FILM 2120 or consent of the instructor.

**Description**

This course is an extension of Introduction to Film Art (FILM 2120). Whereas the first course focuses on the basics of

film language and textual analysis, Introduction to Film Criticism focuses on the major schools of film criticism and teaches students how to write about film using those critical methodologies. The course is required for Film majors, as it provides them with basic knowledge necessary for satisfactory performance in more advanced Film courses. The course is also open, with permission of the instructor, to non-Film majors/minors who are interested in a more comprehensive introduction to the field (e.g., students of media/journalism and comparative literature).

### **FILM 000/2123 - Introduction to Film Production II (3 cr.)**

#### **Prerequisites**

FILM 2121

#### **Description**

This course follows FILM 2121 - Introduction to Film Production. It will concentrate on the narrative form with the goal of writing, directing, performing, and producing original short films. It will survey the fundamental aesthetic and technical film elements and techniques including cinematography, directing, acting, sound recording, and editing. Students will have the opportunity to develop their screenplays written in FILM 2121. This course will consist of discussions, screenings, written and oral exercises, and group projects.

### **FILM 000/2201 - Acting I (3 cr.)**

#### **Description**

A basic course in the fundamentals of acting, designed for majors, minors, and those with some previous experience. In-class exercises and improvisations, combined with rehearsed scenes and monologues from simple realistic texts, will help students gain proficiency in objective/obstacles, creation of character, basic voice and breath control, and basic body alignment and awareness.

#### **Cross-listed**

Same as THTR 2201 .

#### **When Offered**

Offered in fall and spring, and occasionally in the summer.

### **FILM 000/2211 - Acting in Arabic I (3 cr.)**

#### **Description**

The art and craft of acting as a systematic process applied to the specific demands of Arabic Drama. Scene work and monologues from modern and contemporary Arabic plays.

#### **Cross-listed**

Same as THTR 2211

#### **When Offered**

Offered in fall or spring, and occasionally in the summer.

### **FILM 000/3030 - Literature and Cinema (3 cr.)**

#### **Description**

This course investigates the relationship between literature and cinema and how they complement each other in representing textually and visually a broad theme, a historical period, or a national concern.

**Cross-listed**  
ECLT 3030

### **FILM 341/3041 - Anthropology and Film (3 cr.)**

**Prerequisites**  
ANTH 2101

**Description**

The history and practice of film in anthropology; film as ethnography; comparison of films and analytical ethnographies.

**Cross-listed**  
Same as ANTH 3070 .

**When Offered**  
Offered occasionally.

### **FILM 370/3070 - Selected Topics in Film (3 cr.)**

**Description**

In-depth examination of specific topics in film determined by the special interests and expertise of the faculty..

**When Offered**  
Offered occasionally.

**Repeatable**  
May be repeated for credit if content changes

### **FILM 310/3110 - World Cinema (3 cr.)**

**Description**

A survey of key international cinemas from the post-Second World War period to the present day, which have come to be understood retrospectively, during the contemporary period, as "world cinema." Students will gain critical exposure to films and film movements such as Third World cinema, European New Waves and art films, the Japanese New Wave, Brazilian cinema novo, and the more recent North American "indie" cinema. In the process, students will learn how to locate and subject the socio-economic and ideologico-political conditions of world cinema to serious analysis and critique.

**When Offered**  
Offered during Fall or Spring

### **FILM 000/3115 - American Cinema 1895-1945 (3 cr.)**

**Description**

This course provides a history of the most influential cinema in the world: Hollywood. American Cinema 1895-1945 concentrates on the first half of the twentieth century. Students will acquire broad knowledge of the early years of American cinema and of the classical Hollywood studio system, and will view films from the silent, black-and-white era as well as those made just after the introduction of sound and color. This course is designed for students from across the disciplines and carries no prerequisites.



### **FILM 000/3117 - American Cinema 1945-present (3 cr.)**

#### **Description**

This course provides a history of the most influential cinema in the world: Hollywood. American Cinema 1945-present concentrates on the second half of the twentieth century through the early twenty-first century. Students will acquire broad knowledge of the hey-day of Hollywood cinema and of the post-Hollywood era. This course is designed for students from across the disciplines and carries no prerequisites.

### **FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)**

#### **Description**

This course examines various aspects of cinema in Egypt and the Arab World in order to understand its history, and determine the themes, the styles, and the character of this cinema which has been historically among the most influential in national world cinemas. Topics could include areas such as New Arab Cinemas, classical Egyptian cinema, the Arab film industry, independent Arab cinema, among others.

### **FILM 000/3125 - Topics in National Cinemas (3 cr.)**

#### **Description**

This course variably focuses on a specific national and, where appropriate, regional cinema, such as that of Germany, France, Argentina, Brazil, Japan, Italy, England, Sub-Saharan Africa, India, China, Canada, Mexico, Cuba, Eastern Europe, Iran, Turkey, Russia or Scandinavia. The course considers recent shifts in the study of national cinemas that accounts for understanding the notion of "identity" in a global context. The course is open to students from across disciplines.

### **FILM 330/3130 - Film Theory (3 cr.)**

#### **Prerequisites**

FILM 2122

#### **Description**

This course provides a critical overview of the major theoretical approaches to the analysis and critique of cinematic art, including early theories of aesthetics, structure and form; modernist political and avant-garde critiques; theories of spectatorship and the cinematic apparatus; contemporary cultural studies; and theories of animation and new media. Films will be screened in class to facilitate understanding of the assigned theoretical readings. Required for Film majors. Required cumulative course for Film minors.

#### **When Offered**

Offered in the fall or spring.

### **FILM 340/3140 - Documentary Film (3 cr.)**

#### **Prerequisites**

FILM 2120 or consent of the Director of the Film Program.

#### **Description**

A study of the non-fiction film, its international history, theoretical approaches to its structure and effects, and current issues in documentary production. Class screenings will be used to expose students to important and relevant examples of documentary cinema.

**When Offered**

Offered occasionally.

**FILM 000/3150 - Women and Film (3 cr.)**

**Description**

This course provides a basic history and theorization of the representation of women in cinema, filmmaking, and the field of film studies. The course engages in a historiographic analysis of feminist film theory while mapping aspects of women's representation in cinema and her role behind the camera. The course is open to students from across disciplines, and should be of strong appeal to students majoring in psychology, sociology, anthropology, and comparative literature.

**FILM 360/3160 - The Filmmaker (3 cr.)**

**Description**

A detailed study of the themes, the characteristic style, development, and influence of the director within the world of cinema. The course will assess, compare, and/or contrast combinations of two to three filmmakers. Themes could include emphasis on filmmakers such as Quentin Tarantino, Martin Scorsese, the Coen Brothers, Youssef Chahine, George Romero, George Lucas, Francis Ford Coppola, Ingmar Bergman, Salah Abou-Seif, Pier Paolo Pasolini, among others.

**FILM 390/3190 - Film Genres (3 cr.)**

**Description**

This course examines questions relating to one or several generic film forms and conventions, drawing examples from Hollywood as well as from a variety of international cinemas. Topics might include the musical, comedy, horror films, film noir, the western, the historical epic, science fiction, etcetera.

**FILM 352/3252 - Screenwriting (3 cr.)**

**Prerequisites**

FILM 2123

**Description**

Provides an overview of the role of storytelling in filmmaking practice, introducing students to the techniques used by screenwriters to craft stories in both fiction and non-fiction formats and in other moving-image media such as television.

**When Offered**

Offered in Fall or Spring.

**FILM 353/3253 - Digital Cinematography (3 cr.)**

**Prerequisites**

FILM 352/3252 - Screenwriting (3 cr.)

**Description**

This course focuses on developing the practical as well as aesthetic skills necessary for digital cinematography. As part of a fast emerging and increasingly dominant form of filmmaking, digital cinematography has become key in contemporary mainstream, alternative and independent filmmaking. Students will perform assignments and exercises manifesting their capacity to work with various applications of cinematographic techniques and their integration with lighting design and camera movement. This course is required for film Majors.

**When Offered**

Offered at least once per year.

**Notes**

Priority of registration in this course is given to declared Film majors and Film minors.

**FILM 344/3254 - Digital Editing (3 cr.)****Prerequisites**

FILM 3253 or consent of the Director of the Film Program

**Description**

This course focuses on developing practical as well as aesthetic skills for digital forms of film editing. Students will engage in several assignments and exercises manifesting their capacity to work on various applications of editing techniques.

**When Offered**

Offered at least once every year.

**Notes**

Priority of registration in this course is given to declared Film majors and Film minors.

**FILM 336/3306 - Sound for Picture Production (3 cr.)****Prerequisites**

FILM 2123 ;MUSC 2301

**Description**

This course provides an in-depth, interactive study of sound and its relationship to picture. Topics will include post production areas relative to time code, synchronization, workflow, data interchange, sound recording and editing, lip-syncing and voice over tracks using ADR (Automatic Dialog Replacement), creating special effects with Foley, routing structures, sound mixing, and delivery methods. All of the above will be first described in class lectures and then applied practically in projects.

**Cross-listed**

Same as MUSC 3306 .

**FILM 352/3352 - The Film Industry (3 cr.)****Prerequisites**

## FILM 2122

### Description

This course theorizes the production, distribution, circulation, and exhibition practices of various film industries. It may include an examination of the relationship between a national film industry and other visual media; changing technologies and their impact on the medium; and connections and intersections between the film industry and other economic industries and dynamics. This course is required for Film majors.

## FILM 354/3354 - Film Audience and Reception (3 cr.)

### Prerequisites

FILM 2120 or consent of Visual Cultures Director.

### Description

The course maps aspects of spectatorship, audience, and reception approaches as they intersect with experiences and study of cinema. The course provides students with tools to appreciate film as an interactive medium of communication. It explored these approaches with emphasis on spectatorial agency. Resistant and subversive reading, and hegemonic and counter-hegemonic readership and production.

## FILM 000/3402 - Documentary Production (3 cr.)

### Prerequisites

FILM 344/3254 - Digital Editing (3 cr.)

FILM 340/3140 - Documentary Film (3 cr.)

### Description

This course develops skills and techniques for producing documentary film, including planning, shooting, interviewing, lighting, sound recording, and editing. Since the course gives only a brief, accompanying overview of the history, theory, ethics, and modalities of nonfiction film, it is required that students take FILM 3140 - Documentary Film in advance of, or at the same time as, taking FILM 3402. Group projects, screenings, readings, tutorials, lectures, and discussions prepare students to produce their own documentary films.

## FILM 000/4201 - Film Directing (3 cr.)

### Prerequisites

FILM 344/3254 - Digital Editing (3 cr.)

### Description

This course provides a practical overview of the artistic and technical craft of directing films, including scripting, auditioning, working with actors, and managing production crews. Directing techniques and the employment of cinematic elements for narrative and non-narrative storytelling will be illuminated through readings, discussions, screenings, tutorials, exercises, assignments, and group projects.

## FILM 450/4250 - Senior Film Project (3 cr.)

### Prerequisites

FILM 3254 ; MUSC 3306

**Description**

Senior students work on making their own film projects with the participation of other film students. Under the supervision of the instructor, students will develop their project through pre-production, production, post-production phases. Attention will be given to quality excellence rather than quantity and length films.

**When Offered**

Offered once a year in the spring semester.

**Notes**

Enrollment in this course is restricted to students with a declared Film Major.

**FILM 000/4350 - Philosophy and Film (3 cr.)****Prerequisites**

Students other than Philosophy majors must take FILM 3130 prior to registering for this course.

**Description**

This course considers the relationship between philosophical reflection and aesthetic practice through the lens of cinema, with the purpose of engaging students of both philosophy and film theory in a cross-disciplinary investigation into cinema. The course will draw both from philosophical texts on film, and classical and contemporary film theory. Topics may include epistemological, ontological and ethical questions about film; the role of memory, subjectivity, identity, and desire in cinema; time, space, and the nature of the image; perspectives on sexuality, gender, and race in film; psychoanalytic, feminist, and postcolonial film theory, and analytic and continental approaches to film and philosophy.

**Cross-listed**

PHIL 5150

**FILM 456/4356 - Experiential Learning in Film (3 cr.)****Prerequisites**

Fourth year level in the Film major or consent of the Director of the Film Program. May be taken more than once.

**Description**

This course designed to provide students with the opportunity to gain practical experience and to work and learn within the film community (production, festivals, administration, archives, research) as interns, paid employees, or volunteers. Students interested in enrolling in this course should submit a proposal to the Film Program. The proposal should be submitted for approval at least one month in advance of beginning the work. Students should also include an official letter from the host institution which has agreed to supervise their project indicating approval of the proposed student project. The host institution should also agree to provide an evaluation of the quality of the student performance within two weeks after the end of the student project.

**FILM 402/4402 - Independent Study (1-3 cr.)****Prerequisites**

This course is restricted to senior level students in the Film Major or Minor. Departmental approval required.

**Description**

With departmental approval, advanced students may arrange an individualized course topic to be completed under faculty supervision.

**When Offered**

Offered in fall and spring.

**FILM 470/5170 - Advanced Seminar in Film Studies and Research (3 cr.)****Prerequisites**

Fourth-year Film majors only, or consent of the instructor.

**Description**

This course is designed to provide students with an opportunity to survey and investigate various and specialized areas of film studies. Topics may include history, theory, filmmakers, national cinemas, women in film, etc. Seminars may also discuss film industry and distribution, film media, festivals, production systems, etc. Within the framework of the seminar's general topic, each student develops his/her more focused research project. This project builds upon and develops the material discussed in class and in the required readings.

**When Offered**

Offered in Fall.

**Notes**

Students may choose to take this course twice, provided the specific area of each of the seminars falls in a different area of study, and pending approval.

**FINC 303/2101 - Business Finance I (3 cr.)****Prerequisites**

ACCT 2001 AND (MACT 2222 OR MACT 1221 OR MACT 3224 OR PSYC 2000 OR SOC 3103) AND (ENGR 3222 or ECON 2011 or ECON 2021)

**Description**

The study of the principles of finance and their application to business enterprises. Special emphasis on financial analysis, management of working capital, cost of capital, capital budgeting, long term financing, dividend policy and internal finance.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**FINC 404/3201 - Investment Analysis (3 cr.)****Prerequisites**

FINC 2101

**Description**

Introduction to the theory of investments. Topics include risk and return, the theory of portfolio selection, asset pricing models, valuation for stocks, bond pricing and the term structure of interest rates and options.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**FINC 405/3401 - Applied Banking (3 cr.)**

**Prerequisites**

FINC 2101 .

**Description**

Measuring returns and risks in banking, evaluation of a bank's performance, introduction to lending techniques and risk rating methods. Analyzing creditworthiness of business firms and financial institutions. Credit-management techniques such as asset protection, asset conversion and cash-flow analysis are introduced.

**When Offered**

Offered twice a year.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**FINC 408/3501 - International Finance (3 cr.)**

**Prerequisites**

FINC 2101

**Description**

The effect of the international financial environment on the major financial decisions of business. The international financial institution and their effect on firms operating in the international environment.

**Cross-listed**

Same as INTB 3501 .

**When Offered**

Offered occasionally.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**FINC 410/4202 - Capital Markets (3 cr.)**

**Prerequisites**

FINC 2101 .

**Description**

The objective of this course is to provide students with a thorough understanding of the structure and mechanics of financial markets coupled with a practical perspective of the use of financial tools and their applications. It will introduce students to capital markets with global applications to various financial instruments including debt, equity and derivative securities, such as forwards, futures, and options. The course, as well, aims to widen students understanding of the various risks encountered by financial institutions and the means by which they are mitigated and managed.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment in courses is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in courses specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**FINC 412/4203 - Options and Derivatives (3 cr.)****Prerequisites**

FINC 3201

**Description**

Overview of basic derivative securities; forwards, futures and options. The focus is on the valuation of these securities and the use of derivatives for hedging risks. More complex derivatives may be covered.

**When Offered**

Offered occasionally.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**FINC 415/4204 - Portfolio Theory and its Applications (3 cr.)****Prerequisites**

FINC 3201

**Description**

Portfolio Theory provides students with basic concepts and models of financial theory and introduces them to the evaluation of quantity risk and return decisions. Subjects that are offered in this course: Capital assets Pricing Theory; Arbitrage Pricing Theory; Derivatives and Portfolio Selection and Management.

**When Offered**

Offered occasionally.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**FINC 414/4301 - Corporate Finance (3 cr.)**



**Prerequisites**

FINC 3201

**Description**

The course introduces students to basic concepts of corporate finance in the Egyptian environment. The course will cover the theory and application of capital budgeting techniques and capital structure choice of firms.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**FINC 000/4302 - Introduction to Private Equity and Direct Investments (3 cr.)****Prerequisites**

FINC 414/4301 - Corporate Finance (3 cr.)

**Description**

This course gives an introduction to private equity and direct investments. The course reviews the theoretical foundations of private equity and valuation techniques and applies them to various aspects of private equity deals using real life cases. The course examines how private equity firms operate, how private equity deals are executed, methods used by private equity firms for identifying value as well as lessons that companies can learn from private equity.

**FINC 470/4970 - Special Topics in Financial Management (3 cr.)****Prerequisites**

FINC 3201

**Description**

Considers selected topics of current relevance in Financial Management.

**When Offered**

Offered occasionally.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**FINC 475/4975 - Independent Study in Financial Management (1-3 cr.)****Prerequisites**

Prerequisites: Senior standing and consent of FINC unit head and chair.

**Description**

Guided readings, research, and discussions on specific selected topic in Financial Management.

**When Offered**

Offered occasionally.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**FINC 527/5201 - Managerial Economics (3 cr.)****Description**

This course aims at applying economic principles to managerial decision making. The course covers topics such as demand, costs and market structure and their relation to pricing, product choice and resource allocation. This course also covers Macroeconomic topics such as saving, investment and the rate of interest; the theory of inflation; and economic growth.

**FINC 540/5202 - Financial Management (3 cr.)****Prerequisites**

ACCT 5201

**Description**

It is a basic business finance course, dealing with various aspects of financial decision making. It provides an introduction to time value of money; bond and stock valuation; ratio analysis; financing decisions; capital budgeting; cost of capital; capital structure; risk and return; dividend policy; operating and financial leverage; and working capital management.

**Cross-listed**

Same as GREN 5224 .

**When Offered**

Offered in fall and spring.

**FINC 541/5203 - Investments and Portfolio Management (3 cr.)****Prerequisites**

ACCT 5201 and FINC 5202 .

**Description**

This course will examine four different types of asset markets: equity markets, fixed income markets, futures markets and options markets. It will focus on the valuation of assets in these markets, the empirical evidence on asset valuation models, and strategies that can be employed to achieve various investment goals.

**When Offered**

Offered in spring.

**FINC 535/5204 - Applied Financial Econometrics (3 cr.)**

**Prerequisites**

ACCT 5201 and FINC 5202 .

**Description**

This course introduces the main econometric methods and techniques used in the analysis of issues related to finance. The course will cover econometric models and their application to various financial problems such as: the testing of market efficiency, empirical testing of the various asset pricing models (CAPM, Fama French, APT), measuring and forecasting volatility of bond and stock returns (ARCH and GARCH models) and tests for market contagion amongst others.

**FINC 000/5230 - Statistical and numerical methods (3 cr.)****Description**

This course gives an introduction to numerical methods and statistics essential in a wide range of finance applications. The course consists of two main components: Numerical Methods and Statistics.

The topics covered in the numerical methods component include: Numerical differentiation, integration, interpolation and curve fitting (regression analysis). Solution of linear and non-linear algebraic equations. Matrix operations, and applications to solution of systems of linear equations. Introduction to numerical solution of ordinary and partial differential equations.

The topics covered in the statistical component include: Probability and distribution theory. Large sample theory including the Central Limit Theorem. Elements of statistical inference including estimation, confidence intervals and hypothesis testing. Introduction to regression analysis.

**FINC 542/5311 - International Financial Management (3 cr.)****Prerequisites**

ACCT 5201 and FINC 5202 .

**Description**

This is a course on international financial markets and exchange rates. Topics include pricing in the foreign currency and use of forward exchange for hedging short-term returns and market efficiency in the international money markets, foreign currency options, international capital asset pricing, pricing of foreign currency bonds, currency swaps, syndicated loans, foreign currency financing and exposure management

**When Offered**

Offered in fall.

**FINC 543/5312 - Financial Institutions and Markets (3 cr.)****Prerequisites**

ACCT 5201 and FINC 5202 .

**Description**

This course will analyze the role of financial markets and financial institutions in allocating capital. The major focus will be on debt contracts and securities and on innovations in the bond and money markets. The functions of commercial banks, investment banks, and other financial intermediaries will be covered. Aspects of the regulation of these institutions will also be examined.

**When Offered**

Offered occasionally.

**FINC 512/5313 - Options and Derivatives (3 cr.)**

**Prerequisites**

ACCT 5201 , FINC 5202 and FINC 5203 .

**Description**

This course covers a list of advanced topics in derivative securities. It assumes that students have taken an introductory course in derivatives as well as an introduction to fixed-income markets. The first part of the course develops numerical techniques which are used to implement pricing methodologies. The techniques are applied to exotic options and real options. The second part of the course develops term structure models and options based on fixed income securities.

**FINC 516/5314 - Real Estate Finance (3 cr.)**

**Prerequisites**

ACCT 5201 and FINC 5202

**Description**

The course introduces main elements of real estate Finance. It begins with a comprehensive introduction of mortgage from the perspective of capital market investors. The mortgage basics are then used in investment analysis of income producing properties. The public debt and equity are introduced in the third part of this course.

**FINC 518/5315 - Islamic Finance (3 cr.)**

**Prerequisites**

ACCT 5201 and FINC 5202

**Description**

Islamic Finance is one of the fastest growing and most innovative financial disciplines in the international financial markets. It is growing at a rate of 15-20 % each year. It is one of the least understood both by the western financial community and indeed by those in Islamic communities. This course offers a clear and understandable examination of this dynamic area of finance. It will help participants to fully understand the fundamental principles underlying modern Islamic finance, as well as modern practices prevailing in this industry.

**FINC 000/5320 - Financial Computing (3 cr.)**

**Prerequisites**

FINC 5202

**Description**

This course introduces students to the real world challenges of implementing machine learning based trading strategies including the algorithmic steps from information gathering to market orders. The focus is on how to apply probabilistic machine learning approaches to trading decisions. We consider statistical approaches like linear regression, Q-Learning, KNN and regression trees and how to apply them to actual stock trading situations.

**FINC 513/5331 - Fixed Income Securities (3 cr.)****Prerequisites**

ACCT 5201 and FINC 5202

**Description**

This is a course on fixed-income securities and related derivatives. It covers basic analytical tools in fixed-income markets. Topics include relative pricing of fixed-income securities, forward rates, yield-to-maturity, yield-curve trading strategies and immunization techniques. It also discusses term structure models, fixed-income securities with embedded options, and derivatives with fixed-income underlying securities. Instruments to be discussed are forward rate agreements, bond and interest rate futures, interest rate swaps, fixed-income options, mortgage-backed securities, and credit derivatives. The course emphasizes analytical techniques, rather than institutional details.

**FINC 545/5333 - Private Equity and Venture Capital (3 cr.)****Prerequisites**

ACCT 5201 , FINC 5201 ,FINC 5202, MGMT 5307 MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

**Description**

The course focuses on private equity and venture capital cycles. Emphasis is placed on the valuation concepts and their application to privately held companies. Case studies are an integral part of the course.

**When Offered**

Offered occasionally.

**FINC 544/5351 - Advanced Corporate Finance (3 cr.)****Prerequisites**

ACCT 5201 and FINC 5202 .

**Description**

This is an advanced corporate finance course with an emphasis on debt and equity management, security issuance, and distribution policy. Topics include descriptions of types of debt and equity, tradeoffs in the choice of an optimal capital structure; the role of capital structure in competitive strategy; the design of capital structure and securities to control information problems and limit conflicts of interest between different classes of security holders; procedures and costs

of issuing securities including initial public offerings, and the determinants of optimal payout policy. The course is intended for those with career objectives in financial management, the corporate finance aspects of investment banking, or general management.

**When Offered**

Offered in fall.

**FINC 517/5352 - Financial Modeling (3 cr.)**

**Prerequisites**

ACCT 5201 and FINC 5202

**Description**

This is a hands on course that introduces financial concepts through analytic frameworks and financial models that can be used to identify and solve financial management issues. The course guides students through various intermediate methods and techniques of financial modeling in Microsoft Excel emphasizing the use of (1) Excel Solver for Optimization, (2) Monte Carlo Simulation and (3) Excel's Visual Basic for Applications (VBA) programming language.

**FINC 514/5353 - Financial Risk Analysis (3 cr.)**

**Prerequisites**

ACCT 5201 and FINC 5202 .

**Description**

This course deals with the ways in which risks are quantified and managed by financial institutions. Among the topics covered are the nature of financial institutions and their regulation, market risk, credit risk, operational risk, liquidity risk, and the credit crisis of 2007.

**FINC 570/5370 - Selected Topics in Financial Management (3 cr.)**

**Prerequisites**

ACCT 5201 and FINC 5202 .

**Description**

It considers selected topics of current relevance in Financial Management.

**When Offered**

Offered occasionally.

**FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)**

**Prerequisites**

Prerequisite: Consent of FINC unit head and chair.

**Description**

Guided readings, research, and discussions on specific selected topic in Financial Management.

**When Offered**

Offered occasionally.

**FINC 599/5401 - Thesis (9 cr.)****Description**

The Master thesis will ensure that students can demonstrate the ability to address a timely and original research question through relevant research methodology. The thesis should include the following components: a novel and feasible research question, a comprehensive literature review, a detailed presentation of data and methods for conducting the research and collection and analysis of data. The final outcome is a formal write-up of the thesis and a public defense in front of a panel.

**Hours**

Nine credit hours to be taken in three consecutive semesters

**FINC 590/5402 - Research Methodology (3 cr.)****Description**

This course offers an overview of different research methods and processes in the area of finance. The course outcome will be the completion and presentation of a comprehensive research proposal for a research study.

**GWST 500/5100 - Theorizing Gender (3 cr.)****Description**

This seminar introduces students to the core theoretical literature and debates in the field of gender and women studies. In addition to laying the intellectual foundation for further academic work in gender and women's studies, the seminar also engages contemporary debates on traveling theory with a particular focus on the Global South. All GWST MA students are required to take this course in their first semester.

**When Offered**

Offered in fall.

**GWST 501/5101 - Visual, Literary, and Critical Approaches to Gender in MENA (3 cr.)**

**Description**

The course immerses students in the literary, historical, and theoretical debates within the academic field of MENA Gender and Women's Studies. Interdisciplinary approaches as well as varieties of theoretical positions and visual representations are discussed critically. Acknowledging the entanglements of regions, scholarly debates and political struggles, this course locates the MENA in its worldly context.

**Cross-listed**

ECLT 5101

**When Offered**

Offered yearly.

**Repeatable**

May be taken more than once if content changes.

**GWST 502/5102 - Justice: Histories and Theories (3 cr.)**

**Description**

This course introduces students to justice as a problem in contemporary cultural, legal and philosophical debates. The course explores the different domains through which justice becomes a universal language of rights, and the resultant compartmentalization of human experiences along parameters in which culture is presumed to be non-existent, rendering different forms of justice, such as gender justice, appendixes to the already known. This course will engage with questions of distribution of justice - economic, social, political, historical- in the contemporary world with special focus on locating theories of justice in the practice thereof. It is conceived as laying the intellectual foundation for the GWST gender and justice graduate concentration, for graduate work in IHRL and other related fields. This is a joint course offered by the Institute for Gender and Women's Studies and the Department of Law. This course is offered at irregular intervals. Please contact the Department of Law for information about its availability.

**Cross-listed**

Same as LAW 5220.

**GWST 504/5104 - Mobilities: Gender and Migration (3 cr.)**

**Description**

This seminar provides an in depth engagement with the growing sub-field of Gender and Migration. Themes covered include: international gendered labor markets, migration to and from the Middle East, domestic labor, trafficking, displacement through conflict and development, remittances, and human rights. This is a joint course offered by the Center for Migration Studies and Refugee Studies and the Institute for Gender and Women's Studies.

**Cross-listed**

Same as MRS 5104 .

**GWST 506/5106 - Reading Capital (3 cr.)**

**Description**

This course offers a reading in the genealogies of capital in order to critically engage emergent political, economic and social forms. The course examines the nexus between events, structure, agency; Marxist conceptions of the making of histories; the variety of Marxian frameworks delineating the relation between socio-economic and political rights.



**Cross-listed**

same as SOC-ANTH 5295

**GWST 507/5107 - Critical Geographies: Reading the Global South (3 cr.)**

**Description**

This seminar explores the spatial and its social, political and gendered effects with a particular focus on dispossession. It introduces students to critical work about space in the social sciences aimed towards social transformation.

**GWST 508/5108 - Women and Human Rights (3 cr.)**

**Description**

This seminar explores the historical development of the notion of the human from the 1950's to the present. It introduces students to women's struggles for incorporation into human rights discourses, the consolidation of dominant regulatory processes, and their contemporary critical feminist engagements.

**GWST 000/5109 - Theorizing the Urban (3 cr.)**

**Description**

This seminar engages debates in contemporary neoliberal urbanism with a particular focus on the global south. With more than half of the world's population now residing in cities, the assemblages of the social laboratory are firmly grounded in the urban. The seminar explores the ongoing reconfigurations in the social laboratory: the production of gendered (raced and classed) subjectivities, housing, land, networks and livelihoods in the everyday life of diverse urban configurations.

**GWST 570/5170 - Special Topics in Gender and Women's Studies (3 cr.)**

**Description**

Alternating selected topics.

**Repeatable**

May be taken more than once if content changes.

**GWST 580/5180 - Independent Study and Readings (3 cr.)**

**Prerequisites**

Prerequisite: Approval of IGWS Graduate Advisory Committee.

**When Offered**

Offered occasionally.

**GWST 505/5205 - Gender and Feminist Research Methodologies (3 cr.)**

**Prerequisites**

GWST 5100

**Description**

This course provides an introduction to gender and feminist approaches to dominant theories of knowledge and research methodologies in the social sciences.

**When Offered**

Offered in spring.

**GWST 599/5299 - Research Guidance and Thesis (no cr.)**

**Description**

Consultation for students in problems related to their thesis.

**When Offered**

Offered in fall and spring.

**GHHE 000/5110 - Biostatistics (3 cr.)**

**Description**

The objectives are to educate the student in the research skills (statistics and experimental design) and mathematical applications in the data analysis required to design and conduct rigorous peer-reviewed studies in the applied sciences, inclusive of the biomedical and physical sciences, as well as public health. A sound foundation is essential in preparing and critiquing the literature, regulatory reports, and incorporating statistics in preparing a satisfactory research proposal and reporting research outcomes in an informative manner. Students will gain, through hands-on experience, exercises, and examination, the ability to use appropriate summary and inferential statistical analysis. Associations between determinants and outcomes through parametric and non-parametric measures, data transformation for multivariate analysis will be covered through exercises. The use of statistical packages suitable for scientific and public health research will be introduced. In short, students will also be able to design, experimentally and statistically, appropriate studies that can withstand appropriate peer review. The course is open to all interdisciplinary MSc and PhD students and is a core requirement in some (e.g., MPH and MSc in BIOT).

**GHHE 000/5120 - Introduction to Epidemiology (3 cr.)**

**Description**

Public health practitioners and researchers, regardless of their discipline or specialty, rely on the results of epidemiologic research and often employ epidemiologic concepts, methods, and perspectives. Clinicians providing evidence-based health care do as well. This course presents a general introduction to the approach, concepts, methods, and perspectives of epidemiology for students and practitioners in a broad range of public health and related disciplines. The course employs problem-based learning where you apply the epidemiologic approach to a variety of current public health questions. Through GHHE 510 you will improve your ability to think analytically and to understand and interpret population-based and clinical research.

**GHHE 000/5130 - Environmental & Occupational Health (3 cr.)**

**Description**

These courses survey local and global environmental health issues. Students will utilize selected readings and media to characterize the impact of environmental agents on human health, the environmental consequences of anthropogenic activities, and the interdependency between humans and the natural environment. The course targets graduate students in public health and those from other disciplines who are interested in research focused on public health issues. For those with biological, biomedical and medical backgrounds GHHE 520 is the required course. GHHE525 provides a survey of biological and chemical concepts not covered in undergraduate major for the non-biologist.

### **GHHE 000/5135 - Environmental Health for the Non-Scientist (3 cr.)**

#### **Description**

(intended for Engineers, chemists and physicists who may not have bioscience experience) Following a survey of key biological and chemical concepts, this course surveys local and global environmental health issues. Students will utilize selected readings and media to characterize the impact of environmental agents on human health, the environmental consequences of anthropogenic activities, and the interdependency between humans and the natural environment. The course targets graduate students in public health and those from other disciplines who are interested in research focused on public health issues. GHHE5135 provides a survey of biological and chemical concepts that may be lacking during the undergraduate major. For those with biological, biomedical and medical backgrounds GHHE 5130 is the required course.

### **GHHE 000/5140 - Bioethics in Research (3 cr.)**

#### **Description**

This course will be discussion format based on ethical issues involved in health care and medical research in general, and human studies, in particular. Students will have focused reading on the ethical issues involved in medical practice and research and will apply the readings to case studies during discussion. Topics covered will include but are not limited to: Morality and research ethics, ethical issues before research committees, ethical issues involving human and animal subjects, reporting of research, and conflict of interest. All students will be required to also attain NIH Institutional Review Board (IRB) or Institutional Animal Care and Use Committee online training Certification.

### **GHHE 000/5150 - Global Health Communication and Society (3 cr.)**

#### **Description**

This advanced student-faculty research course offers opportunities for students to explore the role of grassroots education modalities, including entertainment-education, a strategy for promoting healthy behavior and well-being, reducing risk, primarily in developing countries. This course examines not only "behavior" change at the individual level, but also "development" change that emphasizes changing environments and contexts (such as poverty or gender relations) in different communities that are likely to affect sustainable change. Choosing their own critical topics, students craft multiple drafts of policy papers similar to those produced by the World Health Organization and design a campaign to inform target audiences at different education levels of society.

### **GHHE 000/5160 - Thesis Research**

#### **Description**

**(repeated to satisfy PhD research residency requirements)**

In consultation with the Program Director, the student will identify an appropriate area of research and mentor, if they have not done so during SCI 5940. The student will develop a research proposal per School guidelines and as instructed in SCI 5940. The specific topic and nature of the research will be determined by the student and mentor who will seek approval from the Program Director. On receiving approval, a committee of no less than three individuals, internal or

external, will be constituted to act in an advisory capacity and for the proposal defense. On successful defense of the proposal the student will commence the research. Studies involving humans must be approved by the University's IRB. Studies involving animals must be approved by IACUC. Projects involving laboratory data collection and management must adhere to GLP requirements.

### **GHHE 000/5180 - Experimental Design and Research Methods (3 cr.)**

#### **Description**

Qualitative research has a long history in the social sciences. Its roots can be traced to anthropology, philosophy and sociology and its use as a method of inquiry goes back to the early decades of the twentieth century. Qualitative approaches are becoming part of alternative forms of research in medicine as practitioners look at the complex health issues that are often confronted. Qualitative research tends to seek answers to problems about which little is known and its aim is to elicit explanations from the "patient's point of view"; thus seeking the meaning or the experience of the individual. In other words, qualitative methods enable researchers to access areas of inquiry not typically amenable to quantitative research. In contrast, the use of "objective" measures based on diagnostic criteria, whether physiologically or laboratory-based often rely on numbers, but cannot be completely removed from qualitative aspects of a diagnosis. The aim of this course is to introduce some of the qualitative and quantitative research methods currently used in health care research and to explore how they can be appropriately and fruitfully employed.

### **GHHE 000/5190 - Diseases and Social Perception (3 cr.)**

#### **Description**

Diseases have meanings and those meanings translate into the way in which sufferers and society perceive and engage with their disease. Discourse on disease is often most charged when the disease in question threatens to cross borders, socioeconomic, national, or otherwise and, in these instances, the media is often complicit with "othering" the disease in a way that may have very real, material consequences. Examples from recent media coverage that have "otherized" the etiology of diseases, whether the disease covered is SARS as an Asian disease, the swine flu as a Mexican disease, Tuberculosis as an immigrant disease, or HIV/AIDs as a Haitian disease. In addition, effective therapy and support is often hampered by how social perception stigmatizes diseases such as mental illness, autism, Down syndrome and the like. This is no less so in the case of the sufferer's self-image: when a woman undergoes a radical mastectomy, or when one is the victim of a disfiguring accident. The outcome, in terms of disease management and resources, is further influenced by the media's shaping of society's perception of the "disease of the day" through language. Through a look at several case studies and current literature, this course will focus on the ways in which disease takes on meaning and, in many cases, emerges as a signifier for something altogether different.

### **GHHE 000/5195 - Advanced Good Laboratory Practices and Laboratory Management (3 cr.)**

#### **Description**

This course provides training in the principles of good laboratory practice for personnel of laboratories who wish to produce test results that are fit for the purpose and which would stand up to the scrutiny of inspection. This allows for the reliability, retrieval, and accountability for test results. These procedures are applicable to diagnostic laboratory procedures, research, forensic and in the drug safety and development sector. Topics include safety, Clinical Laboratory Improvement Act of 1988 (CLIA) government regulations, and quality assurance in the laboratory. Students will learn and apply management and quality assurance skills and concepts applicable to different laboratory settings, including specimen collection, and performance per CLIA'88-and /or moderate-complexity testing. Students will also demonstrate competency in a wide variety of techniques used to collect, process and test specimens.

### **GHHE 000/5210 - Advanced Epidemiology (3 cr.)**

**Description**

Epidemiology investigates the distribution and trends of health-disease conditions, causes, and risks for populations. Epidemiology a dynamic and evolving discipline, considered one of the core pillars of Public Health, community or global. The overall goal of this course is providing graduate students a foundation of theory and tools to apply as a Public Health professional in research and practice settings. Students apply descriptive Epidemiology, calculate health indicators, and write Epidemiological reports for situational analysis; describe, propose, and apply appropriate study designs, and analyze health disparities. Calculation and interpretation of standard measures of frequency and association, and logistic and multiple regression are used to estimate the extent and impact of disease and injury on individuals' lives. Students will deeply comprehend key issues in Social Determinants of Health and propose interventions to solve real life Public Health problems.

### **GHHE 000/5220 - Principles and Methods of Applied Infectious Disease Epidemiology (3 cr.)**

**Description**

This introductory course will cover principles and methods of applied infectious disease epidemiology. It will cover infectious disease terminology and epidemiology, as well as immunity, and how researchers study infectious diseases, its distribution, risk factors and causes, transmission, and control of selected infectious diseases relevant to the Middle East and Africa. At the end of the course, infectious diseases of global importance and their associated challenges, as well as the emergence or re-emergence of infectious diseases will be highlighted.

### **GHHE 000/5230 - Environmental Epidemiology (3 cr.)**

**Description**

This course provides an introduction to topics and methods in environmental epidemiology. Topical areas include selected air and water pollutants, radiation, pesticides, metals, environmental microbial exposures, persistent organic pollutants, hydraulic fracturing, endocrine-disrupting chemicals, disaster epidemiology, and climate change. Exposure assessment and statistical methods for evaluation of environmental and occupational factors will be considered in the context of specific applications. The course will prepare students to critically interpret environmental epidemiologic research, understand the types of questions that can and cannot be answered in environmental epidemiology, and help provide a foundation for designing and conducting such studies.

### **GHHE 000/5240 - Genetic and Cancer Epidemiology (3 cr.)**

**Description**

Genetic Epidemiology is a field of study that deals with the genetic etiology and distribution of diseases in populations. This course will provide students with a focused exposure to genetic analysis, with a major emphasis on association analysis. Topics will include different approaches to measuring the association of genes with disease: family history, heritability, and genetic association, how to model gene- environment interactions, epigenetics, and Mendelian Randomization as an approach to causal inference. Students will be exposed to the tools needed to critically review the literature in genetic epidemiology and human genetics. Cancer epidemiology and risk factors will be a particular focus by way of illustration.

### **GHHE 000/5250 - Epidemiology of Malnutrition, Metabolic Disorders, Obesity and Diabetes (3 cr.)**

**Description**

This course is an exposition of major issues associated with poor nutrition, nutrient deficiencies, the surge in disorders of metabolism, obesity and diabetes epidemiology. The course will focus on methodological approaches relevant to research and relying on current literature. The interplay between mental health, behavior, societal factors and mass communication will also be addressed.

**GHHE 000/5260 - Reproductive and Child Health Epidemiology (3 cr.)****Description**

This is a survey of pressing issues relevant to the epidemiologic study of reproductive, perinatal, and children health. A combination of lectures, readings and class discussion, the course will expose the student to challenges confronting women and children in MENA and Africa, as well as other LMICs, such as informal and rural settlements, education, labor and the impact of environmental risk factors, inclusive of the availability of effective health care. Students will better appreciate the important issues and challenges inherent in research within this field.

**GHHE 000/5270 - Community-Driven Epidemiology: Environmental Justice and Equity (3 cr.)****Description**

Low income communities and countries represent largely an unmet challenge for public health policy makers and scientists to conduct research on environmental and occupational hazards that impact their health. This community-driven research requires epidemiologists and other biomedical scientists to modify approaches used in more traditional research in order to engage these communities in identifying problems, provide solutions and insure sustainability. This class introduces concepts and methods in community-driven engagement, environmental equity research, and presents research needs, and offers opportunities for active involvement in problem-solving in environmental justice research through field work in urban and desert settlements. Methodological topics include public health and social justice, study design and analysis in environmental and occupational epidemiology, development of community-driven research questions, community-based participatory research, and preparation of reports that address community and policy needs. Possible topics include pesticide exposure, water scarcity and pollution, nutrition, sanitation, and energy production from biomass.

**GHHE 000/5280 - Systematic Review and Meta-Analysis (3 cr.)****Description**

Provides training in systematic review and meta-analysis. Topics include problem definition, defining and searching the literature, extracting results and study characteristics, data set preparation, publication bias and funnel plot analysis, analysis of overall heterogeneity, stratified and meta-regression analysis of study and population characteristics, and preparation of reports for publication.

**GHHE 000/5290 - Health Analytics and Informatics (3 cr.)****Description**

Like many fields, if not more so, Public Health is not immune from the "big data revolution". The "how" do healthcare providers, community groups, researchers and policy makers, mine, analyze, and use data to understand and improve population health, as well as keep an eye out for the impact of global practices/crises on local communities defines Health Analytics and Informatics. This course introduces students to key big data sources and analytic techniques, understand the differences between big data approaches and traditional statistics, and the techniques applicable to the

areas of epidemiology and risk assessment, policy, health systems, community, and global health. Through case studies students will evaluate application, ethics, bias, and effectiveness of big data strategies.

### **GHHE 000/5330 - The Earth Lab (3 cr.)**

#### **Description**

Environmental Assessment of Risk and Toxics on Health [EARTH] is an environmental quality and health monitoring and assessment laboratory that exposes and enables the student to common hands-on techniques and instrumentation used in environmental and biological monitoring. Students learn laboratory, field, and analytical skills through a solid introduction to experimental research in environmental sciences and engineering. Students are provided with applications in limnology, aquatic chemistry, analyses of environmental and biological specimens, and industrial hygiene measurements. Tests for volatile organic compounds, heavy metals, particulate matter and persistent pollutants will be covered.

### **GHHE 000/5331 - Health Effects of Environmental Agents (3 cr.)**

#### **Description**

This course introduces students to the general principles underlying the health effects of environmental agents. Students will gain an understanding of the mechanisms of interactions between environmental agents and living systems. This course will enable students to apply information derived from fundamental microbiology and toxicology studies to assessment of health hazards associated with exposure to environmental agents, identifying point and non-point sources, environmental transformation, and to predict the health consequences of these agents

### **GHHE 000/5332 - Environmental Exposure Assessment (3 cr.)**

#### **Description**

This course is intended to develop an understanding and appreciation of environmental exposure assessment and its role in providing the tools and information for toxicology, epidemiology, and risk management. In addition to the sampling, analytical, and mathematical fundamentals, the lectures incorporate real-world examples drawn from methods development in the National Exposure Research Laboratory of U.S. Environmental Protection Agency (US-EPA) and the CDC-National Institute of Occupational Health and Safety (CDC-NIOSH). Where LMIC nations, including Egypt, stand in terms of activity, regulation and enforcement will be compared in order to develop a paradigm for evolving improvement. Statistical concepts will be limited to calculations that can be performed on standard spreadsheet software as an initial introduction to key concepts.

### **GHHE 000/5333 - Biological Monitoring in Exposure Assessment (3 cr.)**

#### **Description**

Biological monitoring of chemical exposures in the environment and workplace is essential in exposure and risk assessment. Collection, analysis, and interpretation of occupational and epidemiological data are common elements in studies of the role of exposure to potentially hazardous agents in the development of human pathologies. This course will provide both practical and theoretical information based on current literature and knowledge on (1) the conduction of exposure and biological monitoring and the limitations of these methods; (2) newly developed and emerging methods/strategies on exposure assessment and biological monitoring, (3) the interpretation of biological monitoring data, and (4) how to select the most appropriate method of monitoring.

### **GHHE 000/5334 - Field Research in Environmental Health and Safety (3 cr.)**

**Description**

This course targets students committed to research. The course relies on guest lecturers, readings and hands on exercises to provide an overview of relevant research, as well as cultural and ethical issues in community engagement. The student will apply their gained knowledge and skills to field study in a traditional industrial or community setting. This course raises awareness and offers possible solutions to issues that may arise when interacting with the target of environmental degradation and authorities for research purposes. The theoretical foundations in cultural sensitivity, personal security, communication, organization and research along with guided practical exercises in conducting field research will empower the practitioner to successfully conduct and implement research solutions. The result is the development of cross-cultural and applied research skills to tackle real life issues.

**GHHE 000/5335 - Occupational Safety and Ergonomics (3 cr.)****Description**

Fundamentals of occupational safety and ergonomics with emphasis on physiological basis of industrial safety and ergonomic programs, including hazard recognition, analysis, control, and motivational factors pertaining to industrial accident and musculoskeletal disorder prevention. The biomechanical principles underlying movement and physical activity will be highlighted.

**GHHE 000/5336 - Kinesiology and Biomechanics (3 cr.)****Description**

An applied study of human performance, including musculoskeletal actions, analysis of motor skills, and training and conditioning techniques, with application of mechanical laws and principles to basic performance patterns. The course aims at enabling the analysis of human movement anatomically and mechanically. The student will understand the different types of skeletal muscle contractions, how they affect joint motion, and comprehend the importance of following the laws of physics when improving motor skills to mitigate injury and/or enhance recovery.

**GHHE 000/5337 - Ergonomics for Injury Prevention and Accommodation (3 cr.)****Description**

Starting with the premise that the job should fit the worker, ergonomics matches workplace conditions and job demands to the worker's ability to ensure safety and productivity, inclusive of appropriate equipment design. It is essential for reducing musculoskeletal injuries (MSIs), which cause significant suffering, loss of productivity, and cost in many workplaces. A survey of the common injuries encountered in industrial and agricultural settings due to performers resistance to anatomical and physical laws will be introduced. In this course, you will learn about the different areas of study, standards, and approaches involved in ergonomics. It will increase your ability to spot ergonomic hazards. How ergonomics processes fit into the overall occupational health and safety management system of an organization will be highlighted.

**GHHE 000/5340 - Principles of Toxicokinetics, Toxicodynamics, and Chemical Classes (3 cr.)****Description**

This course is designed to introduce students to the kinetic (exposure, absorption, biotransformation, excretion) determinants of chemical bioavailability, as well as the dynamic (chemical-biological interaction) determinants of biological response and effect. A survey of the major classes of natural and manufactured chemicals exerting adverse effects are highlighted, as are the scientific advances, human genomics which have significant implications toxicology



and gene-environment interactions. New experimental techniques and scientific paradigms that are based on our understanding of genes and their actions are rapidly proliferating in laboratories; thus, the students need to have a broad knowledge of metabolism, mechanisms and effects of toxicants, as well as to understand techniques that are available for their laboratory research. Thus, the material that is covered spans basics of biochemical processes that are affected by environmental agents, to molecular mechanisms of action, and to current experimental approaches in environmental sciences and toxicology.

### **GHHE 000/5341 - Systemic and Molecular Toxicology (3 cr.)**

#### **Prerequisites**

Permission of Instructor

#### **Description**

This course is a survey of the detrimental effects of chemical exposure on biological processes. Taking an organ- and cell-specific approach, the effects of different chemical classes, industrial and therapeutic, on biochemical, molecular, structural and functional processes will be delineated. Current approaches used to document and monitor subclinical effects and early intervention based on biomarker discovery and advances in diagnostics will be illustrated.

### **GHHE 000/5342 - Case Studies in Pharmaceutical Toxicology (3 cr.)**

#### **Prerequisites**

Permission of Instructor.

#### **Description**

Following an overview of toxicological principles, the adverse effects of drugs and their interactions with other drugs and/or food, or therapeutic modification by pre-existing pathology are demonstrated through interactive case studies culled from actual clinical experiences. These include near-missed tragedies, erroneous prescriptions, therapy-induced pathologies, pesticides and persistent organic chemicals masquerading as therapeutics, and industrial chemicals masquerading as hormones. This draws on the students' knowledge of physiology, pathophysiology and toxicodynamics.

### **GHHE 000/5343 - Chemical Teratogenesis (3 cr.)**

#### **Prerequisites**

permission of Instructor.

#### **Description**

This course explores the basic processes of embryonic and fetal development as a basis for understanding the potential for pharmaceutical agents in inducing congenital defects. From the historical cases of thalidomide and hypervitaminosis A teratogenicity to the contemporary abuse of recreational drugs and the mandated FDA regulation pertaining to antibiotics, analgesics and anticoagulants, this course will elaborate on gestation period specific limitations in therapeutic usage.

### **GHHE 000/5344 - Chemical Carcinogenesis (3 cr.)**

#### **Description**

This course is intended to provide students with a basic foundation in the chemical and molecular biological aspects of chemical carcinogenesis. The course relies on bring elements of chemistry and molecular biology into a framework that

makes clear where current research is heading. Topics are dynamic according to current literature and provide a broad exposure to contemporary issues in environmental sciences and environmental health, specifically the role of chemicals in carcinogenesis. The course aims to analyze, interpret and explain the results of original research in diverse areas of interest, from exposure to malignancy. This course contributes towards the basic public health concept of how exposures to mutagenic and carcinogenic chemicals impacts on human health.

### **GHHE 000/5345 - Autonomic and Autocoid Pharmacology and Toxicology (3 cr.)**

#### **Prerequisites**

permission of Instructor.

#### **Description**

The autonomic nervous system is pervasive anatomically and physiologically. In recent decades the parallel between nervous system and immune system and their interaction in homeostatic and pathological conditions have become evident and are often targets of intervention. This course reviews the homeostatic physiology and interaction of these systems, as well as their role in disease processes such as innate immunity, hypersensitivities and autoimmune disease. The emphasis is placed on chemical mediators and their activity as elaborated by the two systems and as potential therapeutic targets.

### **GHHE 000/5346 - Immunopharmacology and Immunotoxicology (3 cr.)**

#### **Description**

This course explores the molecular and cell biology of immune effectors, including inflammatory mediators and cytokines as pleiotropic agents with a fundamental role in regulation of innate and adaptive immunity, growth factors in tumor development and angiogenesis, signals in neuroimmune activity and degenerative processes. The rationale and mechanisms of therapeutic targeting of the immune system in allergies, autoimmunity and transplantation will be expounded, as will the targeting of the immune system by animate and chemical etiological factors to produce hyper- and hypo-activation.

### **GHHE 000/5347 - Environmental Cardiopulmonary Diseases (3 cr.)**

#### **Prerequisites**

permission of Instructor.

#### **Description**

Both as a route of systemic exposure and as a target of inhaled pathogens and chemicals, the lungs and neighboring heart are vulnerable to infections, particulate air pollutants, including anthropogenic and manufactured nanoparticles, and irritant gases and solvents. The cellular dynamics of cardiac and pulmonary architecture, resident and infiltrating immunoeffectors and chemical milieu in precipitating COPD, airway hyperreactivity, primary and secondary infections and compromised pulmonary function, hypertension, and stroke are explored through didactic and applied case studies. Molecular and pathopharmacological mechanisms underlying risk, pathogenesis and intervention/management will be explored.

### **GHHE 000/5348 - Nanotoxicology and Safety: From Mechanisms to Regulation (3 cr.)**

#### **Description**

Advances in drug formulations, cosmetics and manufacturing processes has embraced the use of nanoparticles as an

efficient means for targeting biological and engineering processes. Nevertheless, based on our understanding of the toxicity of particulate matter and the altered physiochemical properties of these material, there is concern over the impact of naturally occurring and manufactured nanomaterials on human and ecological health.

### **GHHE 000/5349 - Neurotoxicology (3 cr.)**

#### **Description**

The nervous system has unique vulnerabilities to insult from a wide variety of etiological factors. Recently, there is a recognition that many neurodegenerative and neurological disorders may be due to a combination of risk factors and gene-environmental interactions. The unique vulnerabilities are compounded by the heterogeneity of cellular substrates, regional specialization, a wide host of neurotransmitters and autocrine influences, as well as the influence of age, regenerative capacities, and social stressors. This interplay between chemical environment, stress, genes and cellular characteristics is approached at the molecular, and functional level, with particular attention to early detection and diagnostics.

### **GHHE 000/5350 - Contemporary Issues in Environment, Sustainable Development and Health (3 cr.)**

#### **Description**

This contemporary topic course provides students with an opportunity to cover issues at the juxtaposition of environmental and health sustainability, inclusive of social engagement, new methodologies and innovative project approaches and implementation. The special topics will give students an opportunity to get involved in hands-on, practical community-based learning with off campus community development and education components. This may include field experience during the Winter/Summer semesters. The course will be carried out as a combination of on-campus and off-campus activities. Off campus activities will be offered either in the form of weekend trips or longer excursions and practical community projects when offered during the Summer/Winter sessions.

### **GHHE 000/5351 - Environmental Health and Sustainability in the Context of Human Geography (3 cr.)**

#### **Description**

The course introduces students to the nature of human geography as an academic discipline and as a body of useful knowledge through a survey of some of the field's central challenges, concepts, methods and applications. Human geography enables us to reflect upon some of the important issues in contemporary society including: cultural diversity, environmental degradation, ethnic conflicts, globalization, poverty, racism, religious differences, overpopulation, transportation ills and urban sprawl. This provides a critical interpretation of the human inhabitation of the earth and the differences between, and the similarities amongst, people and the places and landscapes they create. By examining the cultural, economic, historical and social processes that create the spatial patterns and spatial relationships that modify the natural and built environments, one appreciates the challenges and maps a course towards remediation and solutions.

### **GHHE 000/5352 - Geography of Health and Healthcare (3 cr.)**

#### **Description**

The terrain is a critical determinant of human health worldwide. The social and natural environments in which we live, including housing, transportation, climate, and environmental pollution, have profound effects on health, as do the availability and accessibility of health care services. This course examines the complex geographies of health and the

methods of mapping, spatial analysis and qualitative inquiry that are used to understand and analyze the inequalities in geographic distributions of health care services, access, utilization and policies. The geographic inequalities in health care worldwide; the geographic distribution and maldistribution of health services, the impacts of health service locations on access and utilization, the political economy of health care, how place environments affect health and well-being, and the provision of services to address specific kinds of health issues (infectious, chronic, environmental) in specific places will be addressed in the form of case studies.

### **GHHE 000/5410 - Biomarkers: Exposure, Susceptibility, Effects and Efficacy (3 cr.)**

#### **Description**

This course surveys the discovery and utility of biochemical and molecular biological indicators, or molecular metrics, for the characterization and diagnosis of exposure to etiological factors, genetic risk, deleterious effects of animate and inanimate pathogens and the successful intervention using pharmacotherapeutics. Relying on an understanding of basic principles of physiology, cell biology, cell signaling and molecular biology, the course capitalizes on state-of-the-art literature and case studies to illustrate the use of molecular metrics in the identification of disease susceptibility, effects of toxic agents, tumor identification and the design of personalized medical intervention.

### **GHHE 000/5420 - Pharmacogenomics and Personalized Medicine (3 cr.)**

#### **Description**

This course will provide a wide array of topics in the field pharmacogenomics and explore the growing importance of pharmacogenomics in the delivery and diagnosis pertinent to personalized medicine and therapeutic management. Students will be introduced to genomic concepts in genetic testing, future drug design, study interpretation, and clinical therapeutic decision making. The course will be divided into two sections. The first part of the course will examine the application of pharmacogenomics in medicine and drug design. In the second part of the course, the student will have the opportunity to apply pharmacogenomic concepts and decision making. This will be implemented via a patient case study developed by the student, or a written paper illustrating the influence of pharmacogenomics in medicine.

### **GHHE 000/5430 - Integrating Biomarkers in Population-based Research (3 cr.)**

#### **Description**

Biomarkers are increasingly used in population-based research, with varying success. On the plus side, they tend to be quantitative and relatively objective measures of an important exposure, covariate, or intermediate marker of disease. However, their pitfalls are often poorly appreciated, and frequently ignored. This course surveys the major issues relevant to the application of biomarkers in epidemiological research, including the logistical hurdles in biospecimen collection and storage, a critical assessment of biomarker quality, the interpretation of quantitative estimates, and the resultant analytic issues that often arise in statistical analysis. After taking this course, students should understand the important issues to consider in planning a molecular epidemiological study, and be able to critically assess the literature linking biomarkers to health endpoints.

### **GHHE 000/5440 - Nanotechnology: Scope and Frontiers in Precision Health (3 cr.)**

#### **Description**

This introductory Nanotechnology course will provide background information on Nano synthesis, assembly, characterization with examples that are advanced in preclinical and clinical development. Novel nanoparticles have various applications across different industries including: data storage, photonic, microelectronic, energy, pharmaceutical, biomedical, tissue engineering, cell therapeutics, and cosmetics. An interesting aspect of nanoparticles is the wide range of materials classes in which nanoparticles are useful including semiconductor, metallic, ceramic,

composite and polymer nanoparticles, including the unconventional and highly interesting topic dealing with nanoparticles in cosmetics such as whitening agents, moisturizers and antiaging products. This course is designed for professionals working across disciplines and industries seeking exposure to the latest advances as it applies to the biomedical sciences and medicine. This course is designed towards advancing the advantages offered by nanotechnology in affecting early diagnostics, efficacious therapy and mitigated toxicity. It is geared towards scientists, researchers, production managers and technical managers within materials, physical science and pharmaceutical industries, pharmacy, medicine and regulatory bodies in compliance with international guidelines.

### **GHHE 000/5450 - Nanoformulation, Targeting and Applications (3 cr.)**

#### **Description**

This Nanoformulation, Targeting and applications course will provide background information on the science and the art of Nanoformulations benefiting from the Nano synthesis, assembly, characterization course that preceded this course. Nanoformulation is a very promising tool to enhance efficacy and delivery of drugs. In this regard, formulation of small molecule water insoluble compounds the nanoscale could reduce the required therapeutic dosages and subsequently reduced its cell toxicity. Based on biotechnology knowledge about specific molecular targets at the certain tissues, targeted nanoformulations would provide local delivery of lipophilic small molecule targeted to specific areas and thereby preventing systemic exposure, with improved efficacy and safety. In addition, using specific coating, better pharmacokinetic and internalization of nano-compounds could be achieved. Examples that are in advanced in preclinical and clinical development with various novel drug molecules will be discussed. This course is designed for professionals working across disciplines and industries seeking exposure to the latest advances as it applies to the biomedical sciences and medicine, and the potential benefits in the public health context. Participants will gain a familiarity and working knowledge in skills and techniques relevant to nanotechnology through hands-on experience and access to state-of-the-art equipment for materials characterization techniques via in person workshop or online demonstrations.

### **GHHE 000/5460 - Nanomanufacturing, QC and Regulatory Affairs (3 cr.)**

#### **Description**

This Nanomanufacturing course will discuss various aspects of GLP and GMP Nanomanufacturing, QC, analytical chemistry, sterilization techniques, clean rooms, stability studies, and various Nanofabrication techniques. Examples of Nanomanufactured products that are in advanced in preclinical and clinical development with various novel drug molecules and nanodevices will be discussed including Nanomanufacturing of polymeric, Metal Matrix Nanocomposites, and Nanomaterial Synthesis and Nanodevice Fabrication. Additionally, Societal and economic Impacts of Nanomanufacturing will be discussed. This course provides advanced knowledge in GMP large scale Nanomanufacturing toward the advancement of Nanomedicine and personalized medicines. This course is designed for professionals working across disciplines and industries seeking exposure to the latest advances as it applies to the biomedical sciences and medicine.

### **GHHE 000/5470 - Nano-Enabled Precision Health (3 cr.)**

#### **Description**

This course will discuss the opportunities and the challenges in developing Nanobiotechnology applications from the bench to the bed side where Nanomedicine can offer exciting prospects in diagnostics and therapeutics and their combinations in various diseases ranging from Cardiovascular, Vascular, Neurology, Inflammatory, infectious, dermatological, Ophthalmological, hematological and oncological diseases. For Nanotherapeutics, many biologically active compounds that have the desired activity in vitro never make it to the clinic because of poor solubility, malabsorption, instability, short half-life, poor safety profiles, and/or sub-optimal efficacy profiles. By encapsulating or binding such compounds with nanostructures, the fate of the compound in the body is determined by the characteristics

of the nanostructure. By carefully designing and engineering the nanostructure properties we can improve target accumulation while avoiding toxicity-sensitive tissues. For some biological drugs, like non-coding RNAs, combination with a nanostructure appears even a requirement to cross the many barriers on its way to site of action. For these strategies, nanomedicine is an integral part of drug development in the treatment and early detection of various disorders. For Nano diagnostics, the small volume and extremely high surface area of nanoparticles offers attractive properties for binding specific diagnostic probes that provide functional information. For theronstics, where diagnostics and therapeutics are combined, nanotechnology is an attractive proposition. This advanced topics in NanoMedicine will integrate practical know-how as to the impact of nanomedicine; real-world applications of Nanobiotechnology in biomedical research, therapeutics and diagnostics; and the familiarity with approaches to nanoformulation and drug-delivery; challenges of neglecting issues of nano-safety and nanoformulation efficacy; market demands, regulatory hurdles confronted by nanomedicine; familiarity with the social and economic impact of Nanobiotechnology on commercialization. This course provides opportunities for career advancement in research, production and professional practice, and frontiers in precision health.

### **GHHE 000/5510 - Applied Neuroscience I (3 cr.)**

#### **Description**

Structure and Function. This course is designed primarily for those seeking a career in the medical or biomedical professions. It will provide the student with a foundation for understanding neurological dysfunction and areas of research in the neurosciences. Integration, rather than segregation, between structure and function are emphasized. This course will enable the student to be conversant in the molecular and cellular structure and function of the nervous system, with emphasis on neuroplasticity and integrative function. The organizing theme is how neurological function is influenced by disease or trauma, learning and developmental change. This is illustrated in a multidisciplinary fashion: morphology, physiology, biochemistry and clinical manifestations. Examples of pathological, occupational and environmental causes of neurological disease are highlighted through lectures and neurocognitive exercises. The convergence of neurodegenerative mechanisms and approaches used in diagnosis and understanding of impairment are stressed as essential components of devising effective therapy. Permission of Instructor.

### **GHHE 000/5520 - Applied Neuroscience II (3 cr.)**

#### **Description**

Neuropathology and Neurotherapeutics. This course comprises an elaboration and discussion of the biochemistry, molecular biology and cellular neurobiology of neurotransmission and vulnerability of the nervous system to disease. Capitalizing on this understanding, the pharmacological rationale for therapeutic intervention, including stem cell and gene therapy, in the central, peripheral and autonomic nervous systems are discussed, as are the unique vulnerabilities of the nervous system to environmental and occupational toxicants. Permission of Instructor.

### **GHHE 000/5530 - Neuroimmunology (3 cr.)**

#### **Description**

Parallels are drawn between the nervous and immune systems in terms of the heterogeneity in cellular structure and intercellular signaling mechanisms. Recent evidence has brought to light the intimate relationship of the two systems in terms of nervous system regulation of immune system function and psychoimmunology. Long considered an immunoprivileged site, the nervous system is now recognized as a major target of immune activity during neurodegenerative disease, neuroinflammation and neurotoxicity. Both neurons and glia, including astrocytes, oligodendrocytes and Schwann cells, have been shown to elaborate and respond to immune mediators as well as being immune effectors in homeostasis and neurological disorders. The diagnostic and therapeutic potential of understanding these interactions will be explored through lectures, discussions of timely literature and class room engagement. permission of Instructor.

**GHHE 000/5540 - Genetics and Molecular Basis of Disease (3 cr.)****Description**

This course lays down the foundation in basic genetic concepts with the objective of understanding the heritability and/or molecular basis of disease. Recent evidence and diagnostic procedures suggest that genetic diseases make up a large proportion of the total disease burden in both pediatric and adult populations. Today's health care practitioner and biomedical scientist must understand the science of medical genetics and the consequences of altered genomics and proteomics. Advances in the development of new and more accurate methods of diagnosing hereditary disease have led to a greater "genetic awareness" and recognition that genetics plays a role in all areas of medicine. Using a wide spectrum of examples, it will illustrate the impact of mutations as found in thalassemias, sickle cell anemia, cystic fibrosis, familial Amyotrophic Lateral Sclerosis and Huntington's Disease as causes of disease. It will also discuss genetics as a predisposing factor, such as in the case of birth defects, breast cancer, Parkinson's and Alzheimer's Diseases, alcoholism and some autoimmune disorders. Environmentally-induced mutagenesis and carcinogenesis and the role of oncogenes and tumor suppressor genes will be a particular focus of the second half of the course.

**GHHE 000/5550 - Systems Neurobiology in Public Health (3 cr.)****Description**

The systems biology approach to disease examines how the interaction between the biological entity and environmental stressors influence the components of a biological system, and how the interactions between these components result in changes in the function and behavior of that system. Systems biology integrates genomic, proteomic, and metabolomic technologies to construct models of complex biological systems and diseases. Together, these technologies allow us to interrogate and refine our knowledge of cellular processes. This course will use a systems biological perspective to detail the most recent findings that link the environmental to human neurological disease. The course will include an assessment of systems-based tools to evaluate environmental health risks, an overview of molecular pathways that are essential for cellular survival after exposure to environmental stressors, recent findings on gene-environment interactions influencing environmental agent-induced diseases, with a nervous system focus, and the development of computational methods to predict susceptibility to these environmental etiological factors. Environmental stressors relevant to human health and disease, high-throughput technologies, and biological pathways associated with compromised function are integrated with earlier coursework on molecular and cellular biology, toxicology, pathology, and computational biology.

**GHHE 000/6100 - Contemporary Challenges in Global Health I (3 cr.)****Description**

This course deals with contemporary and timely issues relevant to global health, particularly in Egypt, MENA and Africa. These include, and are not limited to, poverty, hunger, malnutrition, stunted growth, sex inequality, maternal and child health. Relying on the instructor and student interest, the course integrates science, engineering, medicine, the social and behavioral sciences, and policy to provide a comprehensive picture of the subject matter, aligned with the Sustainability Developmental Goals (SDG) of 2030.

**GHHE 000/6110 - Global Challenges in Environmental Medicine (3 cr.)****Description**

Environmental impact on human health with the development of what often reaches epidemic proportions of concern is not limited to the interaction between an etiological factor and the individual. In fact, what this environment becomes is often determined by human behavior. In a global community, it has become a priority in public health prevention and communication. In an interdependent environment, questions of water and air quality have political and social

ramifications, with human health being the victim. The efforts to increase agricultural yields through pesticide and synthetic fertilizer use and chronic illness are no longer issues confined to a village or a limited region. The race for prosperity through industrial development and adoption of the superficial trappings of prosperity are not without their medical consequences. Through the use of case studies, the interplay between culture, geopolitics, ecology and medicine, are explored: from Minamata Bay to the Hudson River to the Faroe Islands; the Amazon to Toms River, New Jersey; the sands of Arabia to Los Angeles; from acid rain to nanoparticles; from the Nile to bottled water.

### **GHHE 000/6120 - Leadership and Professional Development for Public Health Professionals (3 cr.)**

#### **Description**

This course is designed to introduce the skills, concepts and interactions that are critical for the development and enhancement of leadership in the health care workplace. The lectures, discussions and exercises are targeted to physicians, pharmacists, clinical diagnosticians, nurses, biomedical researchers and industrial professionals. Guests and video topics will supplement the course work. The course requires student participation and student presentations.

### **GHHE 000/6130 - Current Issues in Public Health Outcomes (3 cr.)**

#### **Description**

This course focuses on timely and contemporary issue in public health outcomes research. It may include such topics as bioinformatics, regulatory issues, recent discoveries and/or strategies in disease diagnosis, issues of public health and disease prevention based on breakthroughs, translational research, recent drug discovery and or diagnostic tools and the impact of genomics. This course requirement may also be satisfied with courses numbered 600 or higher in other related disciplines depending on the student's interest and background. Other substitutions from other programs must be approved by the program director.

### **GHHE 000/6140 - Evidence-Based Medicine (3 cr.)**

#### **Description**

In the age of pharmacogenomics and global health care, it has become evident that the traditional paradigm in medical practice and therapeutics is no longer applicable. Scientific evidence has demonstrated that the diversity in our genetic profiles, diet, nutrition, cultural practices, and religious belief impact on our ability to deliver effective therapy, communicate risk of disease, implement preventative measures and predict the efficiency of health outcomes. Through case studies, these convergent issues are discussed.

### **GHHE 000/6180 - Microbiology and Infectious Disease (3 cr.)**

#### **Description**

This course is the study of methods used for collection, transport, processing, identification and reporting of bacteria from specimens taken from the human body. Students will be shown what is involved in determining the significance of different organisms in various clinical specimens and disease states. The principles of infection control will also be discussed. Students will be taught how to analyze and record laboratory data, comply with all safety procedures and recognize the limitations of a diagnostic microbiology laboratory. Students will also observe, practice and establish professional behaviors necessary to be a successful clinical laboratory scientist.

### **GHHE 000/6190 - Immune System in Health and Disease (3 cr.)**



**Description**

The course in immunology is designed to provide a foundation on the essential mechanisms involved in the development of target-specific defenses. The cells, processes, and chemical mediators participating in the immune response, and the development of immunological memory will be discussed. The reasoning behind medical practices of prophylaxis through vaccination, immunosuppression, transplantation and diagnostic utility of the immune system will also be discussed. The immune system as a target and effector of disease will be illustrated through discussion of immunodeficiency, hypersensitivity responses, and autoimmunity. Finally, intervention in immune-based disorders will be illustrated.

**GHHE 000/6210 - Public Health Informatics (3 cr.)****Description**

Health informatics is an interdisciplinary field based on clinical medicine, mathematics, computer systems science and social sciences. Health informatics has been developed on this foundation to emerge as a separate scientific field with its own scientific issues and methods. It is of fundamental importance for effective information management within health and medical care, and for improving the quality of care and patient safety. Studies within health informatics develop knowledge about healthcare needs and the needs of patients/citizens for effective, appropriate information and knowledge management, and how its methods can be used to promote safe, knowledge-based, cost-effective, patient-centered and equal healthcare and prevention.

**GHHE 000/6220 - Health Informatics and Management (3 cr.)****Description**

This advanced level course introduces through hand-on exercise and projects the public health professional to the principles and use of information and communication systems. The student will gain an understanding of the challenges confronted in data analytics in analyzing and delivering usable and accurate systems and solutions, while communicating information in a palatable form suited to the audience in question. The objective of the course is to give public health professionals a foundational and practical understanding of health informatics scope, and how it interfaces with diagnostic and epidemiological determinants. The student will gain a solid understanding of the fundamentals of health informatics so as to maximize the use of data sets and systems in the delivery of efficient, high quality health care.

**GHHE 000/6230 - Health Informatics in Health Surveillance (3 cr.)****Description**

This course provides an overview of the concept, science, application, and significance of public health informatics as it applies to disease surveillance systems and their relationships within the broader health care system. Students will hear and discuss experience from professionals working or conducting research in the above areas. It will also explore Public Health Systems Analysis, Development and Information Management. Students will be familiarized with major data sets and repositories available for mining of public health raw data and secondary analysis, electronic medical records (EMR) management and privacy, and how information is used in decision and policy-making.

**GHHE 000/7110 - Molecular Mechanisms of Antimicrobial Agents and Resistance (3 cr.)****Description**

This course will explore the biochemical and molecular mechanisms underlying antimicrobial therapy and the

emergence of drug resistance. The application of molecular techniques to elucidate the efficacy of therapeutics and in the identification of infectious agents, as well as the emergence of resistant strains will be discussed through case studies and contemporary literature.

### **GHHE 000/7120 - Contemporary Issues in Infectious Disease (3 cr.)**

#### **Description**

Microbial agents are among the most adaptive organisms that precipitate diseases. Because of this rapid adaptation they pose a challenge to effective therapy. This course explores contemporary microbial challenges such as HIV, West Nile Virus, HPV, multi-drug resistant TB, malaria and MRSA. Therapeutic strategies, whether through vaccination or new drug development, will be discussed through a case study approach and reading of current literature.

### **DSGN 213/2113 - Introduction to Visual Cultures (3 cr.)**

#### **Description**

This lecture course provides a primer in visual literacy across media, introducing students to key terms and methods for critically reading the visual world including iconology, formal analysis, art history, ideological analysis, and semiotics. Students gain fluency in understanding how images work in cultural context to communicate meaning, to express a sense of self, to convey pleasure, to sell things, and to distribute power. Questions of the effect of specific visual technologies are also engaged, particularly their impact on perception and conduct. Examples are drawn from fine art, advertising, film, popular culture, and new media.

### **DSGN 215/2115 - History of Graphic Design (3 cr.)**

#### **Prerequisites**

DSGN 2113

#### **Description**

This course introduces students to the conceptual and critical aspects of graphic design through the discourse of history and theory of visual communication. It addresses how international graphic design went hand in hand with social, political and technological developments around it. It is a chronological survey of graphic design through slide lectures and research.

### **DSGN 200/2200 - Design Foundations (3 cr.)**

#### **Description**

This introductory studio course introduces students to the foundations of design in a cross-disciplinary environment through various media forms. Understanding the creative potential visual research holds, students undertake a continuous visual research project throughout the course. By means of lectures, group presentations, group discussions, class exercises and technical workshops, students develop their skills in the expressive use of analogue and various media as they realize several diverse design projects.

#### **When Offered**

Offered in fall and spring.

## **DSGN 201/2201 - Design Principles & Practices (3 cr.)**

### **Prerequisites**

DSGN 2200

### **Description**

This course encourages students to apply previously acquired knowledge of fundamental principles of graphic design to effectively communicate concepts in a visual representation that range from two-dimensional images to three-dimensional objects and site-specific installations. Through research, class exercises and critique, technical workshop, and design projects, students will learn to develop work plans and explore with cross-disciplinary expressions, production techniques, and materials in order to achieve communication goals.

## **DSGN 202/2202 - Logo and Visual Identity Design (3 cr.)**

### **Prerequisites**

DSGN 2201 , DSGN 2115, DSGN 2210 and DSGN 2250

### **Description**

This course will prepare students to design logos and establish visual identities within the guidelines of brands, across a variety of media and applications.

The course offers real client-designer experience. Students will have the chance to work with clients on real briefs and will learn to exercise and develop their visual problem solving and time management skills to meet clients' expectations and deadlines. They will learn to handle the pressure of overlapping assignments.

## **DSGN 210/2210 - Typography I (3 cr.)**

### **Prerequisites**

DSGN 2200

### **Description**

This course is an introduction to and experimentation with different aspects of Latin and Arabic typography. It addresses letter forms and their legibility, visual organization, classification and text applications. Projects will explore the fundamentals of Latin and Arabic typography in terms of history, theory and practice.

## **DSGN 240/2240 - Color (3 cr.)**

### **Description**

A series of experiences devoted to the development of the perception of color and its use as a tool for the graphic designer. The physics of color, colored light, colored pigments and the color wheel. The study of Johannes Litten's color theory and Labert Munsell's color solid, the psychology of color and application of its relations to different design fields. There will be an emphasis on using gouache paint and matching paint colors with digital color and printing as well as exploring digital color on the computer.

## **DSGN 245/2245 - Illustration (3 cr.)**

**Description**

Students explore the different media of illustration for different end products in this studio course.

**DSGN 250/2250 - Digital Practice I (3 cr.)****Description**

Introduction to the basic operation of computers for designers and developing their skills on desktop programs like Illustrator and Photoshop.

**DSGN 317/3117 - History of Advertising in the Arab World (3 cr.)****Prerequisites**

DSGN 2113

**Description**

A course on the history of advertising in the Arab world that studies visual communication in the region from the rise of the printing press to the introduction of multinational brands.

**DSGN 318/3118 - History of Arabic Calligraphy (3 cr.)****Description**

A Slide-lecture based course that will introduce students to the history of Arabic calligraphy from the early Quran scripts, through highlights of the creative output of different Islamic dynasties until the introduction of the printing press. It will discuss the aesthetics of the calligraphic Arabic word and different stages of development of the script on paper and different media.

**DSGN 303/3203 - Publication Design (3 cr.)****Prerequisites**

DSGN 2201 DSGN 2115 DSGN 3220 DSGN 2250

**Description**

The course focuses on the different formats that a printed word can appear in on different items like magazines, newspapers, books and web/digital publishing. Students are given briefs that push for exploration of the thinking process (Content, Message, Organization) the reading process (Typography and Layout of publications), and building process (Structure and Integration).

**DSGN 304/3204 - Packaging Design (3 cr.)****Prerequisites**

DSGN 2201 DSGN 2115 DSGN 2210 and DSGN 2250

**Description**

Understanding shelf-life and presence, this studio course is based on designing and understanding communication graphics for packaged products. Students experiment with structures of products and the application of type, color, and image on different media like paper, plastic, nylon etc. Projects may be based on real market client briefs and/or experimental ideas.

**DSGN 305/3205 - Retail Design (3 cr.)****Prerequisites**

DSGN 2201, DSGN 2250

Wave DSGN 2250 only to architecture students who have declared the Design of Interior Spaces minor.

**Description**

This course is concerned with the design and user experience of a retail space. It can contain several branches of design like architecture, interior design, industrial design, advertising and graphic design.

**DSGN 313/3213 - Interactive Design (3 cr.)****Prerequisites**

DSGN 3250

**Description**

The course tends to extend students experience in web and interactive design through focusing on User Interface (UI) design, User Experience (UX), and basic web coding using HTML and CSS. The course teaches you how to start an interactive design project to build websites and mobile applications and follow a professional design process to create a user-friendly UI design. This course focuses on the design aesthetics and user experience through a number of steps including user experience research, prototyping, and UI design. The course aims to introduce web and mobile technologies and how it reflects on the design process.

**When Offered**

Offered in Fall and Spring.

**DSGN 320/3220 - Typography II (3 cr.)****Prerequisites**

DSGN 2210

**Description**

This course continues exploring the world of bilingual typography (Arabic and Latin) through the study of essential typographic elements and principles while discussing typographic functions and critical theoretical issues. It will introduce students to advanced typesetting for diverse media and content with correct kerning, special characters, ligatures, and other typographical details in a print and digital layout. Studies will include typographic matching between Arabic and Latin typography. Additionally, students will be introduced to the essential components of multilingual typography.

**DSGN 330/3230 - Type Design (3 cr.)**

**Prerequisites**

DSGN 3220

**Description**

This course will cover the study and design of Arabic typefaces including Arabic type design, its aesthetics, and functional strengths, as well as introduce students to the rules of Arabic calligraphy. Students will learn how to adapt their Arabic type designs to the needs of their communities and as means through which their ideas are communicated.

**DSGN 335/3235 - Animation (3 cr.)****Prerequisites**

DSGN 3250

**Description**

This course is a basic animation course where students will be introduced to different animation techniques, principles and concepts. Students will learn traditional animation, stop-motion animation, and Digital Animation with Adobe After effects.

They will learn how to create a professional workflow by using Xsheet, keyframes, in between, passing positions, timeline and digital compositing.

**DSGN 350/3250 - Digital Practices II (3 cr.)****Prerequisites**

DSGN 2250

**Description**

Introduction to the advanced operation of computers for designers and developing their skills on design programs using Adobe Illustrator, Photoshop, and InDesign. (Advanced level).

**When Offered**

Fall and Spring

**DSGN 360/3260 - Photography for Designers (3 cr.)****Description**

How to write a photography brief, what is a product shot, how to cast the right model for your concept, food styling and photography, and working with different photographers. How and when to work with photo banks. Students will learn how to work as designers with different specialized photographers and understand the different needs of each photo assignment.

**DSGN 365/3265 - Advertising and Branding (3 cr.)****Prerequisites**

DSGN 2210 and DSGN 2250 .

**Description**

A theory and practice course on the world of art direction for advertising. Students will be exposed to classic advertising concepts like total branding and new ones like CRM and activation. The course is studio based and might include real market briefs or experimental ones.

### **DSGN 000/3270 - Selected Topics in Design (3 cr.)**

**Prerequisites**

consent of instructor

**Description**

In-depth examination of specific topics in Design determined by the special interests and expertise of the faculty.

### **DSGN 400/4200 - Design field practices (3 cr.)**

**Prerequisites**

Completion of all Major Courses.

**Description**

This course exposes students to different design communities around the world. It is field research based. It will introduce students to new and emerging design practices and methodologies while building their international design network by connecting them to design events, professionals and students in different countries.

### **DSGN 410/4210 - Portfolio (3 cr.)**

**Prerequisites**

Completion of all major courses.

**Description**

This course helps students create and promote their image in the market through discussions on career pathways. It will prepare students for the professional world guiding them on how to design a digital and printed portfolio, a resume and a personal corporate identity.

### **DSGN 420/4220 - Production for Designers (3 cr.)**

**Prerequisites**

DSGN 2201 DSGN 2115 DSGN 2210 DSGN 2250

**Description**

Design production is explored in all its phases and aspects in this course. From preparing files for different design products to color separation and advanced techniques in printing. Students will be exposed to different highlights in the history of printing and will be acquainted with printing terminology, and the visual and tactile aspects of paper, printing and binding.

### **DSGN 469/4269 - Senior Project Thesis (3 cr.)**

**Prerequisites**

Completion of all major courses.

**Description**

An independent research with a topic approved by the department. Students are requested to work independently and submit a comprehensive paper on their chosen topic.

**DSGN 470/4270 - Senior Project Practice (3 cr.)****Prerequisites**

DSGN 4269

**Description**

Independent design project as a continuation of researched topics approved previously by the department. Visiting critics will be invited to review and assess the final project.

**DSGN 315/5115 - History of Graphic Design in the Arab world (3 cr.)****Description**

Exploring a relatively new field in the region, this course explores the history of graphic design in the Arab world by looking at publication design, political posters, children's books and commercial design that have been instrumental in the development of social and political ideas in the region. The course presents to students a thorough review on the work of particular time periods and designers in the Arab world shedding light on the origins of printing and typography, Islamic manuscripts design, Arabic calligraphy and its revival, Modern art and its impact in design, visual identity and conceptual images, postmodern design and the digital revolution.

**HIST 199/1099 - Selected Topics for Core Curriculum (3 cr.)****Description**

Course addressing broad intellectual concerns and accessible to all first-year students.

**HIST 110/1101 - World Cultures (3 cr.)****Description**

An examination of the development and diffusion of culture throughout the world from the great ancient civilizations to the present. The focus will be on making connections across time and space and developing a deeper understanding of the human community in all its aspects: political, social, economic, cultural and environmental.

**HIST 111/1102 - Big History for Freshmen (3 cr.)****Description**

A study of the earth, the universe and human civilizations that tries to understand how human beings are connected to their environments and the billions of years of historical evolution that preceded their appearance on the planet.



Beginning with big bang cosmology and continuing all the way through to the future, it is an attempt to put everything - and everyone - into perspective.

### **HIST 122/1103 - Words That Made History: Great Speeches of the 20th Century (3 cr.)**

#### **Description**

Readings and recordings of historic speeches. Studies the lives of the speakers, the contexts in which the speeches were delivered, the rhetoric of the speeches, and the impact the speeches had, both on events and on the English language.

### **HIST 123/1201 - Family History in the Modern Middle East (3 cr.)**

#### **Description**

Focuses on research and fieldwork. Acquaints students with interview techniques and methods in oral and family history. By integrating their own family stories into various conceptual and chronological frameworks, students will discover how history relates to them.

### **HIST 209/2019 - Introduction to American Studies (3 cr.)**

#### **Description**

This interdisciplinary course is designed to introduce students to key events and texts in the history and culture of the United States. Using films, literature and historical texts, the course will examine American culture within a historical context.

#### **Cross-listed**

Same as ECLT 2019.

### **HIST 299/2096 - Selected Topics for the Core Curriculum in Global Studies (3 cr.)**

#### **Prerequisites**

RHET 1000

#### **Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

#### **Notes**

May be repeated for credit when content changes.

### **HIST 299/2097 - Selected Topics for the Core Curriculum in Arab World Studies (3 cr.)**

#### **Prerequisites**

RHET 1000

#### **Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**Notes**

May be repeated for credit when content changes.

**HIST 299/2099 - Selected Topics for the Core Curriculum in Humanities (3 cr.)**

**Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**Notes**

May be repeated for credit when content changes.

**HIST 207/2104 - World History (3 cr.)**

**Description**

The development of human society from 11,000 BCE to the present. Using archaeology, anthropology, ethno-biology and traditional history, this course examines the civilizations of Polynesia, China, India, Africa, Meso-America, South America, the United States, Europe and the Middle East in order to explain why some societies today are politically, economically and technologically more powerful than others.

**HIST 211/2202 - History In The Making (3 cr.)**

**Description**

This course offers introductory history topics, each taught in a separate section. Topics focus on major historical events or movements and will be traced through contemporary literary or visual documentary records and representations of those closely involved. Topics will also examine the way interpretation of such materials may alter over time. Topics will change according to instructor and students should consult current course schedules.

**HIST 246/2203 - Survey of Arab History (3 cr.)**

**Description**

This course presents the history of the Arabic-speaking Middle East from pre-Islamic times to the modern era, with emphasis on the principal political, economic, social, religious, and cultural developments and their relevance to the contemporary Middle East. The course introduces students to historical methodology and different interpretive approaches. It attempts to foster a critical attitude toward sources and provides a context in which students can apply skills and concepts acquired in other.

**Cross-listed**

Same as ARIC 2346.

**HIST 247/2204 - The Making of the Modern Arab World (3 cr.)**

**Description**

A historical tour of how we got where we are today. The course starts with the late pre-modern Arab world and Ottoman empire, and moves through various forms of threat, influence, change, and modernization to the present. Events in the Arab world are examined in their wider, global context.

**HIST 250/2301 - Colonial and Postcolonial Africa**

**Description**

This course will examine the history of sub-Saharan Africa from the eve of the European colonization to the present day. In combining a thematic and chronological approach students will discover the complex history of various people and regions in Africa during this period. Topics range from the imperial scramble to colonize Africa to the integration of African societies into the colonial and global economy; from Western perceptions of Africa and Africans to the social, political and economical impacts of colonial policies; and from Africans' struggles for freedom during decolonization to Africa's post independence experience.

**HIST 203/2401 - Western Civilization from Antiquity to Medieval Europe (3 cr.)**

**Description**

An introduction to the history of western society from ancient Greece and Rome to the Middle Ages with emphasis on the ideas and institutions that led to the growth and expansion of European civilization.

**HIST 204/2402 - Europe from the Middle Ages to the Enlightenment (1337-1789) (3 cr.)**

**Description**

This course explores the history of Europe from the start of the Hundred Years War to the French Revolution. It examines the major developments of European politics, society and culture as it moved from the late Middle Ages to the Early Modern Period (including the Renaissance and the Age of Enlightenment) to the beginning of the Age of Revolution.

**HIST 205/2403 - Europe in the Age of Revolution and Reform (1789-1914) (3 cr.)**

**Description**

This Course explores Europe's so-called "Long 19th century" from the French Revolution to World War I including many of the phenomena that came to define the century such as capitalism, nationalism, socialism, feminism and imperialism.

**Cross-listed**

Same as POLS 2403.

**HIST 206/2404 - Europe in International Politics in the Twentieth Century (3 cr.)**

**Description**

This Course explores major development in European and international socio-economic politics from the end of the 1800s to the present day. It introduces the key events and trends of this tumultuous century including wars, revolutions, and ideological movements.

**Cross-listed**

Same as POLS 2404.

**HIST 201/2501 - History of American Civilization to the Nineteenth Century (3 cr.)**

**Description**

A survey of American cultural roots from the period of exploration through the foundation of a federal American republic, social and industrial challenges, the question of slavery, and the crisis of civil war.

**HIST 202/2502 - History of Modern American Civilization (3 cr.)**

**Description**

A survey of events leading to the creation of a distinct American culture as the United States meets the challenges of moral crisis, the industrial revolution, and world leadership from the nineteenth century to the present.

**HIST 210/2602 - Religions of the World (3 cr.)**

**Description**

An introduction to the academic study of religion. By looking at the history, beliefs, practices, institutions and cultural expressions of a number of different religions, students will broaden their understanding of religions other than their own, and of the diversity of the human religious experience. Students will learn to appreciate the variety of religions in the world, and the similarities and differences between them.

**HIST 212/2604 - The Quest for the Historical Jesus (3 cr.)**

**Description**

Investigates the life and teachings of Jesus of Nazareth within the context of Second Temple Judaism and Greco-Roman culture. Considers a range of pre-modern and modern interpretations of Jesus and the emergence of Christianity.

**Cross-listed**

Same as CREL 2605.

**HIST 243/2901 - History I: Pre-Dynastic Through Middle Kingdom Egypt (3 cr.)**

**Description**

The history of Pharaonic Egypt from predynastic times to the end of the Middle Kingdom will be covered. Literary sources will be augmented by archeological evidence

**When Offered**

Offered in fall.

**Notes**

Field trips to archeological sites in the Cairo area are an obligatory aspect of the course.

**HIST 244/2902 - History II: Middle Kingdom Through New Kingdom Egypt (3 cr.)**

**Prerequisites**

HIST 2901 or consent of the instructor.

**Description**

The course will focus on the history of Pharaonic Egypt from the Middle Kingdom to the decline of the New Kingdom and will examine the texts, monuments and artifacts that underline our understanding of this era.

**When Offered**

Offered in spring.

**Notes**

Field trips to the Cairo Museum and other relevant sites are a required part of the course.

**HIST 320/3105 - Big History (3 cr.)**

**Prerequisites**

The course will not be open to students who have already taken HIST 1102 .

**Description**

A study of the earth, the universe and human civilizations that tries to understand how human beings are connected to their environments and the billions of years of historical evolution that preceded their appearance on the planet. Beginning with big bang cosmology and continuing all the way through to the future, it is an attempt to put everything - and everyone - into perspective.

**HIST 319/3205 - Islamic Spain and North Africa (711-1492 A.D.) (3 cr.)**

**Description**

This course is an introduction to the political, economic, social, and cultural history of Muslim Spain and North Africa. Its emphasis is on explaining how interactions among different ethnic groups (Arabs, Berbers, and Iberian natives) and different confessional communities (Jews, Christians, and Muslims) created social situations that made the Western Muslim lands unique in Islamic history.

**Cross-listed**

Same as ARIC 3319.

**HIST 330/3206 - Urban Landscapes in the Modern Middle East/North Africa (3 cr.)**

**Description**

This course presents diverse histories of cities in the Middle East in the nineteenth and twentieth centuries, from the impact of French and British colonialism to Arab nationalism. It introduces students to central themes in modern urban history with emphasis on the city and the production of modern lives, rural migration and the transformation of the city, women and men in the city, and urban crisis and social movements.

### **HIST 331/3207 - History of Palestine/Israel (3 cr.)**

#### **Description**

This survey course covers the history of modern Palestine and Israel. It is based on a comparative approach that allows students to engage with primary materials, secondary historical texts, literary narratives, and cinematic representations. This course provides students with the historical and theoretical tools to learn about and engage formations of nation and history in Palestine/Israel.

### **HIST 333/3208 - Zionism and Modern Judaism (3 cr.)**

#### **Description**

The Zionist ideology and movement in its own terms, and in the context of modern Judaism. The course places Zionism in its historical and religious contexts, and examines its varieties. The Zionist movement is followed from its origins to the establishment of Israel. Related aspects of Israeli politics are then examined, with especial reference to ideological and religious debates.

#### **Cross-listed**

Same as CREL 3209.

### **HIST 343/3210 - Birth of Muslim Community and Rise of the Arab Caliphates (3 cr.)**

#### **Description**

The rise of Islam and Arab expansion, the classical period of Islamic civilization during its first centuries to the period of Abbasid political disintegration.

#### **Cross-listed**

Same as ARIC 3343.

#### **When Offered**

Offered in fall.

### **HIST 344/3211 - Caliphs and Sultans in the Age of Crusades and Mongols (3 cr.)**

#### **Description**

The later Abbasid caliphate, the rise of Shi'ism and the Fatimids, Sunni consolidation under the Seljuks and Ayyubids, external threats to dar al-Islam; the rise of Mamluks .

#### **Cross-listed**

Same as ARIC 3344.

#### **When Offered**

Offered in spring.

### **HIST 345/3212 - Gunpowder Empires: Ottomans, Safavids and Mughols (3 cr.)**

#### **Description**

The decline of the Mamluks; the Timurids in Persia; the age of gunpowder: the Safavid Ottoman, and Moghul empires and their decline.

**Cross-listed**

Same as ARIC 3345.

**When Offered**

Offered in fall.

**HIST 355/3213 - State and Society in the Middle East, 1699-1914 (3 cr.)**

**Description**

The Ottoman Empire and Iran: continuities and transformations. Imperial administration and relations with Europe. Challenges to the premodern order: regional and global economies; social and cultural trends

**Cross-listed**

Same as ARIC 3355.

**HIST 356/3214 - State and Society in the Middle East, 1906-present (3 cr.)**

**Description**

Beginning with the Young Turk and Iran's Constitutional revolutions, this course follows the fate of Middle Eastern societies and states during the twentieth century, with a special focus on colonialism and nationalism; independence movements and decolonization; the Arab-Israeli conflict; society, politics, and culture.

**Cross-listed**

Same as ARIC 3356.

**HIST 000/3215 - Zawiya, Harems, Coffee shops, Everyday Life in the Pre-Modern Mideast (3 cr.)**

**Description**

Examination of major trends in social and cultural trends, movements, and institutions in the medieval and early modern Middle East. Includes the interpretation of cultural identity, the transmission of knowledge and culture, the construction of social status, and the integration or marginalization of specific social groups in family, social and state structures.

**Cross-listed**

Same as ARIC 3321

**HIST 000/3216 - Shi'i Muslims in History (3 cr.)**

**Description**

This course focuses on the historical roles of Shi'i Muslims from the seventh century to the present. The aim of the course is to familiarize the student with the major Shi'i discourses as they evolved in specific historical contexts. While emphasis will be on the historical development of Twelver Shi'ism, other important groups such as the Ismailiyya and the Zaydiyya will also receive due consideration.

**Cross-listed**

same as ARIC 3337

### **HIST 357/3288 - Selected topics in Middle East History (3 cr.)**

#### **Description**

Focuses on theme or topic in the history of the Middle East. May be repeated for credit when topic changes.

#### **Cross-listed**

Same as ARIC 3397.

#### **When Offered**

Offered occasionally.

### **HIST 350/3302 - Violence, War, and Conflict in Modern Africa (3 cr.)**

#### **Description**

This course will explore the complexities of violent conflicts on the African continent in the past 125 years. As violence, conflicts and wars seem to be crucial elements of Africa's modern history; students will for example investigate if this means that Africans are inherently more violent than the rest of the world - or if such an assumption only disguises the complex historical roots of war and conflicts? Moreover, students will also discover that Africans have historically resisted violence and oppression just as often as they have promoted it. Students can expect to engage with a variety of interdisciplinary material and will be introduced to different African regions to get a deeper understanding of contexts of violence in Africa's past and present. By the end of the course students will be able to critically analyze common narratives about "the violent continent" reproduced by mass media.

### **HIST 307/3405 - The Middle Ages, the Renaissance and the Reformation (3 cr.)**

#### **Description**

An investigation of the development of European culture in the High Middle Ages and an examination of the ways in which European society was transformed by the intellectual and religious movements known as the Renaissance and the Reformation.

### **HIST 308/3406 - Europe in the Age of Reason (3 cr.)**

#### **Description**

An examination of the ways in which European intellectual developments during the Enlightenment were connected with socio-political changes in the seventeenth, eighteenth and early nineteenth centuries.

### **HIST 342/3903 - History of Egypt in the Graeco-Roman Era (3 cr.)**

#### **Prerequisites**

HIST 2901 and HIST 2902 or instructor's consent.

#### **Description**

This course will study the history of Egypt in the Graeco-Roman period and the momentous confrontation between Greek and Egyptian culture between 300 BC and 700 AD. It will also examine the social consequences of the spread of Christianity in Egypt and the rise of Coptic culture.



**Cross-listed**

Same as EGPT 5120.

**When Offered**

Offered occasionally.

**HIST 346/3904 - Societies and Cultures of the Ancient Near East (3 cr.)**

**Prerequisites**

HIST 2901 and HIST 2902 , or instructor's consent

**Description**

The course constitutes a historical overview of the societies and cultures of Egypt, the Mediterranean World and the Middle East, from the emergence of urban society in Iraq in the fourth millennium BCE to the rise and fall of the great empires of Babylon, Assyria, the Hitties, Archaemenid Persia, Greece and Rome. Special attention will be paid to the position of Ancient Egyptian civilization within the wider context of Ancient Near Eastern History.

**Cross-listed**

Same as EGPT 5130.

**When Offered**

Offered occasionally.

**HIST 000/4000 - Honors Thesis (3 cr.)**

**Prerequisites**

HIST 4801 and HIST 4802

**Description**

The course is part of a three-semester sequence, with the Honors section of HIST 4801 forming the first part of the sequence and HIST 4802 forming the second part. This course provides students enrolled in the department's Honors Program the opportunity to conduct original historical research, write a scholarly article under faculty supervision, and either submit the article for publication or make a public presentation of it at the annual EURECA conference. Preliminary work on the project will begin in HIST 4802 and will be completed in HIST 4000. Grading is P/F

**HIST 425/4106 - Food in World History (3 cr.)**

**Description**

An inter-disciplinary examination of the role of food in human history beginning with the agricultural revolution and including such topics as the Columbian exchange, industrialization, the rise of the restaurant, food as cultural identity, food policy and the state, fast food, gender roles, health and nutrition, and the emergence of modern attitudes towards food and the body.

**HIST 430/4107 - The Environment in World History (3 cr.)**

**Description**

An examination of the relationship between humans and the environment from the Agricultural Revolution (c. 10,000 BCE) to the present with an emphasis on the Industrial Revolution and the modern world.

### **HIST 405/4188 - Selected Topics in World History (3 cr.)**

**Repeatable**

May be repeated for credit when content changes.

### **HIST 415/4215 - The Marriage Crisis and the Middle East (3 cr.)**

**Description**

This course examines how men and women imagine their nations through marriage and understand their rights and duties in the twentieth-century Middle East. It shows how marriage is a lens that reflects and critiques larger socioeconomic and political issues. It also contributes to our historical understanding of the "marriage crisis", which continues to dominate public debates today.

### **HIST 435/4216 - Social and Political History of Modern Cairo (3 cr.)**

**Description**

The History of Cairo with an emphasis on social, political and economic developments in the twentieth century.

### **HIST 440/4217 - Colonialism and Imperialism in the Middle East and South Asia (3 cr.)**

**Description**

This course deals with the history of colonialism and imperialism in the Middle East and South Asia. Its basic premise is that the colonial encounter was a formative one for both colonizer and colonized. We will be studying not only the political and military aspects of that encounter, but also its ideological and cultural ones. Topics touched upon include: Orientalism, imperialism and culture, medicine, law, urban planning, and gender.

### **HIST 454/4219 - Modern Movements in Islam (3 cr.)**

**Prerequisites**

HIST 3213 or HIST 3214 or equivalent background.

**Description**

Trends of thought and activism that developed throughout the Muslim world from the eighteenth century onward and identified themselves as Islamic. This course looks at intellectual roots, affiliations, and differences. It investigates modernity, reform, statehood, and social change as addressed by state and non-state actors, in theory and in practice.

**Cross-listed**

Same as ARIC 5134 .

### **HIST 460/4220 - Selected Topics in Middle Eastern History, 600-1250 A. D. (3 cr.)**

**Cross-listed**

Same as ARIC 5135 .

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit when content changes.

**HIST 463/4221 - Selected Topics in the History of Islamic Thought and Institutions (3 cr.)**

**Prerequisites**

Prerequisite: consent of instructor

**Cross-listed**

Same as ARIC 5101.

**Repeatable**

May be repeated for credit when content changes.

**HIST 000/4222 - Egypt under Nasser (3 cr.)**

**Prerequisites**

(1) Working Knowledge of colloquial Arabic

(2) Junior standing in any field

**Description**

This course examines the Nasserite historical experience: its historiography, primary documents, legacy, milestone events, institutional frameworks, and trajectory-all within the regional and global contexts of that period.

**HIST 000/4224 - Egypt in the Modern World Market (3 cr.)**

**Description**

An examination of the processes initiated with Egypt's integration in the modern world market in the early nineteenth century. The course uses a general social history approach and places the examined processes in their regional and global contexts.

**HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)**

**Cross-listed**

Same as ARIC 5136.

**Repeatable**

May be repeated for credit when content changes.

**HIST 461/4289 - Selected Topics in Middle Eastern History, 1250-1800 A. D. (3 cr.)**

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit when content changes.

### **HIST 412/4290 - Selected Topics in Modern Egyptian History (3 cr.)**

#### **Description**

Topics to be chosen according to specific interest, such as: the making of the modern Egyptian nation; cities, towns and villages in modern Egyptian history; social and cultural history of modern Egypt.

#### **Repeatable**

May be repeated for credit when content changes.

### **HIST 450/4303 - Global Capitalism and Africa: An Economic History (3 cr.)**

#### **Description**

In this seminar students will explore the relationship between the rise of capitalism and the integration of Sub-Saharan Africa's labor and natural resources into the global economy in the nineteenth and twentieth century. We will be especially interested in two distinct but related issues: First, we want to explore the role of African labor, minerals, and agricultural products for the economic growth of the Global North. Second, we want to examine how oversea markets and foreign influences shaped local economies and "working lives" in different regions in Africa, and explore how Africans confronted these changes.

### **HIST 400/4400 - Independent Study (1-3 cr.)**

#### **Description**

In exceptional circumstances, students may, with department approval, arrange to study beyond the regular course offerings. Open only to juniors and seniors with a minimum B average. May be repeated for credit if content changes.

### **HIST 402/4488 - Selected Topics in European History (3 cr.)**

#### **Repeatable**

May be repeated for credit when content changes

### **HIST 401/4588 - Selected Topics in the History of the United States (3 cr.)**

#### **Repeatable**

May be repeated for credit when content changes.

### **HIST 420/4801 - Historical Theory and Methodology (3 cr.)**

#### **Prerequisites**

Prerequisite: To be taken in senior year

#### **Description**

Seminar on historical thought from its emergence in the classical world to the present, including consideration of the Arab historical tradition. Covers schools of historical interpretation and methodological approaches. Major Capstone.

## **HIST 000/4802 - Preparation for Thesis Writting (3 cr.)**

### **Prerequisites**

HIST 4801

### **Description**

The course provides Honors students with an organized forum and timeline preparing, sharing, and honing the History Honors Thesis abstract and research proposal. This course is to be taken in the semester prior to the semester in which the actual research and writing of the Thesis are done.

The Thesis is an article length (10,000 words) work of original scholarship ready to be submitted for publication and/or presented at AUC's EURECA conference in the spring.

## **HIST 445/4905 - Selected Topics in Coptic Studies (3 cr.)**

### **Description**

This course allows instructors to offer a topic in Coptic Studies. The topic will be chosen from year to year in coordination with the departments concerned and the dean of the School of HUSS, and according to the individual interests and areas of expertise of the instructors. Topics chosen may include various aspects of Coptic art and history, monasticism, folklore, or other subjects. The course may be taken more than once if the topic changes.

### **Cross-listed**

Same as ARIC 5132, EGPT 5160, ANTH 4499, SOC 4499.

### **When Offered**

Offered in fall.

### **Notes**

Students in these majors may petition preferably before registration to have the course included in their major requirements.

## **HIST 542/5222 - Seminar on the Nineteenth-Century Middle East (3 cr.)**

### **Description**

Readings, discussion, and research.

### **Cross-listed**

Same as ARIC 5231.

## **HIST 543/5223 - Seminar on the Twentieth-Century Middle East (3 cr.)**

### **Description**

Readings, discussion, and research.

### **Cross-listed**

Same as ARIC 5232.

## **ELIN 121/0302 - Advanced English (for Graduates) (0 cr.)**

## **INTB 408/3501 - International Finance (3 cr.)**

**Prerequisites**

FINC 2101

**Description**

The effect of the international financial environment on the major financial decisions of business. The international financial institution and their effect on firms operating in the international environment.

**Cross-listed**

Same as FINC 3501.

**When Offered**

Offered occasionally.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**INTB 412/4601 - International Marketing (3 cr.)****Prerequisites**

MKTG 2101

**Description**

The marketing problems and opportunities of the exporter, licensor, or manufacturer in a foreign country. Topics include factors in assessing world marketing opportunities and the international market mix.

**Cross-listed**

Same as MKTG 4601.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**LAW 510/5210 - Introduction to International Human Rights Law and Critique (3 cr.)****Description**

This course is an introduction to International Human Rights Law. As a gateway to the International Human Rights MA program, the course aims at providing participants with a forum to become acquainted with the basic conceptual underpinnings, institutional structures, and substantive complexity of international human rights.

**LAW 511/5211 - International Humanitarian Law (3 cr.)****Prerequisites**

LAW 5209, LAW 5210

**Description**

This course provides basic introduction to the field of international humanitarian law (IHL), otherwise known as the laws of war, the law of armed conflict, or *jus in bello*. It will consist in an overview of the existing substantive body of international law relating to the regulation of armed conflict, as well as an exploration of its internal structure and dynamics. It will discuss in a first part the relationship between humanitarian law and both general international law and international human rights Law, with regard to applicability implementation, and enforcement. In a second part, the course and materials will approach the "principle of distinction" and its implementation in the so-called "Geneva Law", relating to protected persons, as well as the so-called "Hague Law", relating to the means and methods of combat. Final sessions will discuss questions of implementation and criminal responsibility.

#### **When Offered**

This course is normally offered in the spring semester.

### **LAW 514/5214 - Human Rights in the Middle East (3 cr.)**

#### **Prerequisites**

LAW 5209 and LAW 5210 . (Prerequisites can be waived by permission of the department).

#### **Description**

What does it mean to study human rights in the Middle East today? While exploring human rights violations in the Middle East might seem like a natural starting point, this course moves beyond that exercise. It aims at disrupting the traditional divisions and binaries of 'economic and social rights' versus 'civil and political rights'. It engages with human rights as a series of intersectional moves that, together, fundamentally shape life in the Middle East. Additionally, the purpose of the course is not only to study structures of domination, such as authoritarianism, Islamism, patriarchy and neoliberalism, but also to engage with spaces of resistance and struggle. Whether it is the Arab revolutions, the recent protests in Iran, or the struggles of the Kurds across the region, the people of the Middle East have been engaging in different forms of resistance that fundamentally transformed the region over the course of the past decades. Normally offered in the spring semester

### **LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.)**

#### **Prerequisites**

LAW 5209 and LAW 5210 . (Prerequisites can be waived by special permission of the Law department).

#### **Description**

Consideration of the historical development of the recognition of economic, social and cultural rights together with present covenants and other instruments operating at the international level. Specific rights such as the right to work, trade union rights, right to social security, right to adequate standards of living, health and education are considered as well as their philosophical underpinnings and social modalities.

#### **When Offered**

Normally offered only in the fall semester.

### **LAW 518/5218 - International Refugee Law (3 cr.)**

#### **Prerequisites**

LAW 5209 and LAW 5210 . (Prerequisites can be waived by special permission of the Law department).

#### **Description**

This course introduces the international refugee law regime and the background and historical context from which

foundational concepts emerged. The bulk of the course is spent on the 1951 Refugee Convention and its Protocol, as well as the expanding mandate of UNHCR. The course considers some of the contradictions and dilemmas of international refugee law and takes into account developments in related areas of international human rights law, international humanitarian law and migration law. This course is required for all students seeking the MA or Diploma in Migration and Refugee Studies.

**Cross-listed**

Same as MRS 5101.

## **LAW 519/5219 - Human Rights in Africa (3 cr.)**

**Prerequisites**

LAW 5209 and LAW 5210 (Prerequisites may be waived by permission of the department)

**Description**

An overview of the contribution of the African continent to human rights law. The course will cover the specificities of Africa from the perspective of the development, interpretation, and enforcement of international human rights law from four perspectives: (1) the development and contributions of the African regional system of human rights, (2) the treatment of human rights issues in Africa by the universal system of human rights, (3) the place and application of human rights standards in selected African countries, and (4) the application of international humanitarian law in contemporary African conflict situations. As an advanced course dealing with the role of regional approaches and issues in the contemporary history of international human rights law, the substantive focus will be on the relevance of cultural and political specificity to human rights when seen from the perspective of the varied social contexts of the African continent. In light of the rich complexity of the African social, cultural and political background, some attention will be given to the particular situation of certain African States in the development of African human rights law, such as Egypt, Nigeria or South Africa. This course is offered at irregular intervals. Please contact the Department of Law for information about its availability.

## **LAW 575/5275 - Special Topics in International Human Rights Law (3 cr.)**

**Prerequisites**

Prerequisite: consent of the instructor.

**Description**

Specialized areas of International Human Rights Law.

**Repeatable**

May be taken a second time for credit if content changes.

## **LAW 584/5284 - Human Rights in Practice (3 cr.)**

**Prerequisites**

Consent of the instructor.

**Description**

Internship for four to six months in an organization pursuing human rights activities, or active involvement on an institutional research project having a human rights emphasis. The work is assessed on the basis of a written report and



discussion.

This course is offered at irregular intervals. Please contact the Department of Law for information about its availability.

## **CEMS 000/5200 - Block Seminar (1.5)**

### **Description**

This is a 5-day seminar delivered before the start of term 1. The seminar, or part of it, could be held off campus (e.g. Cairo, Ain Sokhna, Hurgada, etc.) to capitalize on local attractions and touristic heritage of Egypt. Corporate partners would be involved in delivering speeches during the seminar.

- The objective of this seminar is to introduce students to regional challenges that take place in Africa and the Middle East with including cultural specificities.
- The seminar is based on blended learning with in-class sessions, guest speakers and a real life case solving and presentation by students.

## **CEMS 000/5201 - Global Strategy (3 cr)**

### **Description**

This course offers an integrated perspective about the challenges associated with strategy design, implementation, and assessment within the international context. It addresses two central questions that top managers ought to answer: 1) What (international) businesses shall we get into and/or out of? And 2) How to compete? Considering both the firm's unique characteristics and the structure of the markets where it competes. Through readings, case studies, a business strategy simulation, and interactive lectures, students are exposed to the latest techniques and methodologies for crafting corporate, business, and functional strategies meant to improve firms' local and international competitiveness. Students will also be introduced to the relevant analytical techniques for diagnosing the competitive position of a business, and assessing alternative strategic directions in a global context. This course discusses topics related to global strategic management. Most students who join this program would have already taken an undergraduate strategy course. Accordingly, this course would not be discussing main stream strategy topics but rather topics related to global challenges in a dynamic global environment with special emphasis on the role played by technology and innovation in transforming the way global business is being conducted and strategies being formulated.

## **CEMS 000/5202 - Global Management Practice (3 cr)**

### **Prerequisites**

Students admitted to the program are ones that would have already conducted at least 30 Cr of management education.

### **Description**

This course focuses on current and critical issues in global management by examining the techniques and practices underpinning organizations across the globe. Through the lens of various functions of the organization and global management practices, decision-making processes will be unpacked including the impact these have on individuals, institutions and countries. This course will begin with reflective individual based assessments identifying individual traits, behavior and assumptions which will form the basis in understanding key ethical, social, cultural and cognitive factors affecting management practice and global organizations. Through a flipped classroom approach, students will be a central part to experiential and active learning, examining and reflecting on a range of management assumptions, communication and negotiation patterns and leadership styles that are integral to global management practice. This learning will be embedded and reinforced through the application of management concepts to ambiguous and complex business scenarios from international environments, preparing students for future international careers. As global citizens, students will explore and analyze key management theory and empirical evidence, and apply this to case studies and business scenarios, role play, group projects, individual assignments and reflections. By the end of this course, through a range of teaching and learning methods, students will develop a global managerial mindset through

informed dialogue, educated and justified choices and decision making, negotiated teamwork and leadership skills that goes beyond traditional thinking.

### **CEMS 000/5203 - Bottom of the Pyramid (BOP) Marketing (3 cr)**

#### **Prerequisites**

For AUC Students : MKTG 2101 ; MKTG 3201

For non-AUC students :

- A course in principles of Marketing
- A course in Marketing Research

#### **Description**

Product, price, promotion and place: these are the four key areas in which marketing influences consumers. This innovative course takes the stance that poor consumers are distinctly disadvantaged in each of these areas.

Documenting the imbalance of the exchange process by describing the business practice of those who market to poor consumers, issues related to basic necessities such as food, housing and transportation are addressed, as well as the consumption of 'sin' products by poor consumers. The problems faced by those who target low-income consumers are also examined, including the conflict between sound marketing practices and marginally ethical or unethical applications of those practices to this target customer group.

### **CEMS 000/5204 - Advanced Financial Management: Cases from the Middle East (3 cr)**

#### **Prerequisites**

For AUC students : FINC 404/3201 - Investment Analysis (3 cr.)

For Non-AUC students : Introductory courses in basic concepts of Financial Management

#### **Description**

The main objective of this course is to analyze critical financial management issues faced by CFOs and investment bankers through practical case studies from the Middle East. Cases in Corporate Finance will focus on financing decisions, capital structure, advanced valuation methodologies including real options analysis as well as value based management. Cases in Investment Banking will tackle issuing related to corporate access to financial markets including public offerings, capital increases, convertible bonds, rights issues as well as trading and liquidity concerns for listed firms. Each topic will be covered using cases studies developed by the professor based on actual transactions he was involved in.

### **CEMS 000/5205 - Global Supply Chain Management (3 cr)**

#### **Prerequisites**

For AUC students: OPMG 401/4301 - Supply Chain Management (3 cr.)

For non-AUC students : An introductory course in Supply Chains at home university.

#### **Description**

This course focuses on the planning, processes, and activities of supply chain management for companies involved in international commerce. It discusses the basic theories of international trade, cultural differences in global supply chains, sustainability, risks, and security and the decision dilemmas related to outsourcing, offshoring and nearshoring. Students examine the end-to-end processes and operational challenges in managing global supply chains, such as, the

basics of global trade, international transportation, duty, taxes, cultural differences, risks and security, and green supply chains issues. Please refer to program overview for a detailed description of the class sessions.

### **CEMS 000/5206 - Economics of Cultural Heritage (3 cr)**

#### **Description**

The course will be covering a wide range of disciplines (such as Economics, culture, cultural heritage, consumer behavior, financial tools, accounting, marketing...) and related concepts and terminology. The course accompanies participants in a step by step approach to understand requirements of cultural heritage clients and projects, build a strategy phased out into clearly articulated tactics, plans and programs, develop the required organization that will deliver on the strategy put in place, develop cultural heritage products and services complete ecosystem and develop a business and financial model using different financial tools- to ensure the viability of the project.

### **CEMS 000/5210 - Business Communication Skills Seminar (0.5 cr)**

#### **Description**

This 1-day seminar is an introduction to modern business communication demonstrating how effective communication can be achieved in organizations that are changing to meet new social, economic and technological demands. The subjects covered include:

- Interpersonal communication, including the use and analysis of non-verbal communication
- Group communication, including practical techniques to support discussion and meetings
- Written presentation, including both paper and electronic documents
- Oral presentation

### **CEMS 000/5220 - Responsible Global Leadership Seminar (1 cr)**

#### **Description**

Highly publicized scandals and increased stakeholder activism for sustainable development have resulted in calls for more responsible global leadership. At the same time, emerging economies characterized by weak institutions, political instability, and a shaky rule of law have gained in importance for global business. The purpose of this 2-days seminar is to highlight the challenges that global leaders face in addressing the needs of diverse, cross-boundary stakeholders, with a particular focus on Western multinational enterprises (MNEs) doing business in emerging markets. The course will comprise guest lecturers from MNCs with special challenges given to students to work upon in teams to give suggested solutions. Moreover, the seminar will introduce students to traits and expectations from current Global leaders.

### **CEMS 000/5221 - Skill Seminar (0.5 cr)**

#### **Description**

These series of one-day seminars will be delivered by the corporate partner. An example of topics that may be offered: time management; social and emotional intelligence, teamwork dynamics, professionalism and positive attitude, integrity and responsibility, business etiquette.

### **CEMS 000/5250 - Business Project (7.5 cr)**

#### **Description**

The Business Project is the most complex program element of the (MIM/CEMS), as it involves at least three stakeholders: the students, the university advisor, and the client company. It mainly corresponds to a team field study project carried out by the students in Term 2. Corporate and Social Partners representatives would be invited to participate in the field study projects and offer a platform for the students to work on a real-life "problem" or managerial issue that companies would like to solve or to address. Students will develop consultant-client relationship with the organization to 1) analyze and diagnose the organization's request; and 2) Develop the detected opportunities with proposed course of actions while applying the latest knowledge or theories in management research to problem solving. The organization would pose challenges to the students as topics for their business projects and this topic list would be updated regularly. Faculty members from the School will serve as advisors on each project group. Each project group normally consists of three to four students and conducts a strategically focused study.

### **CEMS 000/5355 - International Internship (0 cr)**

#### **Prerequisites**

Complete TERM1 and TERM 2 requirements of Master in International Management /CEMS

#### **Description**

Internships provide students with the real-life professional learning experience. The CEMS internship must therefore be at the level of a graduate recruit in order to provide valuable business experience. Each student is required to perform a minimum of 8-week international internship during the summer outside the home institution where he/she applied, after completing semester two. Internships can take place at a CEMS Corporate Partner, although not compulsory. They can also take place at CEMS Social Partners or other non-profit organization such as in a humanitarian mission, provided responsibility levels correspond. Students are responsible for finding their own internship and for all official documents required for the employment.

### **JRMC 200/2200 - Introduction to Mass Communication (3 cr.)**

#### **Description**

An introductory survey of the theory, history, structure, and function of mass communication in the Middle East and globally.

#### **Notes**

Open to all university students.

### **JRMC 201/2201 - Media Writing (3 cr.)**

#### **Prerequisites**

Acceptance into the major

#### **Description**

Study and practice of basic writing, editing, and reporting techniques used in the international media; newsroom practices to develop listening, reading, writing and editing skills.

### **JRMC 202/2202 - Multimedia Writing and Production (3 cr.)**

#### **Prerequisites**

JRMC 2201

**Description**

Cross-media study and practice of writing, reporting and production for print, broadcast, and the internet.

**JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)****Description**

Critical analyses of media laws and professional philosophies, standards, and practices in journalism, public relations, advertising, and other fields of mass communication. Discussion of ethical and practical considerations and dilemmas in different professional and social contexts.

**JRMC 000/2208 - Media Literacy in the Digital Age (3 cr.)****Prerequisites**

JRMC 2200

**Description**

This course takes both a critical (theory) and a creative (practice) approach to news and media literacy in the digital age using various media contexts. Students will activate and exercise their media literacy skills and dispositions by accessing, analyzing, and evaluating news and other media; and creating, producing, and communicating their discoveries through the use of social media platforms.

**JRMC 230/2230 - Photography Foundations 1 (3 cr.)****Description**

History of photography, digital camera skills, visual composition, digital production, developing assignment ideas, interpreting images.

**JRMC 250/2250 - Global Media Systems (3 cr.)****Description**

Comparative study of global communication systems and theory in relation to national and international development.

**Notes**

Open to all university students.

**JRMC 270/2270 - Online Communication (3 cr.)****Description**

An introduction to the Internet as a medium of communication, as well as to its nature, development, and future. Students will examine how the Internet is being used, and how it is affecting communities and societies at large. Ethical aspects of the online experience will also be covered.

**JRMC 299/2299 - Selected Topic for Core Curriculum (3 cr.)**

**Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**Notes**

Enrollment is limited and priority is given to students with declared JMC majors.

**JRMC 301/3301 - Journalism Editing and Design (3 cr.)****Prerequisites**

JRMC 2202

**Description**

Principles of, and laboratory practice in, copyediting and proofreading; headline writing; scaling and cropping photographs; and layout and design.

**JRMC 000/3303 - Data for Media (3 cr.)****Description**

This course explores the fundamental concepts and principles that underlie techniques for extracting useful information and knowledge from digital data. The primary goal of the course is to help you view problems from a data perspective and understand how to systematically analyze such problems. This data-analytic thinking can then be applied in a variety of ways, from data journalism to customer relationship management to data-driven decision making.

**JRMC 305/3305 - Introduction to Visual Communication (3 cr.)****Prerequisites**

JRMC 2201

**Description**

Introductory laboratory in basics of typography, desktop publishing, digital design of publications and advertising. Taught by lecture with practical application.

**JRMC 000/3307 - Sports Media (3 cr.)****Prerequisites**

JRMC 201/2201 - Media Writing (3 cr.)

JRMC 202/2202 - Multimedia Writing and Production (3 cr.)

**Description**

Introduction and application to the sports media industry; the course explores the essential reporting and the art of covering sports news across all media outlets (newspapers, magazines, radio, television and online media); the course covers the ethical codes that make a well balanced story in the fast growing field of sports media coverage.

### **JRMC 310/3310 - Public Opinion, Persuasion and Propaganda (3 cr.)**

#### **Description**

Theoretical and practical study of the social role of international and national mass media, policymakers and the public in formation of public opinion.

#### **When Offered**

Offered occasionally.

#### **Notes**

Open to all university students.

### **JRMC 312/3312 - Multimedia Journalism Lab: The Caravan (3 cr.)**

#### **Prerequisites**

JRMC 2202

#### **Description**

Supervised newsroom experience in reporting, writing, editing, designing and layout for print, broadcast and online version of The Caravan and AUC TV.

### **JRMC 315/3315 - Introduction to Advertising (3 cr.)**

#### **Prerequisites**

JRMC 2202

#### **Description**

Survey of professional principles and practices in advertising and their relationship to business and government, with special emphasis on the United States and Egypt.

### **JRMC 320/3320 - Mass Communication Research (3 cr.)**

#### **Prerequisites**

Junior standing.

#### **Description**

Methods and theories used in mass communication research. Emphasis on the various methods and measurement tools used in message, communicator and audience measurements. They will learn to work with statistics, databases, specialized websites and other resources.

### **JRMC 330/3330 - Photojournalism and Documentary Practices (3 cr.)**

#### **Prerequisites**

JRMC 2230

#### **Description**

History of photojournalism, advanced camera skills, photographic lighting skills, visual story-telling strategies, editing

and sequencing, research subjects, building a portfolio.

### **JRMC 333/3333 - Research for Journalists (3 cr.)**

#### **Prerequisites**

JRMC 3312

#### **Description**

A research course designed specifically for journalists, providing students with a broad understanding of how to find and analyze various forms of information. They will learn to use databases, specialized websites and other Internet resources and how to organize and apply their findings for news and feature reporting.

### **JRMC 337/3337 - TV Scriptwriting and Production (3 cr.)**

#### **Prerequisites**

JRMC 2202

#### **Description**

Classroom and field training in basic television scriptwriting and story production. Instruction in theoretical principles that differentiate television from print journalism, ethical aspects of picture use and editing and related topics. Requires weekly practice hours outside class time.

### **JRMC 339/3339 - Studio Production: AUC TV (3 cr.)**

#### **Prerequisites**

JRMC 2202

#### **Description**

Techniques of television production and presentation from planning and writing to directing and producing. Topics of study include elements of various forms of television writing, production, design, lighting, graphics, program planning and production practices in a studio or workshop setting. Requires weekly practice time outside class to provide AUC TV's daily news bulletin.

### **JRMC 355/3355 - Creative Strategy and Advertising Copywriting (3 cr.)**

#### **Prerequisites**

JRMC 3305 and JRMC 3315

#### **Description**

Development of creative strategy, writing advertising and promotional copy, designing and preparing layouts for various media, planning and executing written and oral presentations.

### **JRMC 000/3366 - Online Behavior and Web Analytics (3 cr.)**



**Prerequisites**

ENTR 000/4503 - Digital Strategy (3 cr.)

**Description**

This course proficiently tackles today's business challenges with this powerful new framework that will permanently change how students think about analytics. It provides a wealth of tactics for creating a pragmatic strategy, applying analytical techniques correctly, solving challenges such as measuring social media and multi-channel campaigns, achieving optimal success by leveraging experimentation, and employing approaches for truly listening to your customers.

**JRMC 000/3380 - Digital Storytelling (3 cr.)**

**Prerequisites**

JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

Junior Level

**Description**

Defining the components that make a good story you want to tell to your audience. Identifying the tools that best serve your story; learning the art of storytelling through the usage of emerging technologies; studying the different techniques that add value to the production process; learning the ethical standards necessary in the storytelling process in the digital age.

**JRMC 000/3390 - Media Economics (3 cr.)**

**Prerequisites**

JRMC 2200

**Description**

This course covers the fundamental concepts, theories, and approaches of media economy. Students learn how to use these theoretical concepts to analyze media markets, industries, and the practices of media organizations. In addition, students study the factors that shape media economy, such as technology, regulations, organizational and strategic factors. Finally, the course discusses the new media trends in media economy and the development of social media industries, and examines the impact of media economy on vital issues, such as media policy making, competition law and social discourse.

**JRMC 402/4402 - Reporting and Writing in Arabic (3 cr.)**

**Prerequisites**

Completion of university general requirements in Arabic and JRMC 2202 .

**Description**

Advanced principles and practice in reporting and writing in and from Arabic.

**When Offered**

Offered occasionally.

**JRMC 403/4403 - Feature and Magazine Writing (3 cr.)**

**Prerequisites**

JRMC 2202

**Description**

Principles and intensive practice in researching, organizing, and writing feature articles for international newspapers and magazines.

**When Offered**

Offered occasionally.

**Notes**

Enrollment is limited and priority is given to students with declared MMJ majors.

**JRMC 405/4405 - Advanced Visual Communication (3 cr.)****Prerequisites**

JRMC 3305

**Description**

Advanced practical integration of digital text and photographs in desktop publishing of printed material using state-of-the-art production hardware and software.

**When Offered**

Offered occasionally.

**JRMC 406/4406 - Internship (3 cr.)****Prerequisites**

Junior standing.

**Description**

Field experience in an approved professional setting in journalism, advertising, public relations, public information, broadcast or online media outlet. Supervised by a professional and an AUC full-time faculty member.

**JRMC 412/4412 - Newsroom Editing and Management (3 cr.)****Prerequisites**

JRMC 3312

**Description**

Supervised advanced newsroom experience in writing, editing, layout and management of *Caravan*, the AUC newspaper.

**JRMC 415/4415 - Public Relations Theory and Techniques (3 cr.)****Prerequisites**

JRMC 2202 and JRMC 3315

**Description**

Principles and practical use of public relations and public information techniques, with emphasis on media use for business and non-profit organizations.

**JRMC 420/4420 - Media Management (3 cr.)****Prerequisites**

Junior standing.

**Description**

Management theories and practices as applied to media organization, unique characteristics of media outlets, various operating philosophies, legal issues, regulations and related topics will also be covered including programming strategies.

**JRMC 425/4425 - Integrated Marketing Communication Campaigns Capstone (3 cr.)****Prerequisites**

JRMC 3315, JRMC 3320 and JRMC 4415

**Description**

Examination, development, and critique of advertising and marketing communication campaigns, with emphasis given to creative and media factors.

**Notes**

IMC seniors only.

**JRMC 000/4430 - Advertising Agency Operations (3 cr.)****Prerequisites**

JRMC 315/3315 - Introduction to Advertising (3 cr.)

JRMC 320/3320 - Mass Communication Research (3 cr.)

**Description**

This course is designed to provide the students with insight into how advertising agencies are organized and managed. The five essential functions of the agency are deeply explored and integrated. The account management, the strategy development, the creative team, the art direction, and the business management are all equally important. Each is studied with guest speakers and site visits to demonstrate how they are managed to contribute to the success of the business.

**JRMC 441/4441 - Camera and Editing Workshop (3 cr.)****Prerequisites**

JRMC 2202

**Description**

Intensive field and lab training with digital video camera. Computer-driven digital editing program enables video

journalist to shoot and edit news events to a finished professional product. Requires weekly practice hours outside class time.

### **JRMC 444/4444 - Media Law and Policy (3 cr.)**

#### **Prerequisites**

JRMC 2202

#### **Description**

An explanation of communication law and regulation with its major segments libel, privacy and news-gathering together with journalists' rights and defenses against libel suits. Issues of national and international topics are covered together with media law cases.

#### **Cross-listed**

AMST 4444

### **JRMC 460/4460 - Audio Production (3 cr.)**

#### **Prerequisites**

JRMC 2202 and junior standing.

#### **Description**

Studio experience in Audio production.

### **JRMC 471/4471 - Online Journalism (3 cr.)**

#### **Prerequisites**

JRMC 2202

#### **Description**

Examination of the emerging forms of information delivery by computer and related convergence of print and broadcast media. Emphasis on learning multi-media reporting skills needed to publish quality work on the Internet.

### **JRMC 480/4480 - Multimedia Reporting Capstone (3 cr.)**

#### **Prerequisites**

JRMC 3333, JRMC 3339 and JRMC 4460

#### **Description**

Advanced principles and practice in news gathering and reporting, effective organization and presentation, and writing. Students produce a capstone reporting project that demonstrates their ability to operate on all media platforms and produce professional, responsible and ethical journalism.

#### **Notes**

For seniors only.

### **JRMC 482/4482 - Media Convergence Capstone (3 cr.)**

**Prerequisites**

JRMC 3320, JRMC 4420 and JRMC 4444

**Description**

Explores the intersection of mass communication technologies. Students examine the digital future of media and the impact of media convergence on politics, business, civil and global society.

**Notes**

For seniors only.

**JRMC 490/4490 - Special Topics in Mass Communication (1-3 cr.)****Description**

Special topics in journalism and mass communication will vary depending on instructor.

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated by student for credit if content changes

**JRMC 499/4499 - Directed Individual Study in Mass Communication (1-3 cr.)****Prerequisites**

Junior standing and written project proposal endorsed by fulltime faculty with project review by department.

**Description**

Individual projects in mass communication completed under the supervision of a full-time mass communication faculty member. Students propose projects not covered by coursework that will complement their academic programs.

**Repeatable**

May be repeated once for credit if content changes.

**Notes**

Enrollment is limited and priority is given to students with declared JRMC majors.

**JRMC 500/5200 - Seminar in Mass Communication Theory and Literature (3 cr.)****Description**

Survey of mass communication theory and the philosophical, sociological and political effects of mass media on audiences and societies.

**When Offered**

Offered in fall.

**JRMC 501/5201 - Advanced Reporting and Writing (3 cr.)****Prerequisites**

appropriate professional experience or undergraduate coursework (JRM 2201 and JRM 3301 or equivalent).

**Description**

Intensive reporting, research, and writing of in-depth articles for magazines and newspapers with intent to publish.

**When Offered**

Offered occasionally.

**JRM 502/5202 - Seminar: Current Issues in Mass Communication (3 cr.)**

**Description**

Overview of major issues in mass communication and how they impact audiences and society.

**When Offered**

Offered in spring.

**JRM 504/5204 - Seminar: Research Methods in Mass Communication (3 cr.)**

**Description**

Introduction to scientific method and mass media research methods: field surveys, quantitative and qualitative research.

**When Offered**

Offered in fall.

**JRM 506/5206 - Internship (3 cr.)**

**Description**

Field experience in an approved professional setting in journalism, advertising, public relations or public information. Supervised by a professional and an AUC full-time faculty member.

**When Offered**

Offered occasionally.

**JRM 540/5240 - Reporting Civil Society (3 cr.)**

**Prerequisites**

JRM 5201 .

**Description**

Provides the knowledge and skills that enable students to report on Arab civil society organizations. Combines seminar-style instruction on structure and role of civil society groups with hands-on print and radio reporting about Egyptian civil society for a new civil society portal based at the Adham Center.

**When Offered**

Offered in fall.

**JRM 550/5250 - Seminar in International Communication (3 cr.)**

**Description**

World news communication systems, including news-gathering agencies; the role of foreign correspondents, the foreign press, information flow, propaganda and comparative press laws.

**When Offered**

Offered in fall.

**JRMC 560/5260 - Seminar on Electronic Journalism and Arab Society (3 cr.)**

**Description**

A comprehensive seminar examining the role of journalists in society. Covers both historic role and rights and responsibilities today. Issues include ethics, journalist-government relations, fairness and balance, freedom of the press, impact on domestic and international policy, role of the media in conflict and related topics. Discussion will cover comparative approaches in the West, developing countries and the Arab world, with particular emphasis on role of media in regional politics and international relations in the post-9/11 era.

**When Offered**

Offered in spring.

**JRMC 570/5270 - Seminar in Mass Communication and National Development (3 cr.)**

**Description**

The role of mass communication in developing nations and its relationship to economic growth, education, socialization, persuasion, and diffusion of innovation.

**When Offered**

Offered in spring.

**JRMC 571/5271 - Digital Journalism (3 cr.)**

**Description**

Examination of the ways in which all forms of journalism are converging in the digital realm. Emphasis will include writing and reporting for the internet and other multi-media platforms, such as podcasts and digital phones, and the practical ways in which broadcast and print are merging on the internet.

**When Offered**

Offered in spring.

**JRMC 580/5280 - Impact of Television: Issues and Developments (3 cr.)**

**Description**

Media-specific issues and developments in television related to programming and production; production and delivery; technological bias and special problems such as piracy, television and religion, regulation and "equal time."

**When Offered**

Offered in fall.

### **JRMC 588/5288 - Comprehensives (no cr.)**

**Description**

Individual consultation for students preparing for the comprehensive examination.

**When Offered**

Offered in fall and spring.

### **JRMC 590/5290 - Special Topics (3 cr.)**

**Description**

Content varies with the instructor. Can be repeated once for credit if content changes.

**When Offered**

Offered occasionally.

### **JRMC 599/5299 - Research Guidance and Thesis (no cr.)**

**Description**

Consultation with students as they prepare their theses.

**When Offered**

Offered in fall and spring.

### **LALT 101/1020 - Libraries and Learning Technologies (0 cr.)**

**Prerequisites**

**Description**

This course is designed to help undergraduate students improve their research skills through exposure to information literacy concepts. Students are taught to locate, evaluate and use information properly, through a variety of hands on activities and assignments.

Taken concurrently with RHET 1020

### **LING 252/2200 - Introduction to Linguistics (3 cr.)**

**Description**

Major aspects and procedures of the systematic study of human language in its biological and social contexts. Principles and techniques of linguistic analysis as they relate to cognition, symbolization and other aspects of culture.

### **LING 200/2201 - Languages of the World (3 cr.)**



**Description**

This course aims to acquaint students with basic knowledge of the world's natural languages. We will look at the diversity and fundamental similarities among the languages of the world and, in doing so, explore the following topics: language families and historic relationships, linguistic typology and language universals, language policy and politics, writing systems, and language obsolescence.

**LING 268/2210 - Principles and Practice of Teaching English (3 cr.)**

**Prerequisites**

RHET 2010 .

**Description**

This course introduces the latest theories, principles and techniques of teaching English. It is a community based learning course and gives students practice by peer teaching, observing others teach and actual teaching in the community in order to learn to reflect and evaluate critically.

**LING 000/2220 - Language and Society (3 cr.)**

**Description**

This course deals with the relation between language and society. It tackles issues pertaining to the relation between our gender and the way we talk, and how does our social background affect the way we speak and judge others' way of speaking. The following questions will be covered in the course

What is a linguistic community?

How does language reflect our identity?

Is our gender reflected through language or constructed through language?

Is there a relation between language and religion? Language and race? Language and social class? Language and education? Language and media?

**LING 000/2230 - Language and Communication (3 cr.)**

**Description**

The course examines the complex and multifaceted interplay between language and communication in multiple social contexts. It shows how variation in language use from genre to genre and from context to context could either enhance communication, or lead to miscommunication. Negotiating meaning in areas of sociology, anthropology, politics and business are all contexts where language plays a pivotal role in reaching successful communication. The course incorporates theoretical frameworks as provided by pragmatics, intercultural sociolinguistics and discourse analysis in order to examine the relationship between language and communication within the same context and between different context where other social factors affect communication.

**LING 299/2299 - Selected Topic for Core Curriculum (3 cr.)**

**Prerequisites**

RHET 1000 .

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major..

**Repeatable**

May be taken more than once if content changes

**LING 352/3075 - Language in Culture (3 cr.)**

**Description**

The role played by language in humankind's symbolic relation to the world. Emphasis on linguistic analysis, ethnosemantics, sociolinguistics, expressive speech, and language and socialization as these elucidate patterns of cognitive orientation.

**Cross-listed**

Same as ANTH 3075.

**LING 322/3220 - Introduction to Phonetics (3 cr.)**

**Description**

Study of the articulatory and acoustic properties of speech sounds and features of language with particular reference to English and Arabic. Includes introductory work in transcription and technological developments in phonetic research.

**LING 000/3320 - Language and Politics (3 cr.)**

**Prerequisites**

LING 252/2200 - Introduction to Linguistics (3 cr.)

**Description**

This course explores how language reflects and makes political thought and ideologies. It will also shed light on issues of language and national identity.

By drawing on linguistic theories, the course will cover areas as diverse as education and politics, discourses related to racism and exclusion in political contexts, and colonial history and its impact on language ideologies and linguistic choices. Data for this course will be very diverse and will include materials drawn from social media, mass media, and surveys.

**LING 000/3330 - Introduction to Corpus Linguistics (3 cr.)**

**Prerequisites**

LING 252/2200 - Introduction to Linguistics (3 cr.)

**Description**

This course introduces corpus linguistics (CL) as a means of analyzing language using computer concordancing software and the Internet. Through using various search techniques, students will be able to explore English vocabulary and grammar as well as other aspects of language use such as collocation, idioms, phraseology, and discourse.

**LING 400/4099 - Selected Topics in Linguistics**

**Prerequisites**

9 hours of humanities and/or social sciences, and junior or senior standing.

**Description**

This is a special topics course in which topics will be chosen according to specific interests of the students and areas of specialization of faculty. Topics could include, but would not be limited to, *sociolinguistic*, *language in the media*, *language and politics*, and *advanced ESOL methodology*.

**LING 422/4212 - Language and Human Development (3 cr.)**

**Description**

Linguistic and psychological concepts in first- and second-language learning; human perceptual and productive language processes; biological foundations of language, bilingualism and multilingualism; and inferences from animal communication.

**LING 000/4410 - Introduction to Computational Linguistics (3 cr.)**

**Prerequisites**

CSCE 110/1101 - Fundamentals of Computing II (3 cr.) ; LING 252/2200 - Introduction to Linguistics (3 cr.) ; LING 000/3330 - Introduction to Corpus Linguistics (3 cr.)

**Description**

Computational linguistics is an interdisciplinary field of study that brings linguistics and computer science together. This course introduces students to the main concepts of the field and its real-world applications, including, but not limited to, machine translation and information retrieval. Furthermore, it gives students hands-on experience with using and developing computational linguistics tools such as part-of-speech taggers, morphological analyzers, syntactic parsers, and semantic interpreters. To use and develop such tools, students will learn about regular expressions, programming for text analysis, and machine learning. No prior knowledge of computer science or programming is required for this course.

**LAW 471/4371 - Introduction to Public International Law (3 cr.)**

**Description**

Introduces students to the practice and theoretical foundations of public international law, covering such topics as sources doctrine (customary international law, treaty law etc.), international personality, jurisdiction, state responsibility, self-determination and the use of force. This course may be counted towards the Dual Degree Option combining a BA in Political Science and an MA in International Human Rights Law.

**Cross-listed**

Same as POLS 4371 .

**When Offered**

Offered in fall and spring.

**LAW 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.)**

**Description**

The Egyptian legal system will be considered according to its present structure and historical development, including

institutions, processes, laws, and the courts. There will be special emphasis on developments in constitutional law and the role played by the constitution in the political context of present day Egypt. The course also offers an introduction to Islamic jurisprudence in the classical doctrine, in the pre-modern Egyptian legal system and in contemporary Egypt. This course may be counted towards the Dual Degree Option combining a BA in Political Science and an MA in International Human Rights Law.

**Cross-listed**

Same as POLS 4375 .

**When Offered**

Offered once a year.

## **LAW 478/4378 - Introduction to International Human Rights Law (3 cr.)**

**Description**

The course provides an overview of the major human rights treaties, customary norms, international institutions and mechanisms of enforcement while at the same time, encouraging a critical stance, which questions the role and effect of human rights in a world of distress and inequality. This course may be counted towards the Dual Degree Option combining a BA in Political Science and an MA in International Human Rights Law.

**Cross-listed**

Same as POLS 4378 .

**When Offered**

Offered once a year.

## **LAW 500/5200 - Legal Research and Writing (3 cr.)**

**Description**

A workshop designed to develop the lawyering skills in research, drafting, legal argument and oral presentation, especially with respect to practice in transnational legal problems and settings. Required of all students in the LL.M program during the first semester of study.

## **LAW 501/5201 - Jurisprudence (3 cr.)**

**Prerequisites**

LAW 5200

**Description**

The course will look at the major contemporary debates in legal theory. It introduces students to different schools of legal theory including Sociological Jurisprudence, Legal Realism, Legal Process, Critical Legal Studies, Liberal Legalism, Critical Race Theory, Feminist Legal Theory and Law and Economics. The course aims at introducing students to different and innovative legal methodologies.

**When Offered**

The course is normally offered in the spring semester.

## **LAW 502/5202 - Comparative Law (3 cr.)**

**Description**

Introduction to the main differences between Civil Law and Common Law systems with respect to selected problems regulated under public and private law regimes. The comparative study will concentrate on the American, German, and French legal systems.

**When Offered**

Normally offered only in the fall semester.

**LAW 503/5203 - Law and Economic Development (3 cr.)****Description**

Exploration of the relationship between different strategies of economic development and legal reforms in the public and private spheres from a comparative law perspective.

**When Offered**

Normally offered in the spring semester

**LAW 505/5205 - Islamic Law Reform (3 cr.)****Prerequisites**

LAW 5202 or LAW 5209

**Description**

Exploration of different approaches to reforming Islamic law in the Arab World from the mid-nineteenth century to the present, paying special attention to contemporary developments in Arab legal systems.

**When Offered**

This course is normally offered in the spring semester.

**LAW 506/5206 - Egyptian Legal History (3 cr.)****Description**

This course explores Egypt's various waves of "legal reform" over the past two centuries, paying close attention to the fields of constitutional law and human rights, as well as family, commercial, and criminal law. We also examine the emergence of the modern Egyptian legal elite, its rise to political and intellectual prominence, its fall during the Nasser years, and its potential for public policy impact today. Egypt's modern legal history is set in a larger "law and development" policy frame, exploring ramifications on the rule of law, economic and political liberalization, and calls for a "return to shari'a" by Islamist political actors today. This course is offered at irregular intervals. Please contact the Department of Law for information about its availability.

**LAW 507/5207 - The Law and Practice of the Settlement of International Disputes Between States (3 cr.)****Prerequisites**

LAW 5209 and LAW 5210 (prerequisites can be waived by special permission of the Law Department).

**Description**

The course combines the fundamentals of the law governing the settlement of international disputes between states and a Moot Court exercise. The two components of the course are intertwined. The course thus aspires to combine theoretical and practical dimensions of the experience of international dispute settlement. The doctrinal part of the course includes a general overview of the methods for dispute settlement in public international law, and basic procedural norms and principles governing international legal proceedings. The course looks in detail at specific institutions, such as the International Court of Justice, the Permanent Court of Arbitration, the Iran-United States Claims Tribunal, the International Tribunal for the Law of the Sea, and others. Students will have the opportunity to study recent developments in the theory, practice and in policy debates underlying the system of international dispute settlement.

**When Offered**

Normally offered in the fall semester.

**LAW 508/5208 - International Criminal Law (3 cr.)**

**Prerequisites**

LAW 5209 ,LAW 5210

**Description**

The course will cover the central doctrines, procedures and institutions of International Criminal Law with emphasis on contemporary debates. It will consist in an overview of the main doctrines that "frame" international criminal law and set the conditions for its existence as a distinct field of legal practice, as well as substantive international crimes (Elements of crimes, War crimes, Crimes against humanity, Genocide, Aggression and Crimes against peace) and international criminal courts and tribunals.

**When Offered**

This course is normally offered in the spring semester.

**LAW 509/5209 - International Law (3 cr.)**

**Description**

An in-depth overview of the international legal system. The course will cover the fundamental concepts, institutions, processes and mechanisms of international law. Some of the topics that will be covered include: the relationships between public and private international law, the question of sovereignty, the sources of international law, and the place of non-State actors.

**When Offered**

Normally offered only in the fall semester.

**LAW 515/5215 - Comparative Constitutional Law and Human Rights (3 cr.)**

**Description**

How constitutional rights, concepts and practices have merged and developed within contemporary governments. Emphasis will be on the analysis of civil, political, economic, social and cultural rights together with freedoms and liberties protected by various constitutions, considered within their social and political contexts. This course is offered at irregular intervals. Please contact the Department of Law for information about its availability.

## **LAW 520/5220 - Justice: Histories and Theories (3 cr.)**

### **Description**

This course introduces students to justice as a problem in contemporary cultural, legal and philosophical debates. The course explores the different domains through which justice becomes a universal language of rights, and the resultant compartmentalization of human experiences along parameters in which culture is presumed to be non-existent, rendering different forms of justice, such as gender justice, appendixes to the already known. This course will engage with questions of distribution of justice - economic, social, political, historical- in the contemporary world with special focus on locating theories of justice in the practice thereof. It is conceived as laying the intellectual foundation for the GWST gender and justice graduate concentration, for graduate work in IHRL and other related fields. This is a joint course offered by the Institute for Gender and Women's Studies and the Department of Law.

### **Cross-listed**

GWST 5102

## **LAW 000/5221 - Law and Patriarchy (3 cr.)**

### **Description**

What does it mean to look at law from a feminist perspective? How can a critical reading of patriarchal society inform our legal analysis and our uses of the law? This course explores how structures of domination - capitalism, white supremacy, and patriarchy - have been historically codependent through systems of law and governance. It also explores how feminist movements have critically navigated around and against these structures of domination through law, and other means. Gender justice has been at the core of international human rights law and practice in the Global South. This course makes explicit broader theoretical questions about the relationship between law and patriarchy through classic texts on feminism, transfeminism, queer theory, critical race feminism, and masculinity studies, among other approaches. It engages with various themes that initially developed from outside of the academy, such as intersectionality, and capitalism's reliance on unpaid housework, cohering feminist movements as spaces of knowledge-production, and for the articulation of feminist methodology. The course therefore focuses on how feminist methodology can reveal the distributional effects of legal outcomes, break gender binaries, and complicate North-South dichotomies.

### **When Offered**

Normally offered only in the fall semester.

## **LAW 522/5222 - International Economic and Trade Law (3 cr.)**

### **Description**

Rules of law and policy of economic relations under the GATT/WTO system, as well as regional agreements on trade partnerships between the European Union and the Arab Mediterranean. This course is offered at irregular intervals. Please contact the Department of Law for information about its availability.

## **LAW 523/5223 - International Commercial Arbitration (3 cr.)**

### **Prerequisites**

LAW 5202 or LAW 5209 (Prerequisites can be waived by special permission of the Law department).

### **Description**

The law of international commercial arbitration considered from a comparative perspective in major Civil and Common Law jurisdictions, as well as its practice in the context of international transactions. This course is offered at irregular intervals. Please contact the Department of Law for information about its availability.

### **LAW 524/5224 - Comparative Corporate Governance (3 cr.)**

#### **Prerequisites**

LAW 5202

#### **Description**

Comparison of how select questions of corporate governance, control, and finance are regulated under American, French, German, and Egyptian corporate law.

This course is offered at irregular intervals. Please contact the Department of Law for information about its availability.

### **LAW 525/5225 - Securities Regulation Law (3 cr.)**

#### **Prerequisites**

LAW 5202

#### **Description**

Legal and institutional framework for the offering, purchase and sale of investment securities under US, EU and Egyptian law, with special attention to national and transnational aspects of securities fraud. This course is offered at irregular intervals. Please contact the Department of Law for information about its availability.

### **LAW 526/5226 - Antitrust Law (3 cr.)**

#### **Prerequisites**

LAW 5202 (Prerequisites can be waived by special permission of the Law department).

#### **Description**

Basic principles of antitrust regulation in the US from the Sherman Act to the present, compared with recent developments in EU law, and with the Egyptian Competition Law. This course is offered at irregular intervals. Please contact the Department of Law for information about its availability.

### **LAW 527/5227 - Graduate Law Seminar (3 cr.)**

#### **Prerequisites**

Permission of the Department. Prerequisites can be waived by special permission of the Law Department.

#### **Description**

Reading, discussion and intensive writing about theory and methodology in law, political theory, and relevant social sciences. This course is a pre-requisite to the Thesis requirement for all students in the LL.M. in International and Comparative Law, and MA in International Human Rights Law. The course targets students who have completed at least nine credits hours toward the degree.

### **LAW 528/5228 - Migration in International Law (3 cr.)**



**Prerequisites**

LAW 5209 and LAW 5210

**Description**

The Arab region experiences mass voluntary and involuntary population movements, driven by various factors including economic reasons, conflict and insecurity, and increasing resource scarcity and environmental change. These movements pose a challenge to regional stability and security unless there are appropriate and integrated national, regional and international responses. A course on Migration in International Law allows students to engage with issues of growing regional and international importance. While the Center for Migration and Refugee Studies offers courses in International Refugee Law and Comparative Migration Law, there is presently no course that introduces the complex and growing area of international law dealing with migration.

**Cross-listed**

Same as MRS 5228.

**LAW 570/5270 - Special Topics in Comparative Law (up to 3 cr.)****Prerequisites**

Permission of the Department. Prerequisites can be waived by special permission of the Law Department.

**Description**

In addition to allowing the resident faculty to give special topics seminars as regular 3 credit courses, this course as well as LAW 5271 and LAW 5272 are used to accommodate the short courses that distinguished visiting lecturers give, with varying credit values depending on the number of hours covered.

**Repeatable**

May be taken more than once for credit if content changes.

**LAW 571/5271 - Special Topics in International Law (up to 3 cr.)****Prerequisites**

Permission of the Department. Prerequisites can be waived by special permission of the Law Department.

**Repeatable**

May be taken more than once for credit if content changes.

**LAW 572/5272 - Special Topics in Public Law (up to 3 cr.)****Prerequisites**

Permission of the Department. Prerequisites can be waived by special permission of the Law Department.

**Repeatable**

May be taken more than once for credit if content changes.

**LAW 585/5285 - Legal Practice (3 cr.)****Prerequisites**

Consent of the instructor.

**Description**

Internship for four to six months in a corporation, law firm practicing in the Middle East, international organization, an NGO pursuing Development activities. The work is assessed on the basis of a written report and discussion.

**LAW 586/5286 - Independent Study**

**Prerequisites**

Consent of the instructor and approval of the Degree Program Director.

**Description**

Guided individual reading and/or research on a subject of mutual interest to the student and the faculty member.

**LAW 599/5299 - Research Guidance/Thesis (no cr., pass/fail)**

**Prerequisites**

LAW 5227

**Description**

To register for the thesis, students normally are expected to have finished all or almost all coursework. Students are expected to be in residence during thesis supervision. Residency requirement can be waived by permission of the thesis supervisor in accordance with Department's policies.

**MGMT 307/3201 - Management Fundamentals (3 cr.)**

**Description**

Aims at acquainting the student with the basic management functions and processes with a focus on planning, organizing, leading and controlling. Stresses how communication, motivation, and teamwork affect the organization, how organizations are managed, and how managers apply their skills and knowledge to meet the organizational objectives. Emphasis on the environmental constraints imposed on the Egyptian manager and applying principles of management in Egyptian enterprises.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MGMT 311/3301 - Business Law (Commercial & Fiscal) (3 cr.)**

**Prerequisites**

BADM 203/2001 - Introduction to Business (3 cr.) or MGMT 307/3201 - Management Fundamentals (3 cr.)

**Description**

The nature, formation, and application of the law. Topics include: law and the Egyptian business environment, contracts, agency, forms of business organization, fiscal policy, taxation, commercial transaction, and governmental regulation of business.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MGMT 404/4202 - Managing the Human Capital (3 cr.)**

**Prerequisites**

MGMT 3201 or BADM 2001

**Description**

This course focuses on dynamics of personality, group dynamics, team building, organization culture, motivation, leadership, and communication, what is the human capital, strategic human resource management, HR planning, job analysis, recruitment, selection, training, development, performance management and compensation.

**When Offered**

Offered Fall and Spring

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MGMT 427/4203 - Organization Development (3 cr.)**

**Prerequisites**

MGMT 3201

**Description**

Inter-group dynamics, organizations as systems, process of organizational development, intervention strategies, organizational diagnosis, team building, structural intervention, behavioral change, resistance to change, and implementation strategies.

**When Offered**

Offered occasionally.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MGMT 470/4402 - Business Consultancy (3 cr.)**

**Prerequisites**

Junior standing & BADM 2001

**Description**

This course aims to equip Business, Accounting and Economics students with the necessary tools to work in the business consulting field. The approach is practical, involving a series of case solving assignments and projects. Additionally, students will be trained on how to communicate their solutions effectively. The key objectives of the course are:

- Learn up-to-date problem solving techniques
- Understand how to use key business fundamentals effectively
- Be able to communicate business consultancy solutions professionally
- Write and publish high-quality case studies
- Learn how to crack cases in a case interview

**MGMT 470/4970 - Special Topics in Management (3 cr.)****Prerequisites**

Prerequisite: Consent of Instructor.

**Description**

Considers selected topics of current relevance in management.

**When Offered**

Offered occasionally.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MGMT 475/4975 - Independent Study in Management (1-3 cr.)****Prerequisites**

Prerequisites: Senior standing and consent of MGMT unit head and chair.

**Description**

Guided readings, research, and discussions on specific selected topic in Management.

**When Offered**

Offered occasionally.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MGMT 502/5202 - Managing Organizations in a Dynamic Environment (3 cr.)**

**Description**

The course aims at acquainting the student with how a leader could manage an organization in a dynamic environment. The course focuses on the main functions of a manager such as planning, organizing, controlling, motivation, team building and with special emphasis on leadership. It emphasizes contemporary and applied management in a global and dynamic environment. It also aims at developing an understanding of the tasks that managers must perform to keep the organization running both effectively and efficiently. In addition, the course emphasizes the environmental constraints imposed on the Egyptian manager and attempts to explore ways of applying the principles of management in Egyptian enterprises.

**Cross-listed**

Same as GREN 5223 .

**When Offered**

Offered in fall and spring.

**MGMT 504/5302 - Managing Human Capital (3 cr.)**

**Prerequisites**

MGMT 5202.

**Description**

This course concentrates on how the human capital in a company can be best managed and utilized. Strategic human resource management is presented. This includes topics such as human resources strategies, human capital, social capital, job analysis, recruitment, selection, human resource development, talent management, strategies for effective performance appraisal systems, compensation, labor law, and positive psychological capital. In addition, positive organizational behavior of employees is discussed. The course also includes a critical analysis of how the concepts in the literature can be applied in the Egyptian context.

**When Offered**

Offered in spring

**MGMT 505/5303 - Organizational Design (3 cr.)**

**Prerequisites**

MGMT 5202 or equivalent.

**Description**

The course covers topics like strategy and structure, vertical and horizontal integration, structural options, process of organizational design, the concept of fit, designing jobs and organizational units and control elements in the design of organizations.

**When Offered**

Offered occasionally.

**MGMT 506/5304 - Management of International Business Organizations (3 cr.)**

**Prerequisites**

BADM 5310

**Description**

In this course, attention is given to principles, practices, and problems of managing international business activities, entry decision, supply strategy, ownership and control, labor and legal issues, and the financial and management implications of conducting business in foreign countries. The course covers topics such as world politics and how they come to bear on international business decisions, cultural differences and communication, trade regimes and institutions and global technological trends and diffusion.

**When Offered**

Offered occasionally.

**MGMT 509/5306 - Leadership (3 cr.)**

**Prerequisites**

BADM 5310

**Description**

This course reviews the procedures, styles and methods of leadership in both theory and practice. Students will review the personal, relationship and organizational side of leadership as well as the leader as a social architect. At the completion of this course students will develop and acquire the necessary skills to become effective leaders through examples of real world leadership.

**When Offered**

Offered occasionally.

**MGMT 510/5307 - Entrepreneurship and Innovation (3 cr.)**

**Description**

Innovation lies at the heart of economic growth in the modern world. Entrepreneurs with the ability and resourcefulness to establish their own business are critical to the process of innovation. Innovation is not just about starting a new business but it is also about creating and developing innovative ways of management. Whether you are thinking of starting a new venture or developing innovative mechanisms of management in a large organization, you will need to understand Entrepreneurship and Innovation.

This course takes students through the various aspects of starting, managing, and growing a business. Whether you want to start a new venture, a new project, or develop an innovative way of management. You will need to write a business plan? This course will teach you how to write a business plan, its benefits and how does it differ from a feasibility study.

Opportunity identification, clear business and market definition, segmentation, and entry, building a team and creating a suitable organizational form, avoiding common pitfalls, and various strategies for starting or growing a business , are among the numerous facets of entrepreneurship covered in the course.

Methods employed include individual and group case analysis, writing a business plan, interviews with, and talks by, entrepreneurs, and profiling of successes and failures.

**Cross-listed**

Same as ECNG 5274 /GREN 5204

**When Offered**

Offered in fall and spring.

## **MGMT 511/5308 - Strategic Management of Innovation (3 cr.)**

### **Prerequisites**

BADM 5310

### **Description**

Innovation is regarded as a critical source of competitive advantage in an increasingly changing environment. Innovation is production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. This course will study the theory and practice of innovation as a process and an outcome based on a comprehensive model of innovation which consists of three determinants: innovation leadership, managerial levers and business processes. The course will examine the impact of accelerating innovation on cost, product quality and marketability; organizational changes required to couple R&D with marketing and commercialization; and the managerial skills and professional expertise needed to develop a sustainable innovation practice within an organization.

### **Cross-listed**

Same as GREN 5222 and ECNG 5273 .

## **MGMT 517/5309 - Technology and Innovation Management (3 cr.)**

### **Prerequisites**

Core requirements met and consent of instructor.

### **Description**

This is a case based course drawing on best practices in industry and the most up to date and important general management technology and innovation management academic material. Students should be prepared to discuss major technology issues covered in the readings each class. This course is designed to develop strong technology management skills to help managers make good decisions in regard to technology strategy and implementation of technology within their firms. This course is designed to develop general managers with strong abilities to lead in various technological environments and manage the innovation process and projects across and within their own function effectively.

### **Cross-listed**

Same as ECNG 5272 .

## **MGMT 570/5370 - Selected Topics in Management (3 cr.)**

### **Prerequisites**

BADM 5310

### **Description**

It considers selected topics of current relevance in Management.

### **When Offered**

Offered occasionally.

## **MGMT 575/5375 - Independent Study in Management (1-3 cr.)**

### **Prerequisites**

Prerequisite: Consent of MGMT unit head and chair.

### **Description**

Guided readings, research, and discussions on specific selected topic in Management.

### **When Offered**

Offered occasionally.

## **MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)**

### **Description**

This course is an introduction to information systems/technology and its applications for business students. The course explores the computer base applications in the major functional areas of business including accounting, finance, marketing, production, and personnel. It aims at the development of computer end-users and systems managers through a comprehensive coverage of business processes, systems concepts, systems types, applications software, database concepts, electronic commerce and competitive advantage.

### **When Offered**

Offered in fall and spring.

### **Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)**

### **Prerequisites**

MOIS 2101 .

### **Description**

The course aims at defining a framework of management information systems with emphasis on the organization. It relates to a number of important organizational aspects such as the human and technological infrastructure and the needs and requirements of an organizational information system. The course also covers the relational database model, with special emphasis on the design and querying of relational databases and exploration of the relationship of database to the rest of the system.

### **When Offered**

Offered in fall and spring.

### **Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **MOIS 435/3301 - Entrepreneurial IT and Electronic Business (3 cr.)**



**Prerequisites**

MOIS 2101

**Description**

This course provides an introduction to the basics of modern business in a networked environment which is changing the landscape of business operation. The course focuses on the important electronic business issues with a broad understanding of the concepts, technologies, tools, techniques and strategies associated with electronic business, students learn how to exploit the business development potentials of the new information based society and how to develop simple IT solutions to some of the most significant business problems. Hence, students get to exercise needs finding methods, brainstorming and concept creation, understanding and interpreting IT business needs, analysis and feasibility, basic prototyping and market assessment.

**When Offered**

Offered in fall &amp; spring.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MOIS 466/3401 - Human Computer Interaction (HCI) (3 cr.)****Prerequisites**

MOIS 2101

**Description**

This course provides a business-oriented approach to Human Computer Interaction (HCI). It merges theories and concepts with methods of design, evaluation, and implementation of any interactive business system such as enterprise resource planning (ERP), organizational decision support, project management, and other business applications. HCI combines educational and cognitive psychology, business administration, as well as ergonomics and computer science in designing the business system that can greatly increase productivity, help in decision making and gain marketing advantages. Students do not only study the theory and principles of HCI design, but also design an interactive system that enables the users to do tasks quickly and work in an environment of proficiency and satisfaction.

**MOIS 423/3501 - Geographic Information Systems (GIS) (3 cr.)****Prerequisites**

MOIS 2101

**Description**

This course provides an introduction to the use of the geographic information systems (GIS) and its applications for business decision support. It builds working knowledge and skills in applying and managing GIS by focusing on business and people related issues. Students learn to set up geo-referenced databases, to design maps, to analyze data, to extract information. This course exposes students to the functional areas in the technology management stream and gives them a practical hands-on experience for business applications. By the end of the class students will have mastered sufficient introductory concepts and practical skills to use GIS for business decision making improvement.

**MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.)**

**Prerequisites**

MOIS 2101

**Description**

This course will demonstrate in the real environment managerial applications such as the basics of the MS SQL data mining and will provide the knowledge about the possibilities of Business Intelligence (BI) use. It will examine the BI tasks management, critical success factors of BI, planning and analysis design and modeling design, development and implementation of information technology based systems that support managerial and professional work, including Communications-Driven and Group Decision Support Systems (GDSS), Data-Driven DSS, Model-Driven DSS and Knowledge-Driven DSS.

**When Offered**

Offered in fall &amp; spring.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MOIS 433/3701 - Marketing Information Systems (3 cr.)****Prerequisites**

MOIS 2101

**Description**

This course focuses on the issues relating to the management and use of information systems in order to support marketing management decision-making with emphasis on the areas of products, pricing, distribution, promotion, systems analysis, and functional information systems. Students learn the importance of: (1) developing an effective data base; (2) conducting marketing research studies; (3) creating a marketing plan; (4) using data mining techniques to extract data from data warehouses and build prognostic models and (5) incorporating technology tools to develop marketing information systems and decision support systems.

**When Offered**

Offered in fall &amp; spring.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MOIS 434/3702 - Financial Information Systems (3 cr.)****Prerequisites**

MOIS 2101

**Description**

The content of this course will vary to keep pace with changing business needs and information technologies that is an integral part of any business aspect in Finance. Topics to be covered will apply the theoretical concepts taught in Finance by practically using advanced information systems approaches.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the

Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

### **MOIS 444/3703 - Accounting Information Systems (3 cr.)**

#### **Prerequisites**

MOIS 2101

#### **Description**

This course focuses on application of information systems/information technology in the fields of accounting. It starts with the conceptual foundations of accounting information systems and information technology in general and covers control and audit. It also focuses on accounting information systems applications and explores the computerization of the traditional transaction processing cycles in detail. It requires the students to use their knowledge in accounting to analyze and design an accounting information systems.

#### **When Offered**

Offered occasionally.

#### **Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

### **MOIS 450/3801 - Strategic Information Systems (3 cr.)**

#### **Prerequisites**

MOIS 2101

#### **Description**

The course aims to provide students with an understanding of the links between the strategic issues of the organization and the role and implications of management information systems. The course focuses on the strategic impacts different information systems can have on productivity, performance, competitiveness and organizational growth.

#### **When Offered**

Offered occasionally.

### **MOIS 430/4202 - Business Information Systems Analysis and Development (3 cr.)**

#### **Prerequisites**

MOIS 3201

#### **Description**

The Course emphasizes various elements related to business information systems analysis and development in the new digital economy. Doing business is not as usual as before with the use of innovative information and communication technology tools and techniques and this course intends to introduce students to the opportunities enabled by various business information systems within the information economy.

#### **When Offered**

Offered in spring.

#### **Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

### **MOIS 477/4704 - Big Data and Predictive Analysis (3 cr.)**

#### **Prerequisites**

MOIS 3201 and MACT 2222 and CSCE 1101

#### **Description**

This course examines information management in the context of massive sets of data, provides students proficiency with a variety of data analysis tools, and exposes learners to varied data platforms as well as skills and concepts related to data mining and statistical analysis within a business context. The focus of the course is on the wide range of technologies available today as well as the methodologies of data analytics for solving Big Data problems. This course explores the role of business analytics in supporting decision making and setting strategies at the highest levels. Students will be exposed to the analytical skills needed to turn big data into a strategic resource. Students will work on application areas that create or use big data and will be expected to work on relevant projects mainly focusing on the 5 key Big Data use cases: Big Data exploration, enhanced 360 view of the customer, security/intelligence, extension, operations analysis, and data warehouse augmentation.

### **MOIS 470/4970 - Special Topics in Management of Information Systems (3 cr.)**

#### **Prerequisites**

Prerequisite: Consent of Instructor.

#### **Description**

Considers selected topics of current relevance in management of information systems.

#### **When Offered**

Offered occasionally.

#### **Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

### **MOIS 475/4975 - Independent Study in Management of Information Systems (1-3 cr.)**

#### **Prerequisites**

Prerequisites: Senior standing and consent of MOIS unit head and chair.

#### **Description**

Guided readings, research, and discussions on specific selected topic in Management of Information Systems.

#### **When Offered**

Offered occasionally.

#### **Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the

Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

### **MOIS 499/4999 - Internship and Graduation Project (3 cr.)**

#### **Prerequisites**

Completion of all MOIS core courses.

#### **Description**

The course offers the students the opportunity to participate in real-life work experience in the IS/IT field. Students in collaboration with the MOIS unit will be responsible for their own placement in an internship approved by the advisor. The internship report details everything the student did during the internship. Additionally each student will be able to analyze the business processes' current performance, identify problems, and suggest solutions by applying foundations of information technologies and to be able employ appropriate methodologies to achieve the designed improvements. Students should submit a plan followed by progress reports and finally deliver the thesis project document and presentation of the findings.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Enrollment in courses is limited, and priority is given to students seeking the Bachelor of Business Administration in Management of Information Systems (MICT) degree or any other student who completed the prerequisite of all other MOIS courses.

### **MOIS 508/5201 - Information and Communication Technology in Business (3 cr.)**

#### **Description**

Today's electronic means, computing, networks and software applications have become an integral part of business. The premise of the course is that adequate knowledge of technology is now a prerequisite for a successful business owner or manager. This course is intended to provide a basic technical literacy, with an emphasis on implications for organizations. The technical component of the course includes data and voice communication networks, database structures as a significant tool for managing information, artificial intelligence, business intelligence, data modeling, data integration, data warehousing and data mining, as well as information support systems design, and computer security.

#### **When Offered**

Offered in fall and spring.

### **MOIS 549/5301 - Systems Analysis, Design, and Implementation (3 cr.)**

#### **Prerequisites**

BADM 5310

#### **Description**

The objective of the course is to improve understanding of how information technologies can help in the transformation of business models within existing organizations as well as the development of completely new business models and new organizational practices. Hence, the purpose of the course is twofold. The course is first and foremost an intensive, integrative, project course in which student teams create one or more real business models. Second, the course provides

students with the experience of Working with different tools and techniques in systems analysis and design. The students study the systems development life-cycle emphasizing current techniques for documenting users' requirements and producing maintainable, cost effective systems. The project experience helps the team members learn key tools and fundamentals useful in modeling, problem solving, and design.

**When Offered**

Offered in fall and spring.

**MOIS 550/5302 - Decision Support Systems (3 cr.)**

**Prerequisites**

BADM 5310

**Description**

The primary goal of this course is to allow the student to comprehend and explore the significant issues in automating business decision support at various levels. The amount of data collected by businesses has not only grown exponentially in the last few years but has also witnessed a major expansion in enabling technologies such as database systems, data-mining techniques, client-server and cloud computing as well as artificial intelligence. The course covers the above topics and overviews Some of the most Widely used decision support techniques (such as decision trees, genetic algorithms and neural networks), cloud computing and business intelligence techniques as well as decision support applications (such as in management, trade, marketing strategies and customer support) via simulated decision cases and real datasets.

**When Offered**

Offered occasionally.

**MOIS 551/5303 - Electronic Business: Doing Business in the Digital Economy (3 cr.)**

**Prerequisites**

BADM 5310

**Description**

This course considers how we can take advantage of new technology opportunities and how they change the structure of firms, industries and value chains, with an emphasis on business issues. It focuses on new market trends in e-Business and the entrepreneurial virtual businesses that are more on the Web. It deals with Electronic Markets and Market structures and the strategic uses of information within the firm it covers several essential topics in information strategy such as IT and market structure, the impact of IT on knowledge-intensive products and services. Students may compete in simulated electronic markets, using different market mechanisms and formulate information-based strategies.

**When Offered**

Offered occasionally.

**MOIS 000/5304 - Integrated Technologies and Big Data (3 cr.)**

**Prerequisites**

OPMG 5201 and MOIS 3201 (or equivalent)

**Description**

In this course, we will look at the phenomenon of big data from multiple perspectives: practical, theoretical, statistical, etc. Possible solutions to the problem of big data involve compression, mining, cleaning, database design, visualization, interface design, security, etc. Specifically, this course examines information management in the context of massive sets of data, provides students proficiency with a variety of data analysis tools, and exposes learners to varied data platforms as well as skills and concepts related to data mining and statistical analysis within a business context.

Typically, the data mining process is not complete until the results that are produced are predictive to allow for adequate insight into the business. Topics may include: uses of data mining, data mining algorithms, Market Basket Analysis, data cleaning, data visualization and predictive analysis tools and techniques. Students will work on application areas that create or use big data and will be expected to work on relevant projects and to give presentations (mainly focusing on the 5 key Big Data use cases: Big Data exploration, enhanced 360o view of the customer, security/intelligence, extension, operations analysis, and data warehouse augmentation)

Team-teaching: The academic professor is responsible for all issues related to the delivery and administration of academic content and course work. The industry representative will assist the academic professor in the planning, delivery and assessment of the practical work which may represent up to 50% of the course load.

**MOIS 555/5305 - Information Technology Strategy and Entrepreneurship (3 cr.)****Prerequisites**

BADM 5310

**Description**

Information is an integral part in organizational success paralleling the importance of its technology component. This course focuses on the intersection of IT strategy and the entrepreneurial business. It considers how one can take advantage of new technology opportunities and how they change the structure of firms, industries and value chains, with an emphasis on business issues. Topics include user needs, appropriate technology design, rapid prototype design and testing, social technology entrepreneurship, business modeling, and project management. Case studies are an integral part of the course. Classes combine lecture and case study discussions and the workload should include a project. Where students apply IT and business skills to design product or service prototypes, distribution systems or a business plan for entrepreneurial ventures that meet today's World challenges.

**When Offered**

Offered occasionally.

**MOIS 570/5370 - Advanced Topics (Next Generation Technologies) (3 cr.)****Prerequisites**

BADM 5310

**Description**

Conducting business in a networked economy invariably involves interplay with technology. The purpose of the course is to explore a number of next generation technologies, the business drivers of technology-related decisions in firms, and to stimulate thought on emerging applications for commerce (including disruptive technologies). The course provides an overview of various evolving technologies and culminates in discussion of potential business impact of these technologies in the near future.

**When Offered**

Offered occasionally.

## **MOIS 575/5375 - Independent Research in Management of Information Systems/Technology (1-3 cr.)**

### **Prerequisites**

Consent of MOIS unit head and Director of MBA Program.

### **Description**

Using the theoretical and practical skills acquired, students will be asked to conduct an in-depth study of an organization from an IT/IS perspective. Students should be using different resources available including material discussed in different courses, case studies, and textbooks but more importantly investigating different issues addressed with public and/or private sector organizations. A supervisor will be assigned to each student to guide him/her throughout the research process.

### **When Offered**

Offered occasionally.

## **MKTG 302/2101 - Principles of Marketing (3 cr.)**

### **Description**

The nature and scope of marketing. Marketing systems and the marketing environment, definition of a market, market segmentation, and buyer behavior. The marketing mix: product, place, price, and promotion. Marketing research and marketing information systems. The application of these topics to the Egyptian environment constitutes an important part of the study. Some of the class discussions and projects will incorporate entrepreneurial issues in Marketing.

### **When Offered**

Offered in fall and spring.

### **Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **MKTG 405/3201 - Marketing Research (3 cr.)**

### **Prerequisites**

MKTG 2101 AND (MACT 3224 or MACT 2222 or MACT 1221)

### **Description**

The nature and scope of marketing research. The scientific method and its application in the field of marketing, research design, basic methods of collecting data, marketing research procedures, applications of marketing research.

### **When Offered**

Offered in fall and spring.

### **Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **MKTG 410/3202 - Consumer-Buyer Behaviour (3 cr.)**



**Prerequisites**

MKTG 2101

**Description**

Buyer behavior relevant to marketing decisions. Theoretical and practical implications of individual behavioral variables such as motivation, learning, perception, personality and attitudes, and group influences. Buyer behavior analyzed in terms of decision-making processes and models of individual and aggregate behavior. Special attention given to consumer behavior in the Middle East.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MKTG 408/3301 - Marketing Communications Management (3 cr.)****Prerequisites**

MKTG 2101

**Description**

An introduction to marketing communications, covering advertising, sales promotion, personal selling and public relations. The design, management and integration of an organization's marketing communications strategy.

**When Offered**

Offered fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MKTG 420/4203 - Advanced Marketing Research (3 cr.)****Prerequisites**

MKTG 3201

**Description**

This course is designed to strengthen students' abilities to perform marketing research at a level superior to that of most marketing graduates worldwide. The topics offered will be chosen with particular emphasis on their value to Egyptian and regional organizations. Such topics include the qualitative techniques-focus groups, long interviews, and participant observation; and advanced widely-accepted quantitative statistical techniques for marketing decision making.

**When Offered**

Offered occasionally.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **MKTG 416/4302 - E-Marketing (3 cr.)**

### **Prerequisites**

MKTG 2101

### **Description**

Principles, best practices, and hands-on applications of E-Marketing. The course is designed to hone skills in E-Marketing, including developing a comprehensive E-Marketing plan and creating an interactive website.

### **When Offered**

Offered occasionally.

### **Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **MKTG 418/4303 - Principles of Public Relations (3 cr.)**

### **Prerequisites**

MKTG 2101

### **Description**

An overview of the public relations profession in the Middle East. Public-relations principles and techniques, current public relations problems, possible solutions.

### **When Offered**

Offered occasionally.

### **Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **MKTG 411/4401 - Professional Selling (3 cr.)**

### **Prerequisites**

MKTG 2101

### **Description**

Professional selling skills, analyzing advantages and challenges of a sales career, and most desired characteristics of successful sales people. The course explains the buying process, buying systems, and procedures and how the making of each customer type has an impact on the sales process. The course walks students through all the steps of the selling and post sale activities.

### **When Offered**

Offered occasionally.

### **Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **MKTG 414/4501 - Services Marketing (3 cr.)**

### **Prerequisites**

MKTG 2101

### **Description**

An elective marketing course for undergraduate students seeking greater understanding of devising and delivering services to world-class standards. The course deals with identifying service quality from the customer's perspective, designing effective service products, designing effective service delivery systems, and implementing service quality control features suitable to the Egyptian environment.

### **When Offered**

Offered occasionally.

### **Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **MKTG 412/4601 - International Marketing (3 cr.)**

### **Prerequisites**

MKTG 2101

### **Description**

The marketing problems and opportunities of the exporter, licensor, or manufacturer in a foreign country. Topics include factors in assessing world marketing opportunities and the international marketing mix.

### **Cross-listed**

Same as INTB 4601.

### **When Offered**

Offered occasionally.

### **Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

## **MKTG 480/4602 - Marketing Strategy (3 cr.)**

### **Prerequisites**

MKTG 3201 ,MKTG 3202 FINC 2101 and Senior standing.

### **Description**

An integrative capstone course for students seeking a marketing specialization. Provides a transitional experience between the marketing concepts and techniques introduced in prior courses and the practice of marketing in real-world business situations. Students learn to integrate the various elements of marketing and the other functional areas of business and develop critical decision-making abilities in strategic marketing in the context of a rapidly changing marketplace.

### **When Offered**

Offered in fall and spring.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MKTG 470/4970 - Special topics in Marketing (3 cr.)****Prerequisites**

MKTG 2101

**Description**

Considers selected topics of current relevance in marketing.

**When Offered**

Offered occasionally.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MKTG 475/4975 - Independent Study in Marketing (1-3 cr.)****Prerequisites**

Prerequisites: Senior standing and consent of MKTG unit head and chair.

**Description**

Guided readings, research, and discussions on specific selected topic in Marketing.

**When Offered**

Offered occasionally.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**MKTG 470/4034 - Strategic Brand Management (3 cr.)****Prerequisites**

MKTG 2101

**Description**

In the Global World we are in today, the long term survival and sustainability is linked to how well Brands will perform. This means that Brands Building and Brand Management are crucial today. The savvy company must develop, manage, sustain, and eventually nourish a Distinctive Brand for its target customers.

This course will examine the different factors that lead to building equity to a brand. Also, the many factors that should be considered to develop, manage, sustain and nourish a given brand will be reviewed and analyzed. Also, several parts of this course will shed the lights on measuring brand equity with special emphasis on real life case studies.

## **MKTG 520/5201 - Marketing Management (3 cr.)**

### **Description**

Highlights the role of marketing as a process for creating value and managing customer relationships. The course addresses the marketing challenge of designing and implementing the best combination of marketing variables to carry out a firm's strategy in its target markets. Further, this course seeks to develop the student's skills in applying the analytic perspectives and concepts of marketing to such decisions as: segmentation, targeting, positioning, branding, pricing, distribution and promotion. The goal is to understand how the firm can benefit by creating and delivering value to its customers and stakeholders. The new role of marketing is emphasized including: stakeholder marketing, internal marketing, social marketing, customer relationship management and other recent trends in the market. This course takes an analytical approach to the study of marketing problems of for-profit and not-for-profit organizations.

### **Cross-listed**

Same as GREN 5221

### **When Offered**

Offered in fall and spring.

## **MKTG 521/5301 - Marketing Research Methods (3 cr.)**

### **Prerequisites**

BADM 5310

### **Description**

This course highlights the importance of using a variety of marketing research methods in making marketing decisions. This course is designed to offer an understanding of the market research process through coverage of the steps comprising the process from defining the research problem, to developing an approach, to formulating a research design, to data collection, analysis, and conclusions. The course takes on an applied orientation in covering the research process. The course examines the proper use of statistical applications, with an emphasis on the interpretation and use of results. The course describes the process of acquiring, classifying and interpreting primary and secondary marketing data needed for intelligent, profitable marketing decisions. It also covers recent developments in the systematic recording and use of internal and external data needed for marketing decisions.

### **When Offered**

Offered occasionally.

## **MKTG 524/5304 - Global Marketing (3 cr.)**

### **Prerequisites**

BADM 5310

### **Description**

This course covers the environmental, organizational, and financial aspects of international marketing. It also describes the special marketing research, pricing, channels of distribution, product policy, and communication issues which firms face doing business in international markets. Further, this course examines the cultural, behavioral and legal challenges of entering and doing business in foreign markets. Decisions must be made regarding international marketing objectives, strategies and policies, foreign market selection, adaptation of products, and distribution channels of communications to fit each foreign market.

### **When Offered**

Offered occasionally.

## **MKTG 526/5305 - Integrated Marketing Communication (3 cr.)**

### **Prerequisites**

BADM 5310

### **Description**

This course focuses on a fully integrated approach to the marketing communication of products and services and on the major marketing communication decisions made by brand/communication managers. These decisions include mass media advertising, public relations, sales promotion, direct response marketing, sponsorship and events, packaging, and personal selling. This course is designed to provide students with both a theoretical and applied understanding of how marketing communication messages are created to positively impact customer relationships and brands.

### **When Offered**

Offered occasionally.

## **MKTG 530/5306 - Strategic Marketing (3 cr.)**

### **Prerequisites**

BADM 5310

### **Description**

The course addresses the relationship of marketing to environmental forces and other business functions. Principal topics include resource allocation, market entry/exit decisions, and competitive analysis. The course stresses on the analysis, planning, and implementation issues marketing managers encounter when they develop market strategies in competitive environments. This is done by case analysis of marketing problems and examining current developments in marketing practice. Topics include a focused review of competitor analysis, buyer analysis, market segmentation, and assessing business competitive advantages. Product portfolio issues are identified and marketing strategies developed, assessed and implemented.

### **When Offered**

Offered occasionally

## **MKTG 000/5307 - Strategic Brand Management (3 cr.)**

### **Prerequisites**

BADM 5310

### **Description**

In the Global World we are in today, the long term survival and sustainability is linked to how well brands will perform. This means that Brands Building and Brand Management are crucial today. The savvy company must develop, manage, sustain and eventually nourish a Distinctive Brand for its target customers. This course will examine the different factors that lead to building equity to a Brand. Also, the many factors that should be considered to develop, manage, sustain, and nourish a given brand will be reviewed and analyzed. Also, several parts of this course will shed the lights on measuring brand equity with special emphasis on real life case studies.

## **MKTG 570/5370 - Contemporary Topics in Marketing (3 cr.)**

### **Prerequisites**

BADM 5310

**Description**

Recent topics in marketing.

**When Offered**

Offered occasionally.

**MKTG 575/5375 - Independent Study in Contemporary Topics in Marketing (1-3 cr.)**

**Prerequisites**

Consent of MKTG unit head and Director of MBA Program.

**Description**

Readings and research on recent topics in marketing.

**When Offered**

Offered occasionally.

**MACT 100/1111 - Algebra and Trigonometry (3 cr.)**

**Prerequisites**

Prerequisites: Thanawia 'Amma Arts or equivalent.

**Description**

.Linear and quadratic equations, graphs, the circle, the rectangular hyperbola. Exponential and logarithmic functions, trigonometric functions. Systems of equations. Complex numbers. Roots of equations, zeros of polynomials. Binomial theorem, arithmetic and geometric series.

**When Offered**

Offered in fall and spring

**Notes**

No credit for Thannawia Amma Math/Science students, or equivalent, or students majoring in any of the departments of the School of Sciences and Engineering

**MACT 101/1112 - Basic Mathematics for Social Sciences (3 cr.)**

**Prerequisites**

Prerequisite: Thanawia 'Amma Science or .MACT 1111 .

**Description**

Fundamentals of algebra. Equations and inequalities. Matrices. Introduction to differential and integral calculus.

**When Offered**

Offered occasionally.

**Notes**

No credit for science majors

**MACT 131/1121 - Calculus I (3cr.)**

**Prerequisites**

Thanawiya 'Amma Science or equivalent

**Description**

Limits of one-variable functions, continuity and differentiability. Differentiation of Trigonometric functions. Extrema and Curve sketching. Related rates. Linear approximation. Applications of the derivative.

Students cannot take both MACT 1121 and ECON 2061 for credit.

**When Offered**

Offered in fall and spring.

**MACT 132/1122 - Calculus II (3 cr.)****Prerequisites**

MACT 1121 or exemption.

**Description**

Definite and indefinite integrals. The fundamental theorem of calculus and applications of the definite integral, including areas and volumes of revolution. Differentiation and integration of transcendental functions, including exponential, logarithmic, inverse trigonometric and hyperbolic functions. Techniques of integration. Numerical integration. Improper integrals.

**When Offered**

Offered in fall and spring.

**MACT 112/1221 - Statistical Reasoning (3 cr.)****Description**

Descriptive and inferential statistics, including graphing data and correlation analysis. Random variables and their probability distributions. The distribution of the sample means, the central limit theorem. Point and interval estimation and hypotheses testing. Students are instructed on the use of a statistics computer package at the beginning of the term and use it for assignments.

**When Offered**

Offered in fall and spring.

**Notes**

Students can not take both MACT 1221 and for credit.MACT 2222

**MACT 199/1930 - Selected Topic for Core Curriculum (3 cr.)****Description**

A course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered in fall and spring.

**MACT 231/2123 - Calculus III (3 cr.)**



**Prerequisites**

MACT 1122

**Description**

Sequences and series, including convergence tests and Taylor series. The 3D space, vectors, lines and planes. Partial differentiation and applications. Introduction to double integrals (including double integrals in polar coordinates).

**When Offered**

Offered in fall and spring.

**MACT 232/2124 - Calculus IV (3 cr.)**

**Prerequisites**

MACT 2123

**Description**

Further applications of integration including arc length and areas of surfaces of revolution. Parametric equations and the calculus of vector-valued functions. Triple integrals, cylindrical and spherical coordinates. Vector fields, the theorems of Green, Gauss and Stokes and their applications. Introduction to complex numbers.

**When Offered**

Offered in fall and spring.

**MACT 200/2131 - Discrete Mathematics (3 cr.)**

**Prerequisites**

MACT 1121 (concurrent or exemption)

**Description**

**Logic and Proofs:** Basic propositional and predicate logic, rules of inference, direct and indirect proof methods (including contraposition and contradiction). **Sets:** Set operations, functions, sequences and finite series, infinite cardinalities, and matrices. **Integers:** divisibility and modular arithmetic, primes and the Fundamental Theorem of Arithmetic, the greatest common divisor, proofs by regular and strong mathematical induction. **Combinatorics:** Permutations and combinations, the Pigeonhole Principle. **Relations and their properties,** representing relations using Boolean matrices and digraphs, equivalence relations.

**When Offered**

Offered in fall and spring.

**MACT 240/2132 - Linear Algebra (3 cr.)**

**Prerequisites**

MACT 2123

**Description**

Solutions of systems of linear equations. Matrices and determinants. The space  $R^n$ , vector spaces and subspaces. Linear independence, basis and dimension. Inner product and orthonormal bases. Linear transformations. Eigenvalues and eigenvectors. Diagonalization. Various applications.

**When Offered**

Offered in fall and spring.

**MACT 233/2141 - Differential Equations (3 cr.)****Prerequisites**

MACT 2123

**Description**

First-order differential equations and applications. Higher-order differential equations. Applications of second-order linear differential equations with constant coefficients. Systems of linear differential equations. Series solutions. Laplace transform.

**When Offered**

Offered in fall and spring.

**MACT 210/2222 - Statistics for Business (3 cr.)****Description**

The course aims at acquainting the students with the basic statistical methods in a business context. The course demonstrates the relevance of the statistical methods in making decisions in the different areas of business: accounting, finance, human resource management, marketing, operations, management of information systems, and more. The course covers the following: descriptive statistics, random variables and continuous probability distributions, sampling distributions, estimation and confidence intervals, one-sample hypothesis testing, inferences from two samples, Chi-Square tests, analysis of variance and simple linear regression.

**When Offered**

Offered in fall and spring.

**Notes**

Students can not take both MACT 1221 and MACT 2222 for credit.

**MACT 362/3133 - Formal and Mathematical Logic (3 cr.)****Prerequisites**

MACT 2131 or PHIL 2010 or consent of the instructor.

**Description**

Introduction to the goals and methods of mathematical logic. Propositional and predicate calculus (first order logic) are presented in detail. Goedel's completeness and incompleteness theorems, and some of the philosophico-mathematical problems in set theory, and alternative logics are discussed.

**When Offered**

Offered occasionally.

**MACT 305/3142 - Introduction to PDE and Boundary-Value Problems (3 cr.)****Prerequisites**

MACT 2141

**Description**

Special functions. Partial differential equations. Fourier series and integrals. Diffusion, potential and wave equations in rectangular, cylindrical, and spherical coordinates. Numerical methods.

**When Offered**

Offered occasionally.

**MACT 304/3143 - Numerical Methods (3 cr.)**

**Prerequisites**

CSCE 1001 MACT 2141 and MACT 2132 . Any of them can be taken concurrently.

**Description**

Number systems and errors. Solution of nonlinear equations. Interpolation. Systems of linear equations. Approximation. Differentiation and integration. Solution of ordinary differential equations. Introduction to the solution of partial differential equations by finite differences.

**When Offered**

Offered once a year.

**MACT 308/3144 - Linear Programming (3 cr.)**

**Prerequisites**

MACT 2132

**Description**

Formulation of linear programming problems, graphical solutions, the simplex method. The revised simplex method, dual problems and sensitivity analysis. Transportation and assignment problems.

**When Offered**

Offered occasionally.

**MACT 310/3145 - Operations Research (3 cr.)**

**Prerequisites**

MACT 2123

**Description**

Network flows, minimal- cost network flows, maximal-flow problems. Critical-path methods and PERT. Non linear programming. Deterministic and probabilistic inventory theory. Deterministic and probabilistic dynamic programming.

**When Offered**

Offered occasionally.

**MACT 306/3211 - Applied Probability (3 cr.)**

**Prerequisites**

MACT 2123 or concurrently.

**Description**

Sample space, probability axioms, combinatorial techniques, conditional probability, independence and Bayes' theorem. Random variables. Distribution functions, moments and generating functions. Some probability distributions. Joint distribution, the Chebychev inequality and the law of large numbers. The central limit theorem and sampling distributions. Applications of probability in the social, biological, and engineering sciences.

**When Offered**

Offered once a year.

**MACT 307/3223 - Statistical Inference (3 cr.)**

**Prerequisites**

MACT 3211

**Description**

Sampling distribution. Point and interval estimation, methods of moments and MLE. Hypothesis testing, Uniformly Most Powerful (UMP), generalized likelihood ratio tests and order statistics.

**When Offered**

Offered once a year.

**MACT 317/3224 - Probability and Statistics (3 cr.)**

**Prerequisites**

MACT 231/2123 - Calculus III (3 cr.) or concurrently

**Description**

A course in probability and statistics designed for computer science and engineering students. Probability is used to construct parametric models that often arise in computer science and engineering problems. Statistics is then used to estimate the parameters of these models based on available data, check the adequacy of the fitted models, and test specific hypotheses. Topics include random variables and their probability distributions including uniform, binomial, geometric, Poisson, normal, and exponential distributions; expected value of functions of random variables; stochastic simulation; sampling distributions; maximum likelihood and least squares methods of estimation; statistical inference including hypothesis testing and interval estimation.

**When Offered**

Offered in fall and spring.

**Notes**

Students can neither take both MACT 3211 and MACT 3224 for credit nor can they take both MACT 3223 and MACT 3224 for credit.

**MACT 321/3311 - Introduction to Financial Mathematics (3 cr.)**

**Prerequisites**

MACT 2123 or concurrently.

**Description**

The most commonly used mathematical functions for computing interest and discount rates are discussed. This includes simple, compound, and other forms of interest used in financial valuations, accumulated value and present value, annuities, sinking funds, amortization of debt, and determination of yield rates on securities. The theory developed in the first part of the course is then applied to the valuation of bonds, mortgages, capital budgeting, depreciation methods, and other financial instruments. Zero-coupon bond, term structure of interest rates, coupon bonds, modified and Macaulay durations, convexity.

**When Offered**

Offered once a year.

**MACT 301/3940 - Seminar in Mathematics (1 cr.)**

**Prerequisites**

Prerequisite: junior standing

**Description**

Weekly one hour seminar in different areas of Mathematics to be given by faculty or invited speakers from industries and other scientific communities.

**When Offered**

Offered occasionally.

**MACT 401/4125 - Complex-Function Theory (3 cr.)**

**Prerequisites**

MACT 2124

**Description**

The complex plane, analytic functions. Cauchy-Riemann equations. Elementary functions, complex integration. Cauchy's theorem, Cauchy integral formula. Taylor and Laurent series. The calculus of residues.

**When Offered**

Offered once a year.

**MACT 431/4126 - Real Analysis I (3 cr.)**

**Prerequisites**

MACT 2131 ,MACT 2124 or consent of instructor.

**Description**

Heine-Borel and Bolzano-Weierstrass theorems. Sequences and series. Continuity. Differentiability.

**When Offered**

Offered once a year.

**MACT 432/4127 - Real Analysis II (3 cr.)**

**Prerequisites**

MACT 4126

**Description**

Riemann-Stieltjes integral. Sequences and series of functions. Lebesgue integral. Hausdorff measure and dimension. Linear spaces and functions.

**When Offered**

Offered occasionally.

**MACT 403/4134 - Modern Algebra (3 cr.)****Prerequisites**

MACT 2131 ,MACT 2132 , or consent of instructor.

**Description**

Sets, integers, groups. Integral domains. Fields. Rings and ideals. Homomorphisms. Quotient groups and quotient rings.

**When Offered**

Offered once a year.

**MACT 440/4135 - Graph Theory (3 cr.)****Prerequisites**

MACT 2131 , and either MACT 3211 ,MACT 3224 or consent of instructor.

**Description**

Set-theoretic definition of a graph. Bipartite graph, directed acyclic graph, and tournament. Matchings, Hall's Theorem and Berge's Theorem, as well as the algorithms of Prim, Dijkstra, Kruskal, and Ford-Fulkerson. Trees, connectivity and Menger's Theorem. Planarity and chromatic number. Choice of topics among: graphical probability models, dynamic programming, Bayesian Belief Propagation, and treewidth.

**When Offered**

Offered occasionally.

**MACT 406/4212 - Stochastic Processes (3 cr.)****Prerequisites**

MACT 2132 MACT 2141 and ( MACT 3211 or MACT 3224 )

**Description**

Introduction to stochastic process, discrete time Markov chain, Poisson process, Compound Poisson Processes and Renewal Processes, continuous-time Markov Chain, Transition probabilities and limiting behavior for Markov Chains, Martingales, Brownian Motion, applications in finance and insurance.

**When Offered**

Offered once a year.

## **MACT 412/4213 - Mathematical Modeling with Applications (3 cr.)**

### **Prerequisites**

MACT 2132 and MACT 4212

### **Description**

Introduction to stochastic modeling and its applications in actuarial and financial problems. Overview on models in discrete and continuous times involving Random walk, Brownian motion, Poisson and compound Poisson processes. Introduction to stochastic differential equations, Ito calculus and diffusion processes. Applications in risk theory, and pricing problems and credit risk.

### **When Offered**

Offered once a year.

## **MACT 427/4231 - Applied Regression Methods (3 cr.)**

### **Prerequisites**

MACT 2132 and MACT 3223 or MACT 3224 or ECON 2081

### **Description**

Standard least squares method and application to problems arising from social, biological and engineering sciences. Deviation from assumption of multicollinearity. Variable selection methods. Analysis of variance, Generalized linear models including logistic regression models. Course includes an applied project (a thorough analysis of real-life data using computer packaged programs).

### **When Offered**

Offered once a year.

## **MACT 428/4232 - Analysis of Time Series Data (3 cr.)**

### **Prerequisites**

MACT 4231 or ECON 3081

### **Description**

This course is a continuation of MACT 4231 . It deals with the problems of modelling and forecasting time series data. Computer program packages are used as an aid for obtaining solutions. Topics include serial correlation, seasonal adjustments, exponential smoothing and extrapolation, state space models, moving average, autoregressive, ARMA and ARIMA models, and nonlinear time series, including ARCH models and chaos. Emphasis on model building, diagnostic checking, and model selection.

### **When Offered**

Offered once a year.

## **MACT 429/4233 - Applied Multivariate Analysis (3 cr.)**

### **Prerequisites**

For SSE Students: MACT 2132 and either MACT 3223 ,MACT 3224

For BUS Students: ECON 3061 and ECON 3081

**Description**

Techniques of multivariate statistical analysis illustrated by examples from various fields. Topics include: Multivariate normal distribution. Sample geometry and multivariate distances. Inference about a mean vector. Comparison of several multivariate means, variances, and covariances. Detection of multivariate outliers. Principle components. Multidimensional scaling. Factor analysis. Canonical correlation. Discriminant analysis. and Clustering. Course includes an applied project (a thorough analysis of real-life data sets using computer-packaged programs).

**When Offered**

Offered once a year.

**MACT 421/4312 - Mathematics of Derivatives Pricing I (3 cr.)**

**Prerequisites**

MACT 3311

**Description**

Introduction to financial concepts: Forwards and futures, options, put-call parity, arbitrage and no-arbitrage strategies, pricing forwards with dividends and without dividends and description of interest rate swaps. Mathematical techniques for pricing: put-call parity with and without dividends, put-call parity for coupon bonds, relationships between European and American options, properties of options (monotonicity, rate of increments, convexity), one-period and multi-period binomial trees for stock price and forward price, pricing options using a binomial tree, delta hedging, risk-neutral pricing, pricing and hedging American options.

**When Offered**

Offered once a year.

**MACT 422/4313 - Mathematics of Derivatives Pricing II (3 cr.)**

**Prerequisites**

MACT 4212 and MACT 4312

**Description**

The course aims to introduce students to continuous-time models in financial markets. It also gives an overview of the type of mathematics and stochastic modelling that arises in the area of financial derivative pricing: binomial model, stochastic processes, portfolio replication approach and risk neutral evaluation. In this course, we explore the Black-Scholes framework and option hedging using the Greeks. We also introduce some interest rate models and price options in the bond market.

**When Offered**

Offered once a year.

**MACT 000/4314 - Financial Modeling (3 cr.)**

**Prerequisites**

FINC 3201



**Description**

Financial modeling, Excel functions, Simulation models, Applications of financial modeling in practice.

**MACT 423/4321 - Long-Term Actuarial Mathematics I (3 cr.)****Prerequisites**

MACT 3211 and MACT 3311

**Description**

This course develops a theoretical basis for the mathematics of life contingencies. It covers models for life contingencies, survival models, life insurance, annuities and premiums calculation. The subjects to be covered include: future lifetimes, analytical mortality laws, life table, fractional age assumptions, non-parametric estimation of survival models, continuous and discrete life insurances, continuous and discrete life annuities, net single premium, annual benefit premium, loss at issue, premium principles.

**When Offered**

Offered once a year.

**MACT 424/4322 - Long-Term Actuarial Mathematics II (3 cr.)****Prerequisites**

MACT 4212 and MACT 4321

**Description**

This course is designed to build and expand on the concepts introduced in MACT 4321. The major aim of this subject is to study policy values for life insurance policies. The focus is put on the definition of the prospective loss random variable and the analysis of policy values (also known as reserves) in various life insurance contexts. A multiple states model for life insurance is introduced. Models for multiple decrements and multiple-life insurance contracts are also examined. The course provides an introduction to pension mathematics and the valuation of pension's liabilities.

**When Offered**

Offered once a year.

**MACT 407/4331 - Short Term Actuarial Mathematics I (3cr.)****Prerequisites**

MACT 306/3211 - Applied Probability (3 cr.)

**Description**

The course aims to introduce students to severity models and frequency models and how they are used in short-term insurance applications. The course introduces aggregate models, risk measures and coverage modifications. The course introduces simulation techniques.

**When Offered**

Offered once a year.

**MACT 408/4332 - Short Term Actuarial Mathematics II (3 cr.)**

**Prerequisites**

MACT 307/3223 - Statistical Inference (3 cr.) and MACT 407/4331 - Short Term Actuarial Mathematics I (3cr.)

**Description**

The course aims to introduce students to parametric estimation for complete/incomplete data; Credibility theory, Bühlmann models and Bayesian credibility; Short term insurance arrangements: property and casualty, homeowners, health and disability and finally techniques for pricing and reserving for short-term insurance coverage.

**When Offered**

Offered once a year.

**MACT 410/4910 - Guided Studies in Mathematics (1-3 cr.)****Prerequisites**

Prerequisite: senior standing and consent of supervisor.

**Description**

Under guidance of a faculty member and with approval of the Chairman, the student carries on reading or research on a specific mathematics topic. Student should demonstrate achievements by presenting results, submitting a report, or passing an examination as determined by the supervisor..

**Repeatable**

May be repeated for credit if content changes

**MACT 409/4930 - Selected Topics in Mathematics (3 cr.)****Prerequisites**

Prerequisite: consent of instructor.

**Description**

Topics chosen according to interests of students and faculty.

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit if content changes.

**MACT 411/4931 - Selected Topics in Actuarial Science (3 cr.)****Prerequisites**

Senior standing and consent of supervisor.

**Description**

Under guidance of a faculty member and with approval of the Chairman, the student carries on reading or research on a specific actuarial science topic. Student should demonstrate achievements by presenting results, submitting a report, or passing an examination as determined by the supervisor.

**When Offered**

Occasionally.

**Repeatable**

May be repeated for credit if content changes.

**MACT 497/4950 - Practical Internship (3 cr.)**

**Prerequisites**

Consent of department chairperson or program director.

**Description**

This course consists of participation in a full-time or part-time internship experience, related to the student's field of study under the supervision of both an approved internship provider and a faculty adviser. This culminating course provides practical, hands-on training in a relevant industry to enhance classroom learning and allows senior students to apply the knowledge and skills they have acquired in the actuarial science program to real-world problems.

**When Offered**

Offered in summer and winter

**MACT 495/4980 - Senior Thesis (3 cr.)**

**Prerequisites**

Restricted to seniors

**Description**

The Senior Thesis serves as a culminating course that allows senior students to put together the knowledge and skills they have acquired in their program. Students work under the direction of a faculty adviser to plan and conduct original research on a topic of interest. This research effort begins with creative inquiry and systematic research, includes documentation of substantive scholarly effort, and culminates in a written thesis and an oral defense.

**When Offered**

Offered in fall and spring

**MACT 000/4990 - Enterprise Risk Management (3 cr.)**

**Prerequisites**

Senior standing and consent of adviser and instructor.

**Description**

The course introduces students to the concept of risk and the role of enterprise risk management (ERM) in mitigating loss and optimizing opportunity across a business. The course covers the development of an ERM framework, identification, measurement and management of risk within risk-bearing enterprises. Students will participate in a mock risk committee, practice the risk control process in a case study group and gain hands-on experience drafting an ERM framework.

**Hours**

Two class periods.

**When Offered**

Offered once a year.

**MACT 604/6111 - Advanced Numerical Methods (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

Numerical optimization: nonlinear unconstrained optimization, direct methods, simplex method, genetic algorithms, gradient methods, Quasi-Newton methods, constrained optimization, interior point methods, the ellipsoidal technique, trust region and optimization through surrogate models, design centering and tolerance. Solution of partial differential equations: advances in the finite element technique, finite volume, spectral methods, fuzzy approach.

**MACT 605/6121 - Advanced Probability with Engineering Applications (3 cr.)****Prerequisites**

A course in probability and consent of instructor.

**Description**

Introduction to concepts of stochastic processes, Markov processes in discrete or continuous time; renewal processes; martingales; Brownian motion and diffusion theory; random walks, inventory models, population growth, queuing models, illustrated by examples from sciences and engineering, biological models, traffic flow and applications from other areas depending on the interest of the class.

**MENG 215/2505 - Mechanical Engineering Drawing (1 cr.)****Prerequisites**

ENGR 1001 and ENGR 1005

**Description**

Computer-aided drafting. Mechanical details and assembly drawings. Working drawings. Geometrical tolerances. Welding symbols and details, introduction to 3D modeling. Introduction to civil and architectural drawings.

**Hours**

One three hour lab period

**When Offered**

Offered in fall and spring.

**MENG 327/3207 - Engineering Materials (3 cr.)****Prerequisites**

CHEM 1005 and ENGR 2112

**Description**

Introduction to materials. Crystal structure of solids. Construction and use of phase diagrams in materials systems.

Relationship of crystal structure to properties of metallic materials and their applications. Heat treatment of steels. Types of polymers, ceramics, glasses, and semiconducting materials and their applications.

**When Offered**

Offered in fall and spring.

**MENG 339/3209 - Fundamentals of Manufacturing Processes (3 cr.)**

**Prerequisites**

MENG 3207

**Description**

Processing by casting, powder metallurgy, metal working, material removal, welding and joining. Processing of plastics and ceramics. Finishing processes. Materials recycling.

**Hours**

Two class periods and one three-hour lab period.

**When Offered**

Offered in fall and spring.

**MENG 342/3402 - Quality and Process Control (3 cr.)**

**Prerequisites**

ENGR 3202 and MACT 3224

**Description**

Fundamentals of statistical quality control; control charts for variables and attributes; process capability analysis; sampling plans and techniques; introduction to design of experiments.

**Hours**

Two class periods and one three hour lab period.

**When Offered**

Offered in fall and spring.

**MENG 346/3446 - Engineering and Project Management (3 cr.)**

**Prerequisites**

MACT 3224, ENGR 3222

**Description**

Concepts of Engineering Management, Organizing, Motivation and Leadership, Incentive Plans, Performance evaluation, Project selection and initiation, Engineering Project Planning, Project scheduling, monitoring, control, and evaluation, Resources scheduling, Project management software.

**When Offered**

Offered in fall.

**MENG 372/3502 - Mechanical Systems (3 cr.)**

**Prerequisites**

ENGR 2104 and ENGR 3202.

**Description**

Linkage synthesis, position, velocity, and acceleration of mechanisms, cams, gears and gear trains, machine dynamics, rotating and reciprocating machines, dynamic balancing.

**When Offered**

Offered in fall and spring.

**MENG 355/3505 - Mechanics of Materials (3 cr.)****Prerequisites**

ENGR 2112, MENG 2505 and Concurrent (or prerequisite) ENGR 3202

**Description**

Internal reactions, load-stress relations and transformation of stresses for generally loaded rods. Generalized concepts of stress, strain and material relations. Computerized Methods. Elastic-plastic behavior of beams. Analysis of thin walled beams. Membrane theory of axisymmetric shells. Stress concentrations.

**When Offered**

Offered in fall and spring.

**MENG 356/3506 - Mechanical Design I (3 cr.)****Prerequisites**

ENGR 2104 MENG 2505 and concurrent/prerequisite MENG 3209

**Description**

Introduction to design concepts. Constructional details as affected by manufacturing, assembly, and strength considerations. Engineering materials. Design for steady and cyclic loading, and for rigidity and stability. Rigid and elastic connections. Bolts, rivets and welds. Design of shafts and springs. Use of interactive computer programs for problem solving is illustrated and encouraged. Design projects

**Hours**

Two class periods and one three-hour design and analysis session

**When Offered**

Offered in fall and spring.

**MENG 361/3601 - Fundamentals of Thermodynamics (3 cr.)****Prerequisites**

ENGR 2122 , CHEM 1005 and CHEM 1015 .

**Description**

Fundamental Concepts and Definitions. Thermodynamic Processes, pure substances and perfect gases, The First Law of Thermodynamics, the Second Law of Thermodynamics, the Carnot cycle. Thermodynamic Relations, Reversibility and Entropy.

**When Offered**

Offered in fall and spring.

**MENG 362/3602 - Applied Fluid Mechanics (3 cr.)****Prerequisites**

MENG 3601

**Description**

Dimensional analysis, fluid measurements, compressible flow, pipe network and water hammer, turbo machinery, pumps and turbines.

**Hours**

Two class periods and one three-hour lab period

**When Offered**

Offered in fall and spring.

**MENG 365/3605 - Applied Thermodynamics (3 cr.)****Prerequisites**

MENG 3601

**Description**

Availability and second-law analysis. Power cycles: air standard and actual cycles; reversed cycles: refrigerators and heat pumps, gas mixtures, psychrometry and air conditioning, hydrocarbon reactions, waste heat recovery.

**Hours**

Two class periods and one three-hour lab period.

**When Offered**

Offered in fall and spring.

**MENG 375/3705 - System Dynamics (3 cr.)****Prerequisites**

PHYS 2211 , PHYS 2212, MENG 3502

**Description**

Mathematical modeling of mechanical, electrical, and electromechanical systems. Free and forced vibrations for single degree of freedom systems. Free and forced vibrations of multiple degree of freedom systems. Linearization. Stability, Steady state error and Time response analysis. State space and transfer function solutions. System analogies. Introduction to automatic control and Feedback control systems. Team base project covering modeling, analysis and design.

**When Offered**

Offered in fall and spring.

**MENG 428/4208 - Selection of Materials and Processes for Design (3 cr.)**

**Prerequisites**

MENG 3209 and MENG 3506

**Description**

Effect of material properties on design. Effect of manufacturing processes on design. Failure and reliability of components in service. Economics of materials and manufacturing processes. Decision making and the selection process. Integration of design and economic analysis with materials and process selection. Case studies.

**When Offered**

Offered in fall and spring.

**MENG 421/4221 - Ceramics and Composites (3 cr.)****Prerequisites**

MENG 3209

**Description**

Structure, processing (powder synthesis, characterization, mixing and size reduction), micro-structure and property relationships and their applications in the design and production of ceramic nanomaterials and nanocomposites for various applications.

**Hours**

Two class periods and one three hour lab period.

**When Offered**

offered in spring.

**MENG 425/4225 - Polymers and Composites (3 cr.)****Prerequisites**

MENG 3209

**Description**

Polymeric materials, processing and design considerations. Structure, mechanical and physical properties of polymers. Degradation of polymers. Types and properties of polymer-matrix composite materials. Manufacturing of components made of polymers and composite materials. Case studies.

**Hours**

Two class periods and one three-hour laboratory

**When Offered**

Offered in spring.

**MENG 426/4226 - Metals, Alloys and Composites (3 cr.)****Prerequisites**

MENG 3209

**Description**

Structure-property relationship in alloy systems. Imperfections in solids. Diffusion and phase transformation. Heat



treatment of ferrous and non-ferrous alloys. Structure, properties and processing of metal matrix composites (MMCs). Behavior of metallic alloys and composite materials in service. Case studies and laboratory experiments.

**Hours**

Two class periods and one three-hour lab period

**When Offered**

Offered in fall.

**MENG 427/4227 - Failure of Mechanical Components (3 cr.)**

**Prerequisites**

MENG 3209 .

**Description**

Mechanical failures, fracture mechanics, types of corrosion. Failure modes: fracture fatigue, creep, corrosion and wear. Diagnosis and prevention of failures. Case studies.

**When Offered**

Offered in spring.

**MENG 429/4229 - Nanostructured Materials (3 cr.)**

**Prerequisites**

MENG 3209

**Description**

Introduction to Nanotechnology, Nanomaterials e.g. carbon nanotubes and nanoclays. Nanostructured materials. Transition from microstructure to nanostructure. Grain refinement techniques. Paradox of strength and ductility. Multi-modal microstructures. Fabrication techniques. Overview of mechanical, thermal and structural characterization techniques. Applications.

**Cross-listed**

Same as MENG 5230.

**When Offered**

Offered spring.

**MENG 432/4232 - Materials, Processing, and Design (3 cr.)**

**Prerequisites**

MENG 3209

**Description**

Processing for grain refinement of engineering materials; Solidification, cooling rates and heat treatment for casting and molding; shape forming; powder, fiber, and composite processing; Joining processes; laser processes; deposition technology for coatings for various applications.

**Hours**

Two class periods and one three- hour laboratory

**When Offered**

Offered in fall.

**MENG 439/4239 - Advanced Manufacturing Processes (3 cr.)****Prerequisites**

PHYS 2211 and MENG 3209 .

**Description**

Nontraditional manufacturing processes, such as microfabrication and nanofabrication technologies, friction stir welding and processing, laser welding and cutting, spark erosion and water jet machining. Automation of manufacturing processes. Numerically-controlled machine tools. NC programming. Economics of nontraditional and automated manufacturing.

**Hours**

Two class periods and one three-hour lab period.

**When Offered**

Offered in spring.

**MENG 341/4440 - Engineering Operations Research (3 cr.)****Prerequisites**

ENGR 3202

**Description**

Introduction to operations research, Linear Programming (LP) models; LP Solution approaches; integer programming; post optimality analysis; transportation, transshipment, and assignment problems. Maximal flow, shortest route, minimum spanning tree, and travelling salesman problems. Case studies, model formulations and applications using software.

**When Offered**

Offered in fall and spring.

**MENG 441/4441 - Decision Support in Engineering Systems (3 cr.)****Prerequisites**

MENG 4440 and MACT 3224 .

**Description**

Interactive computer-based engineering decision support systems (DSS), Design and development, informational data base, mathematical models including nonlinear, goal and dynamic programming problems, queuing and decision analysis, heuristics and user interface.

**When Offered**

Offered occasionally.

**MENG 442/4442 - Reliability Engineering and Risk Analysis (3 cr.)**

**Prerequisites**

MENG 3402

**Description**

Basic concepts of components and systems reliability. Methods of modeling systems for reliability analysis. Reliability estimation & measurement. Principal methods of reliability analysis, including fault tree and reliability block diagrams; Failure Mode and Effects Analysis (FMEA); event tree construction and evaluation; reliability data collection and analysis. Design by reliability & probabilistic design. Overview of Risk Assessment and Risk Management, relation to System Safety and Reliability Engineering measures.

**When Offered**

Offered in spring.

**MENG 443/4443 - Systems Simulation (3 cr.)****Prerequisites**

MENG 3402

**Description**

Basic concepts; examples of different production and service systems; pseudo random numbers; queuing models; random variate generation; discrete-event simulation; simulation languages; model validation and analysis of simulation data.

**When Offered**

Offered occasionally.

**MENG 344/4444 - Work Analysis and Design (3 cr.)****Prerequisites**

MENG 3209

**Description**

Methods used in determining the most effective utilization of effort in human activity systems; work methods, analysis and design; micro motion analysis; predetermined time systems; human and rating factors; work samplings; learning curves; physiological and psychological factors; computer-aided time study.

**When Offered**

Offered in fall.

**MENG 445/4445 - Production and Inventory Control (3 cr.)****Prerequisites**

ENGR 3202 and ENGR 3222

**Description**

Basic concepts of production management ; forecasting; break-even analysis, aggregate production planning; inventory management; master scheduling, materials requirement planning; capacity planning; resource allocation and scheduling.

**When Offered**

Offered in fall and spring.

**MENG 448/4448 - Facilities Planning (3 cr.)**

**Prerequisites**

MENG 4440

**Description**

Process analysis; operation analysis, job design; facility location; facility layout; materials handling systems; storage and warehousing; office layout; design principles and analytical solution procedures; computerized approaches.

**When Offered**

Offered in spring.

**MENG 449/4449 - Maintenance Management Systems (3 cr.)**

**Prerequisites**

ENGR 3222

**Description**

Maintenance Systems performance measures, types of equipment, scheduled, preventive, and predictive maintenance, work orders, planning, scheduling and control of maintenance operations, equipment safety and reliability, life cycle costing and replacement, spare parts inventory management and cost of maintenance.

**When Offered**

Offered in fall.

**MENG 447/4477 - Manufacturing System Automation (3 cr.)**

**Prerequisites**

MENG 3209

**Description**

Computer assisted manufacturing systems NC, CNC, DNC, robotics, material handling, group technology, flexible manufacturing systems, process planning and control.

**Hours**

Two class periods and one three-hour lab period

**When Offered**

Offered in spring.

**MENG 457/4507 - Mechanical Design II (3 cr.)**

**Prerequisites**

MENG 3506 and MENG 3502

**Description**

Design of machine elements used in power transmission: couplings, gears, bearings, roller chain drives, clutches. Design for surface failure prevention. Applications: automotive and machine tool areas, etc. Basics of systems design. Design projects.

**Hours**

Two class periods and one three-hour design and analysis session.

**When Offered**

Offered in fall and spring.

**MENG 451/4551 - Computer-Aided Design and Prototyping (3 cr.)****Prerequisites**

Senior standing, MENG 2505 and MENG 3506

**Description**

Introduction to CAD/CAM. CAD software and hardware. Geometric modeling. Types of curves and surfaces. Three-dimensional modeling. Data capturing techniques. Surface fitting techniques. Rapid prototyping techniques. Overview and utilization of typical interactive computer graphics package. Hands-on experience in using CAD software, 3D laser digitizing scanner, rapid prototyping machine, and other peripherals.

**Hours**

Two class periods and one three-hour lab period.

**When Offered**

Offered in spring.

**MENG 453/4553 - Finite Element Method and Applications in Design (3 cr.)****Prerequisites**

MENG 3505 and ENGR 3202

**Description**

Displacement approach for simple elements in structural mechanics. Generalization to three-dimensional elements. Overview of the finite element method (FEM), variational principles, transformation, assembly, boundary conditions, solutions, convergence and stability. Isoparametric elements. Applications to solid mechanics, heat conduction and coupled problems. Pre- and post processing. Integration of FEM in Computer Aided Design.

**Hours**

Two class-periods and one three-hour lab period.

**When Offered**

Offered in fall.

**MENG 454/4554 - Finite Element Method in Dynamic Analysis and Design (3 cr.)****Prerequisites**

MENG 4553

**Description**

Finite element formulation of eigen problems and initial value problems in one- and multi-dimensions; model,

harmonic and transient response; applications in mechanical engineering.

**When Offered**

Offered occasionally.

**MENG 475/4555 - Applied Vibration Measurements, Analysis and Control (3 cr.)**

**Prerequisites**

Senior standing and MENG 3705

**Description**

Elements of vibration measuring systems, vibrations-severity measurements, frequency analysis of mechanical vibration, measuring systems for frequency analysis, vibration of continuous systems, application of vibration measurements in condition monitoring and diagnostics, fault detection in rotating equipment, vibration control.

**Hours**

Two class periods and one three-hour laboratory period

**When Offered**

Offered in fall.

**MENG 458/4558 - Integrated Design (3 cr.)**

**Prerequisites**

MENG 3209 and MENG 3506

**Description**

The engineering design environment. Design and manufacturing. Design pitfalls and their early identification. Design measures for improving the maintainability, reliability and environmental impact. Implementation of the principle of redundancy. Introduction to design optimization.

**When Offered**

Offered in fall.

**MENG 455/4565 - Design of Engineering Systems (3 cr.)**

**Prerequisites**

MENG 3506

**Description**

Elements of system architecture, product versus process-driven design objectives, design of systems, synthesis and analysis in systems design, case studies.

**When Offered**

Offered in occasional.

**MENG 466/4606 - Heat Transfer (4 cr.)**

**Prerequisites**

ENGR 3202 and MENG 3602

**Description**

Steady and unsteady, one and multi-dimensional, heat conduction. Finite-difference and Finite-volume methods applied to heat conduction. Heat transfer by natural and forced convection. Introduction to Mass transfer. Heat transfer by radiation. Design of Heat exchangers.

**Hours**

Three class periods and one three-hour laboratory period

**When Offered**

Offered in fall and spring.

**MENG 411/4661 - Turbo-Machinery (3 cr.)**

**Prerequisites**

MENG 3602

**Description**

Preliminary design procedures for turbo-machines. Ideal and actual performance characteristics for hydraulic pumps and turbines, axial and centrifugal flow compressors and fans, axial and radial flow gas turbines. Cavitation in hydraulic machinery. Turbo-chargers. Hydro-power plants and pumped-storage.

**When Offered**

Offered in fall.

**MENG 412/4662 - Power Plant Technology (3 cr.)**

**Prerequisites**

MENG 4606 and MENG 3605 .

**Description**

Steam and Gas turbine power plants. Combined-cycle power plants. Co-generation. Principles of nuclear energy and introduction to Nuclear power plants. Environmental impacts of power plants.

**When Offered**

Offered in fall.

**MENG 413/4663 - Design of Renewable Energy Systems (3 cr.)**

**Prerequisites**

MENG 3605 and MENG 4606 .

**Description**

The world energy scene. Environmental impact of energy use. Wind power, PV and Solar Thermal Electricity and Biomass. Hybrid systems. Renewable energy generation in Power systems. Economics and sustainability.

**When Offered**

Offered in spring.

**MENG 415/4665 - Internal Combustion Engines (3 cr.)**

**Prerequisites**

MENG 3602 and MENG 3605

**Description**

Review of Air standard cycles. Diesel and Petrol combustion overview. Fuels and chemistry of combustion reactions. Octane and Cetane ratings. Fluid mechanic interactions with flames - burn rates. Overview of exhaust emissions. Turbocharging and supercharging, volumetric efficiency and valve timing.

**When Offered**

Offered in spring.

**MENG 416/4666 - Design of Heating, Ventilation, and Air Conditioning Systems (3 cr.)**

**Prerequisites**

MENG 3605 and MENG 4606.

**Description**

Calculation of building cooling and heating loads, and ventilation requirements. Design of Air conditioning and ventilation systems. Passive cooling and heating. Air conditioning equipment.

**When Offered**

Offered in fall.

**MENG 417/4667 - Refrigeration and Air-conditioning (3 cr.)**

**Prerequisites**

MENG 4606 and MENG 3605 .

**Description**

Refrigeration and Air conditioning cycles and C.O.P. Vapor compression refrigeration systems. Absorption refrigeration. Cryogenics. Design of Air conditioning systems and components. Heat pumps and heating systems. District cooling.

**When Offered**

Offered in spring.

**MENG 476/4756 - Automatic Control Systems (3 cr.)**



**Prerequisites**

Senior standing and MENG 3705 .

**Description**

Feedback control system and analysis in time domain. PID controllers: analysis and design. State space controllers. Stability and the concept of Routh-Hurwitz. Root locus analysis and design. Analysis of systems in frequency domains. Bode plots and controller design. Nyquist stability criterion. Introduction to intelligent control. Introduction to digital control systems.

**When Offered**

Offered in spring.

**MENG 477/4757 - Robotics: Design, Analysis and Control (3 cr.)****Prerequisites**

ENGR 2104 .

**Description**

Robotics and Automation, Robot classification and technical specifications, Robotic safety, homogeneous coordinate transformation, Direct and inverse kinematics, Differential motion, Jacobian: Velocities and static forces, Trajectory planning, Manipulator dynamics: Newton-Euler and Lagrange-Euler dynamic models, robot control.

**When Offered**

Offered in fall.

**MENG 478/4778 - Microcontrollers and Mechatronics systems (3 cr.)****Prerequisites**

PHYS 2211

**Description**

Mechatronics and digital systems, Digital logic design, Microprocessor and Microcontroller architecture, Embedded systems, Interfacing techniques, A/D and D/A conversion, Memory addressing techniques, Interrupt techniques, I/O needs and expansion, Timers, Introduction to assembly, and project application work.

**Hours**

Two class periods and one three-hour laboratory period

**When Offered**

Offered in fall.

**MENG 479/4779 - Integrated Design of Electromechanical Systems (3 cr.)****Prerequisites**

MENG 3705 or Concurrent

**Description**

Mechatronics design and development process, Digital systems, Microcontrollers in Mechatronics, Programmable logic controllers (PLC), PLC and interfacing techniques, Ladder logic programming, servo motors: motion, braking and speed control, Transducers and instrumentation, Vision sensing principles, Power supplies, Pneumatic and Electro-pneumatic control. Team based project covering design, control and application of electromechanical systems. Laboratory experiments.

**Hours**

Two class periods and one three-hour laboratory period.

**When Offered**

Offered in spring.

**MENG 480/4920 - Special Problems in Engineering (1-3 cr.)**

**Prerequisites**

Prerequisite: approval of department chair.

**Description**

Independent study in various problem areas of engineering may be assigned to individual students or to groups. Readings assigned and frequent consultations held.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be repeated for credit if content changes

**MENG 492/4930 - Selected Topics in Mechanical Engineering (3 cr.)**

**Prerequisites**

Prerequisite: senior standing.

**Description**

Specialized topics in mechanical engineering will be discussed, e.g. energy conversion and transmission, nuclear engineering, computer applications in mechanical engineering, composite materials, corrosion, and protection.

**When Offered**

Offered occasionally.

**MENG 494/4931 - Selected Topics in Design (3 cr.)**

**Prerequisites**

Prerequisite: senior standing in mechanical engineering.

**Description**

Specialized topics in design will be discussed, e.g. advanced strength of materials, power-plant analysis and design, design of manufacturing aids, materials-handling equipment, microcomputers in control, fluid machinery and power systems, finite-elements method in engineering, etc.

**When Offered**

Offered in spring.

## **MENG 436/4932 - Selected Topics in Materials and Manufacturing (3 cr.)**

### **Prerequisites**

MENG 3209

### **Description**

This course will cover topics to be chosen based on the emerging advancements in the field of Materials and Manufacturing. Maybe taken for credit more than once if content changes.

### **When Offered**

Offered occasionally.

## **MENG 000/4936 - Selected Topics in Power Engineering (3 cr.)**

### **Prerequisites**

Depends on topic

### **Description**

Covers specialized topics in Power engineering not covered in other listed courses.

Offered more than once for credit if contents change. Precise course description depends on course topic.

### **When Offered**

Spring

## **MENG 000/4937 - Selected Topics in Mechatronics (3 cr.)**

### **Prerequisites**

depends on topic

### **Description**

Covers specialized topics in Mechatronics field not covered in other listed courses.

Offered more than once for credit if contents change. Precise course description depends on course topic.

### **When Offered**

Spring

## **MENG 497/4950 - Industrial Training (1 cr.)**

### **Prerequisites**

Prerequisite: Senior standing and completion of all ENGR in addition to a minimum of 18 credits of MENG.

### **Description**

Each student is required to spend a minimum of eight weeks in industrial training in Egypt or abroad. A complete account of the experience is reported, presented and evaluated.

### **When Offered**

Offered in fall.

### **MENG 490/4980 - Senior Project I (1 cr.)**

#### **Prerequisites**

MENG 3446 ,MENG 3605, and MENG 3705

#### **Description**

A capstone project. Topics are selected by groups of students according to their area of interest and the advisors' approval. Projects address solutions to open ended applications using an integrated engineering approach. Participants give an oral presentation of the main results achieved. After criticism and suggestions, they submit a written report.

#### **When Offered**

Offered in fall and spring.

### **MENG 491/4981 - Senior Project II (2 cr.)**

#### **Prerequisites**

MENG 4980

#### **Description**

Participating students continue the work on the project topic selected in MENG 4980 . Participants give an oral presentation of the main results achieved. After criticism and suggestions, they submit a written report.

#### **When Offered**

Offered in fall and spring.

### **MENG 000/5168 - Nuclear Power Plant Engineering (3 cr.)**

#### **Prerequisites**

Consent of instructor

#### **Description**

Fundamentals of nuclear reactor engineering and reactor safety. Aspects of nuclear physics, nuclear interactions, reactor criticality and heat removal. Introduction to current nuclear reactor types, and next generation reactor types.

#### **When Offered**

Offered occasionally

### **MENG 521/5221 - Advanced Topics in Mechanical Behavior of Engineering Materials (3 cr.)**

#### **Description**

Advanced Topics in Mechanical Behavior of Engineering Materials (minor change in course content) Parameters affecting the mechanical behavior of materials under stresses. Strengthening mechanisms in metals and alloys. High-temperature and room temperature deformation. Effect of residual stresses. Mechanisms of cyclic deformation. Structural properties of polymers and composites. Emphasizes the relationships between micro and nanoscopic mechanisms and macroscopic behavior of materials. Case studies using industrially available materials.

## **MENG 522/5222 - Materials in Design and Manufacturing (3 cr.)**

### **Description**

Interrelationship of design, materials and manufacturing. Control of material properties to meet design and manufacturing requirements. Thermo-mechanical processing, surface treatment and coatings. Composite materials. Reverse engineering and materials substitution. Materials recycling. Economic considerations and life cycle costing. Case studies.

## **MENG 523/5223 - Physical Metallurgy (3 cr.)**

### **Description**

Relationships between mechanical behavior, composition, microstructure, and processing variables. Imperfections in materials and their effect on properties. Diffusion in solids and its industrial applications. Effect of heat treatment on the microstructure and mechanical behavior for ferrous and non-ferrous alloys. Design of new materials: meso, micro and nanostructured materials, their synthesis and applications.

## **MENG 524/5224 - Electronic Phenomena in Solids (3 cr.)**

### **Description**

Quantization and energy barrier, central field problem; free electron models of solids; specific heat, susceptibility, emission; electron transport in electrical and magnetic fields; optical phenomena: transmittance, reflectance, dielectric constant, band models of solids, determination of fermi surface semiconductors; mobility; impurity states, carrier lifetime; fundamental theory and characteristics of elemental and compound semiconductors. Semiconductor nanotechnology.

## **MENG 525/5225 - Deformation and Fracture of Materials (3 cr.)**

### **Description**

Fundamental concepts describing the mechanics and mechanisms of plastic deformation under different conditions of temperature, time, and strain rates. The mechanical and metallurgical aspects of crack nucleation and propagation under different loading conditions and in different environments. Materials design for safe structures.

## **MENG 526/5226 - Computer Methods in Materials Engineering (3 cr.)**

### **Description**

Applications of computer and modeling techniques to the study of materials systems and processes. Examples of the topics discussed are: Behavior of multi phase materials and casting and working process.

## **MENG 527/5227 - Composite Materials: Mechanics, Manufacturing, and Design (3 cr.)**

### **Description**

Composite materials, including naturally occurring substances such as wood and bone, and engineered materials from concrete to fiber and dispersion reinforced matrices. Development of micromechanical models for a variety of constitutive laws and the link between processing, property and composite structural analysis. Fabrication and

processing techniques of composites; dispersion of reinforcements; interfacial adhesion; mechanical and functional properties, design and applications.

### **MENG 528/5228 - Advanced Testing and Characterization Techniques (3 cr.)**

#### **Description**

Experimental techniques in the study of materials including quantitative measurements for the characterization of micro and nanostructured bulk and thin film materials using optical, electron and atomic force microscopy; Secondary ion mass spectroscopy (SIMS), Auger Electron Spectroscopy (AES), Rutherford Backscattering (RBS); EDX; X-ray diffraction and differential scanning calorimetry for thermal analysis. Advanced and conventional testing techniques for characterization of the physical, optical, magnetic and mechanical properties of micron and Nanomaterials and devices.

#### **Cross-listed**

Same as NANO 5203.

### **MENG 529/5229 - Failure Analysis and Prevention (3 cr.)**

#### **Description**

Failure analysis methodology and techniques including fractography, metallography, and mechanical testing. Causes of failure in service including manufacturing defects, design deficiencies, environmental effects, overloads. Fail safe designs. Case studies in failure analysis.

### **MENG 530/5230 - Nanostructured Materials (3 cr.)**

#### **Description**

Introduction to Nanotechnology, Nanomaterials e.g. carbon nanotubes and nanoclays. Nanostructured materials. Transition from microstructure to nanostructure. Grain refinement techniques. Paradox of strength and ductility. Multi-modal microstructures. Fabrication techniques. Overview of mechanical, thermal and structural characterization techniques. Applications.

#### **Cross-listed**

Same as MENG 4229.

#### **When Offered**

offered in spring

### **MENG 531/5231 - Fabrication of Nanomaterials For Films And Devices (3 cr.)**

#### **Description**

This course will cover different techniques implemented for preparing thin films such as chemical vapor deposition, physical vapor deposition (evaporation, sputtering, pulsed laser deposition, electron beam, etc), and molecular beam epitaxy. In addition, different techniques for enhancing the Physical properties of materials will be covered. This will include post-laser treatments, metal induced crystallization, thermal treatments, etc.

#### **Cross-listed**

Same as NANO 5204.

**When Offered**

occasionally.

**MENG 532/5232 - Simulation and Modeling for Nanoscale Materials and Systems (3 cr.)**

**Description**

Principles of modeling structures and processes at the nanometer scale, including meshing techniques, finite element analysis, and molecular dynamics. Simulation of Materials Science-based or Mechanics-based modeling methods employed; mechanical response of nanostructured materials; Modeling methods including electronic structure, molecular dynamics and Monte Carlo are included.

**Cross-listed**

Same as NANO 5202.

**MENG 534/5234 - Materials for Energy Conversion and Storage (3 cr.)**

**Description**

This course will focus on advanced electrochemical energy conversion and storage systems including fuel cells, lithium-ion batteries, and supercapacitors; Hydrogen storage; Advanced thermal storage . Through the journey in this course, students are anticipated to understand why and how these systems are advantageous in renewable energy applications.

**Cross-listed**

Same as NANO 5233.

**MENG 535/5235 - Biomaterials (3 cr.)**

**Description**

Lectures will include: materials for biomedical and dental restoration applications and their biocompatibility; design at a molecular scale of materials used in contact with biological systems, including biotechnology and biomedical engineering; methods for biomaterials surface modification and characterization. Other topics include analysis of protein absorption on biomaterials; tissue and organ regeneration; design of implants and prostheses based on control of biomaterials-tissue interactions; drug delivery, and cell-guiding surfaces.

**Cross-listed**

Same as NANO 6230.

**MENG 541/5241 - Integrated Manufacturing Systems (3 cr.)**

**Description**

Computer aided manufacturing, automation, flexible manufacturing systems, numerical control machines, computerized process planning, information systems in a plant, selection of automated systems.

**MENG 542/5242 - Total Quality Management (3 cr.)**

**Description**

Product quality and losses to society, loss function, product life cycle, design for quality, quality deployment charts, customer needs, process design planning and control, continuous quality improvement, quality circles.

**MENG 543/5243 - Systems Modeling and Optimization (3 cr.)**

**Description**

Modeling of large scale industrial problems, theory of optimization, software performance evaluation, simulation of complex industrial systems, input/output analysis, model validation, overview of simulation languages, manufacturing systems case studies.

**MENG 545/5245 - Production Systems Design (3 cr.)**

**Description**

Production planning, workforce and line balancing capacity planning and expansions, optimal sequencing and scheduling, measures of effectiveness of operating systems, computer applications, applied case studies.

**MENG 548/5248 - Facilities Planning and Design (3 cr.)**

**Description**

Location evaluation for plants, warehouses, and facilities, computerized layout design, selection and installation of material handling equipment, planning for expansion, modeling and analysis of facility layout: Quadratic assignment approach, graph theoretic approach, decomposition of large facilities, locating new facilities.

**MENG 517/5251 - Engineering Systems Analysis and Design (3 cr.)**

**Description**

Introduction, system design process, system modelling and optimization, design for operational feasibility, artificial intelligence and expert systems, applications.

**MENG 553/5253 - Advanced Computer Aided Design (3 cr.)**

**Description**

Homogeneous Coordinates and Cartesian Coordinates. Explicit and Implicit Representations of Lines, Planes, Surfaces and Intersections. Surface Modeling: Bezier, B-Spline and NURBS surfaces. Curve and Surface Fitting and Approximation. Solid Modeling: Constructive Solid Modeling, and Boundary Representation. Shading and Rendering. Homogeneous perspective, stereographic projections and virtual reality. Introduction to Shape and Topology Optimization.

**MENG 554/5254 - Advanced Stress Analysis in Design and Manufacturing (3 cr.)**

**Description**

Differential and integral formulations of elastic problems: equilibrium, continuity, generalized material relations, boundary conditions. Applications to two dimensional problems, plates and shells. Yield criteria and inelastic stress-



strain relations. Limit analysis. Inelastic design. Simplified techniques for large deformation problems: energy approach, slab method, and upper bound solutions, numerical techniques.

### **MENG 555/5255 - Analysis and Design of Dynamic Systems (3 cr.)**

#### **Prerequisites**

Consent of instructor.

#### **Description**

Dynamic analysis of lumped-parameter and continuous systems including strings, rods, beams and plates, use of finite elements in dynamic analysis, design of dynamic systems, systems concepts, design and synthesis of mechanical networks, modern control, system behavior analysis in time and frequency domains, compensation and design of control systems using different design methods, digital control systems.

### **MENG 557/5257 - Engineering Design Methodologies (3 cr.)**

#### **Description**

Conceptual design: levels, generic concepts, main and subconcepts. The preliminary design stage. Design for reliability. Design optimization. Examples and a case study.

### **MENG 558/5258 - Applied Finite Element Analysis for Engineers (3 cr.)**

#### **Description**

Advanced modeling techniques. Material, geometric and boundary condition nonlinearities. Application to elastoplasticity, creep and buckling. Time response dynamic analysis, nonlinear heat transfer. Projects involving extensive utilization of FEM packages on engineering workstations.

### **MENG 573/5263 - Cogeneration and Energy Storage (3 cr.)**

#### **Prerequisites**

B.Sc. level Mechanical engineering courses in Thermodynamics, Heat transfer, Fluid mechanics and applications, or equivalent.

#### **Description**

Introduction to cogeneration; cogeneration technologies; issues and applications; introduction to energy storage; types; applications in renewable energy and conventional systems; economic analysis.

### **MENG 575/5265 - CFD and Turbulence Modeling (3 cr.)**

#### **Prerequisites**

Undergraduate level knowledge of:

- i) fluid properties, fluid flows with and without friction, duct flows, Bernoulli's equation and continuity equation; heat and mass transfer.
- ii) numerical analysis including solution of sets of algebraic linear equations, and P.D.E.s employing F.D.; programming in MATLAB or any other language.

**Description**

Introduction to CFD, basic equations of Flow, FV method, SIMPLE algorithm and variants. Turbulence modeling. Introduction to state of the art Fluid Flow Simulation codes; application to case studies.

**When Offered**

Offered in Fall

**MENG 000/5266 - Solar Radiation and Energy Conversion (3 cr.)**

**Prerequisites**

University level heat transfer, thermodynamics, trigonometry and calculus. Computer usage proficiency in use of EXCEL or MATLAB

**Description**

Characteristics of solar radiation and relative motion of Earth and Sun; beam incidence angles; sun-path diagrams and collector shading; clear sky models; isotropic and anisotropic diffuse radiation models; utilizability. Solar thermal energy conversion with emphasis on the design, performance and selection of solar thermal technologies such as: tracking and stationary solar concentrators, solar water heaters and systems, solar thermal power plants, solar ponds, and solar updraft towers.

**MENG 560/5270 - Applied Control, Vibration and Instrumentations (3 cr.)**

**Prerequisites**

Instructor Consent.

**Description**

Feedback control systems and role of sensors. Process modelling and identification. Linear system response in time domain, Routh-Horwitz stability criteria. PID controllers design and implementations. Root locus: analysis, design, lead/lag compensators. Frequency response methods and analysis. Vibrations of multi-degree-of-freedom and continuous systems, introduction to finite element vibrations analysis, response to periodic and arbitrary inputs, passive and active vibration control, applied vibration measurement and analysis. Sensors: characteristics, physical properties and usage. Industrial automation and sensors. Measurement and uncertainty. Study of various techniques for sensor integration. Common instrumentation networks. Remote instrumentation for monitoring and control. Future prospect of instrumentations and intelligence.

**MENG 561/5271 - Robotics: Kinematics, Dynamics and Control (3 cr.)**

**Prerequisites**

Instructor Consent.

**Description**

Robot mechanisms, End-effector mechanisms, Actuators and drives, Sensors. Robot forward and inverse kinematics. Differential motion and Jacobian (Velocities and forces). Simulation software and analysis. Acceleration and Inertia, Robot dynamics. Trajectory generation and control of robot manipulators. Robot planning and control. Task oriented control, Force compliance control. Robot programming, Robot work cell design and work cycle analysis. Robot vision, Teleoperation and Interactive haptics. Closed-Loop Kinematic chains, Parallel-link robot kinematics. Non-holonomic systems, Legged robots.

**Cross-listed**

Same as RCSS 5201.

**MENG 562/5272 - Embedded Real Time Systems (3 cr.)**

**Prerequisites**

Instructor Consent.

**Description**

Fundamentals of embedded control system design, embedded processor architecture and operation. General overview of existing families of micro-controllers, DSPs, FPGAs, ASICs. Selected embedded 8/16/32 processor architectures, and programming. Real-time, resources and management, I/O, Virtual memory and memory management. Concurrency, resource sharing and deadlocks. Scheduling theory. Real-time programming and embedded software. Real-time kernels and operating systems. Bus structure and Interfacing. Programming pervasive and ubiquitous embedded system. Designing embedded system. Discretization and implementation of continuous-time control systems. Networked embedded systems and integrated control.

**Cross-listed**

Same as RCSS 5202.

**MENG 563/5273 - Modern Control Design (3 cr.)**

**Prerequisites**

Instructor consent.

**Description**

Basic linear system response: Analysis in time domain, stability analysis, Routh-Horwitz stability criteria of LTI. Feedback analysis and design continuous-time systems on the basis of root locus: analysis, design, lead/lag compensators, and Control synthesis in frequency domain: (Bode response, Nyquist stability criteria, sensitivity and design). Control design concepts for linear multivariable systems using state variable techniques. State space representation and transition matrix. Control system design in state space: controllability, pole method and pole placement design, observer/observability and compensators design. Optimal observer based feedback. Lyapunov Stability. The solutions to LQR problem, Kalman filtering problem. LQG and LTR based design methods. Discrete-time systems and computer control.

**Cross-listed**

Same as RCSS 5203.

**MENG 564/5274 - Autonomous Robotics: Modeling, Navigation and Control (3 cr.)**

**Prerequisites**

Instructor Consent.

**Description**

Autonomous and Mobile robots, Locomotion concepts and mechanisms, Degrees of mobility and steering. Non holonomic concept and constraint. Wheeled mobile robots: Kinematic and dynamic models. Trajectory generation and Control methods. Sensors, sensor models and perception. Mapping and knowledge representations. Control architectures and Navigation: Planning, Subsumption, Potential field, Motor Schemas, Probabilistic, Learning from

observations and Reinforcement learning. Relative and absolute localization. Navigation and localization techniques. SLAM (Simultaneous Localization and Mapping). Multi robotic system: navigation, cooperation and autonomy.

**Cross-listed**

Same as RCSS 5221.

**MENG 580/5910 - Independent Study in Engineering (3 cr.)**

**Description**

Independent study in various problem areas of engineering may be assigned to individual students or to groups. Readings assigned and frequent consultations held.

**Notes**

(Students may sign for up to 3 credits towards fulfilling M. Sc. requirements).

**MENG 592/5930 - Advanced Topics in Engineering (3 cr.)**

**Prerequisites**

Prerequisite: consent of instructor.

**Description**

Topics to be chosen every year according to specific interests.

**Repeatable**

May be taken for credit more than once if content changes.

**MENG 593/5980 - Capstone Project (3 cr.)**

**Description**

Students are required to attend the library and writing modules of ENGR 5940 and to undertake an engineering project approved by the chair of the supervisory committee, which consists of the student advisor and two additional faculty members. A final report is submitted and orally defended in the presence of the supervisory committee.

**MENG 599/5981 - Research Guidance Thesis (3 cr.)**

**Prerequisites**

ENGR 5940

**Description**

Consultation on problems related to student thesis.

**Repeatable**

Must be taken twice for credit.

**MENG 681/6241 - Stochastic Simulation (3 cr.)**

**Prerequisites**

Graduate level knowledge of probability, statistics and stochastic processes.

**Description**

Continuous and discrete event Simulation models, random number generation, relevant probability distributions, replications, transient and steady-state conditions, design of simulation experiments, statistical analysis of results, data and file management, stochastic queues, simulation languages.

**MENG 615/6255 - Continuum Mechanics (3 cr.)****Prerequisites**

MENG 3505

**Description**

Mechanics of deformable bodies, finite deformation and strain measures, kinematics of continua and global and local balance laws. Thermodynamics of continua, first and second laws. Introduction to constitutive theory for elastic solids, viscous fluids and memory dependent materials. Examples of exact solutions for linear and hyper elastic solids and Stokesian fluids.

**When Offered**

Offered in fall.

**MENG 660/6261 - Sustainability of Thermal Systems (3 cr.)****Description**

Energy systems; energy demand; energy audit; sustainable development; energy efficiency; energy management.

**MENG 670/6262 - Advanced Transport Phenomena (3 cr.)****Prerequisites**

MENG 3602 ,MENG 4606 and CFD course covering numerical solutions of flow equations.

**Description**

Mass, momentum, and energy transport; kinetic theory of transport properties; analytical and approximate solutions to the equations of change; boundary layer theory; turbulence; simultaneous heat and mass transfer; over-all balances.

**MENG 000/6263 - Advanced Measurements in Thermofluids (3 cr.)****Description**

Pressure measurements instruments - Velocity measurements techniques - Introduction to laser - Types of lasers - LDV and PIV technique for flow field - Rayleigh - Raman - LIF for radicals - Imaging techniques for 2-D and 3-D measurements - Test cases.

## **MENG 620/6270 - Nonlinear and Adaptive Control (3 cr.)**

### **Prerequisites**

Consent of instructor.

### **Description**

Introduction to the analysis and design of nonlinear control systems. Linearization of nonlinear systems. Phase-plane analysis, Lyapunov stability analysis. Design of stabilizing controllers. Properties of adaptive systems, Adaptive control and real-time parameter estimation, Deterministic self-tuning regulators, model reference control, Adaptive observers, model reference adaptive control, gain scheduling controller modeling. Stability of adaptive control systems.

### **Cross-listed**

Same as RCSS 5233.

## **MENG 699/6980 - Research Guidance Dissertation (3 cr.)**

### **Description**

Consultation on problems related to student thesis. To be taken 11 times for credit.

## **MEST 400/4210 - Individual Study and Selected Readings (1-3 cr.)**

### **Prerequisites**

Prerequisite: Consent of instructor and department on the basis of a well-defined proposal.

### **Description**

Guided reading, research, and discussion based on a subject of mutual interest to a student and faculty member.

## **MEST 430/4301 - Special Topics in Middle East Studies (3 cr.)**

### **Description**

Selected topics to be investigated under the guidance of a faculty member, may be offered as a seminar.

### **Repeatable**

May be repeated for credit if content changes.

## **MEST 500/5200 - Migration and Refugee movements in the Middle East and North Africa (3 cr.)**

### **Description**

The course offers a systematic review of international migration and refugee movements to, through and from, the Middle East and North Africa (MENA) over the last decade. It addresses their trends, causes and consequences for individuals and societies, and stresses the universality of international mobility determinants, but the specificity of the context in which they operate in the MENA.

**Cross-listed**

Same as MRS 5102 .

**When Offered**

Offered in spring.

**MEST 569/5201 - A Critical Introduction to Middle East Studies (3 cr.)**

**Description**

Required for all MA students in Middle East Studies. Introduces major debates in several disciplines of Middle East area studies: the history and politics of Orientalism; modernization theory; area studies as a field of knowledge; gender as a category of analysis; economic and political development; international relations and US Middle East policy; contending understandings of Islamism.

**When Offered**

Offered in fall.

**MEST 570/5202 - Interdisciplinary Seminar in Middle East Studies (3 cr.)**

**Prerequisites**

Prerequisite: completion of 24 credit hours toward the degree or consent of program director.

**Description**

Required for all MA students in Middle East Studies. Reading, discussion and intensive writing about cutting edge scholarly literature on: the nature of modernity, colonialism and social science, gender and colonialism, nationalism, the nature of "national economies", the politics of realist literature, economic development, the character of autocracy and political liberalization.

**When Offered**

Offered in spring.

**MEST 505/5205 - Palestinian Refugee Issues (3 cr.)**

**Description**

This inter-disciplinary course will be an opportunity for students to engage directly with the major practical and theoretical issues connected with Palestinian refugees, critically assessing the historical, political, legal and ideological forces that have shaped their turbulent circumstances.

**Cross-listed**

Same as MRS 5205.

**MEST 580/5280 - Selected Topics (3 cr.)**

**Description**

Problems discussed may vary depending on instructor and students needs. Course is offered only if participating departments do not offer an equivalent course. Focus will be announced prior to registration.

**When Offered**

Offered only occasionally.

**MEST 582/5281 - Independent Study and Readings (3 cr.)**

**Prerequisites**

Pre-requisites: completion of one semester and Program approval required.

**Description**

Guided individual readings and/or research on a subject of mutual interest to the student and faculty member.

**When Offered**

Offered in fall and spring.

**MEST 588/5289 - Comprehensives (no cr.)**

**Description**

Individual consultation for students preparing for the comprehensive examination.

**When Offered**

Offered in fall and spring.

**MEST 598/5298 - Research Methods (3 cr.)**

**Description**

A seminar designed to help students formulate and execute an MA thesis proposal.

**MEST 599/5299 - Thesis (no cr.)**

**When Offered**

Offered in fall and spring.

**MRS 507/5100 - Introduction to Migration and Refugee Studies (3 cr.)**

**Description**

Drawing on interdisciplinary approaches in history, political science, sociology, economics and psychology, this introductory course examines the causes and consequences of population movements, and provides basic background, terminology and concepts for further studies in this field. It offers an overview of migrants' trajectories across national boundaries, analyzes migrants' integration and their transformative impact on as well as contribution to host societies. It examines the networks of relations migrants may maintain with their home countries. It also looks at the role of policies and practices of the humanitarian regime in shaping the experience and addressing the challenges faced by refugees, asylum seekers, and returnees.

**Cross-listed**

Same as SOC/ANTH 5200.



**When Offered**

Offered in fall.

**MRS 518/5101 - International Refugee Law (3 cr.)****Description**

This course introduces the international refugee law regime and the background and historical context from which foundational concepts emerged. The bulk of the course is spent on the 1951 Refugee Convention and its Protocol, as well as the expanding mandate of UNHCR. The course considers some of the contradictions and dilemmas of international refugee law and takes into account, developments in related areas of international human rights law, international humanitarian law and migration law. This course is required for all students seeking the MA or Diploma in Migration and Refugee Studies.

**Cross-listed**

Same as LAW 5218.

**When Offered**

Offered in the fall.

**MRS 500/5102 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)****Description**

The course offers a systematic review of international migration and refugee movements to, through and from, the Middle East and North Africa (MENA) over the last decades. It addresses their trends, causes and consequences for individuals and societies, and stresses the universality of international mobility determinants, but the specificity of the context in which they operate in the MENA, combining insecurity engendered by wars and civil conflicts with acute international inequalities of economic, social and political opportunities.

The course starts with concepts and theories, then addresses the various facets of cross-border mobility in the MENA: voluntary and forced migration; migration and labor markets; financial transfers (remittances and investment) and migration; the mobility of skills and the brain drain / brain gain nexus; transnational communities, diasporas and their countries of origin; families and communities left behind; MENA states' policies on emigration; integration of migrant and refugee communities; EU and Gulf states' policies on asylum and immigration; transit migration; trafficking in migrants; return migration.

**Cross-listed**

Same as MEST 5200 .

**When Offered**

Offered in fall.

**MRS 501/5103 - International Migration & Development (3 cr.)****Description**

The course provides an overview of recent literature and debates concerned with the relationships between migration and development. Migration and development are related issues. On the one hand, development is a determinant of migration. International differentials in development, mainly economic (labor-, income- and capital-related), but also political (state- and society-related), will be reviewed. These elements apply at the sending end as push factors (underemployment and unemployment; poverty; poor access to welfare; low rewards to skills; poor governance, political or civil instability, etc.) and at the receiving end as pull factors (jobs availability; higher incomes; social

security; higher education; networks of previous migrants; etc.). On the other hand, migration has an impact on development. International mobility of workers and their family members can work for, or against, development. Debates on the impact of development include the following:

Destination Countries:

Considering whether migrant workers compete with or complement local labor? Do they reduce or increase average incomes/wages? Contribute to or drain host country welfare services?

Origin Countries:

While migrant remittances provide for better housing, education and health of families left behind, their impact on the local and national economy is much debated. Do they boost production or imports? Do they create employment or deter entry into the local labour market? Do they lead to sustainable patterns of development? Do they further the access to credit of local communities and migrants themselves? To what extent do migrants establish businesses as a result of their earnings abroad? To what extent do governments foster development along with migrant communities and host countries with migration-induced development through confidence building, infrastructure and skills training? Under what conditions does migration of skills result in a brain drain or a brain gain for sending countries? In both sending and receiving countries, different patterns of migration: circular, return, temporary, permanent, regular/irregular may have different impacts on development.

### **MRS 504/5104 - Mobilities: Gender and Migration (3 cr.)**

#### **Description**

This seminar provides an in depth engagement with the growing sub-field of Gender and Migration. Themes covered include: international gendered labor markets, migration to and from the Middle East, domestic labor, trafficking, displacement through conflict and development, remittances, and human rights. This is a joint course offered by the Center for Migration Studies and Refugee Studies and the Institute for Gender and Women's studies.

#### **Cross-listed**

Same as GWST 5104.

### **MRS 512/5112 - Psychosocial Issues in Forced Migration (3 cr.)**

#### **Description**

The course explores the psychosocial dimensions of forced migration including ethno-cultural. Concepts of well-being, sources of stress and coping, the impact of forced migration on child development, psychosocial consequences of torture and sexual victimization, and the interaction of trauma and bereavement. Culturally, appropriate mental health assessment, community-based intervention programs, methods of program evaluation, and ethical issues in working with refugee populations will be discussed.

#### **Cross-listed**

Same as PSYC 5112.

#### **When Offered**

Offered in spring

### **MRS 576/5204 - Research Methods in Migration and Refugees Studies (3 cr.)**

#### **Description**

The course seeks to provide an orientation to the primary methodological issues that need to be addressed when conducting both primary and secondary research. The course addresses the cross-disciplinary and trans-national aspects of research that place extra demands on research methods in data collection, sampling, comparative policy framework

analysis, usage of terminology, ethical considerations, comparisons of discourses and ideological representations in a sometimes contested and controversial field of inquiry. Designed with both quantitative and qualitative approach, this course addresses challenges and dilemmas that researchers confront when collecting and interpreting data in studies of refugees and migration. This course further addresses in-depth analysis regarding accessibility of relevant data (ranging from use of statistics as well as access to social fields), how to handle ethical issues; how to develop intersectional analysis, and specific questions related to multi-strategy research design; ethical issues and how to handle after-use questionnaire and checklist.

**When Offered**

Offered in the spring.

**MRS 505/5205 - Palestinian Refugee Issues (3 cr.)**

**Description**

This inter-disciplinary course will be an opportunity for students to engage directly with the major practical and theoretical issues connected with Palestinian refugees, critically assessing the historical, political, legal and ideological forces that have shaped their turbulent circumstances.

**Cross-listed**

Same as MEST 5205.

**MRS 502/5206 - Comparative Migration Policies (3 cr.)**

**Description**

Countries at both ends of the migration process develop migration policies that govern a variety of issue areas. In countries of destination, migrants essentially contribute to economic activity. Therefore, their policies address issues such as demand for migrant workers, admission criteria, recognition of skills, non-discrimination and integration of migrant workers and their families, curbing irregular migration, border control and patrolling sea lanes, the role of business and trade union and international cooperation. Countries of origin are mainly concerned with releasing pressures over their labor markets, the protection of migrants, their welfare, maximizing the contributions of migrants to development through financial remittances and their productive use, effective return migration policies, migration statistics, and international cooperation. The course will examine how a selected number of countries of origin and destination formulated and implemented policies in the respective areas of concern to the two sets of countries.

**MRS 503/5207 - Migrants & Refugees in the International System (3 cr.)**

**Description**

The course attends to the consequence for the nation state and for the international system of migration and refugee movement. The course focuses on historical and contemporary population movements. By connecting historical and contemporary population movements to, among others, colonization, globalization, nationalism, citizenship, human rights and minority politics, the course interrogates the relationship between migrants, refugees, the nation-state, and the international system.

**MRS 508/5208 - Special Topics in Migration and Refugee Studies (3 cr.)**

**Description**

Topics discussed vary every semester and depends on the instructor. The topic of the course will be announced prior to registration.

**Cross-listed**

Same as SOC/ANTH 5208.

**When Offered**

Offered annually.

**MRS 509/5209 - Migration, Integration and Citizenship (3 cr.)**

**Description**

This course will examine the challenges brought to citizenship theory by migrations and migrants integration. Diverging definitions of citizenry embody and express distinctive understandings of nationhood, be it state-centered and assimilationist, ethnocentric and 'differentialist' or multiculturalist, that are deeply rooted in the political and cultural history of different nations. The course will focus on the various conceptions of citizenship and how they influence the integration and the migrants' identity (re)constructions well as, to a certain extent, trigger a redefinition of receiving countries' cultural and political norms, including the very meaning of Nation-State.

**Cross-listed**

Same as SOC/ANTH 5209.

**MRS 513/5213 - Practicum in Psychosocial Interventions for Forced Migrants and Refugees (2 cr.)**

**MRS 514/5214 - Psychosocial Interventions for Forced Migrants and Refugees (3 cr.)**

**MRS 528/5228 - Migration in International Law (3 cr.)**

**Description**

This course explores international law's impact on state migration control, as well as its broader influence on the global phenomenon of migration. States and other actors have increasingly sought to manage aspects of migration at the international level to ensure orderly and humane control of population movements. This course examines the different ways in which international law engaged with migration through, amongst other things, general principles of international law, human rights and labor law, international criminal law, the laws of armed conflict, as well as trade and environmental law.

**Cross-listed**

Same as LAW 5228.

**MRS 584/5284 - Practicum: Internship or Research (3 cr.)**

**Prerequisites**

Permission of Advisor.

**Description**

Internship for four to six months in an organization working with migrants/refugees or active involvement on an institutional research project that examines elements of population movements. The work is assessed on the basis of a

written report and discussions with faculty advisor.

### **MRS 599/5299 - Research Guidance and Thesis (3 cr.)**

#### **Description**

Supervision in the writing of the thesis.

#### **When Offered**

Offered in fall and spring.

### **MUSC 255/1010 - The Songs of America (3 cr.)**

#### **Description**

An introduction to popular American music via genre and performance. Study of discrete sets of American songs, drawn from the major genres of current popular American music, and identification of salient features of these genres.

#### **Notes**

Requires no previous musical training.

### **MUSC 252/1011 - Vocal Methods (3 cr.)**

#### **Description**

An overview of the skills required to sing well. Training in vocal production, some sight-singing, and study of songs chosen by the instructor and by the student.

#### **Notes**

Requires no previous musical training.

### **MUSC 250/1012 - Guitar and Piano: Accompaniment and improvisation "by ear" (3 cr.)**

#### **Description**

Students will acquire an understanding of the division of the octave into 12 semitones, and of basic related scales and chords. They will learn to play improvised song accompaniments on piano and guitar, and to develop more elaborate accompaniments over time.

#### **Notes**

Requires no previous musical training.

### **MUSC 199/1099 - Selected Topics for Core Curriculum (3 cr.)**

#### **Description**

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.

**When Offered**

Offered occasionally.

**MUSC 280/1800 - Private Lessons in Voice or an Instrument (1 cr.)****Prerequisites**

MUSC 1805 (Maybe taken concurrently)

**Description**

Private lessons in voice or an instrument. Twelve one-hour lessons in the semester. Students are expected to practice a minimum of one hour every day. Students will perform before a jury of teachers for the final examination. A lab fee will be assessed for each semester of instruction.

**When Offered**

Offered in spring and fall semesters

**Repeatable**

The course may be repeated multiple times for credit.

**Notes**

All students are required to meet with their teacher IN THE FIRST WEEK OF CLASSES. They MUST contact the Music Coordinator in the Department of the Arts' Main Office by the first day of classes in order to arrange this. Students in MUSC 1800 may be assigned to a different teacher after this initial meeting, at the discretion of the Music Program.

**MUSC 180/1805 - How to Read Music (3 cr.)****Description**

Instruction in how to read music.

**Notes**

Students taking MUSC 1800 , Applied Private Instruction (1 cr) are required to take this course in the same semester, or pass the music literacy placement exam.

**MUSC 225/2000 - World Music (3 cr.)****Description**

Study of the musical practices and cultures of representative diverse nations and peoples.

**Notes**

Requires no previous musical training

**MUSC 299/2099 - Selected Topics for Core Curriculum (3 cr.)****Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**MUSC 220/2200 - Introduction to Music (3 cr.)****Description**

The course will consist of two parts. The first is an introduction to the fundamental elements of music, including harmony, melody, timbre, rhythm and tempo, and texture, and to the instruments of the orchestra, voices, and choirs. Students will also learn the elements of musical notation and how to read it. The second is a short survey of great music in the western tradition, and of the composers who created it.

**When Offered**

Offered in fall and spring.

**MUSC 330/2300 - Introduction to Music Technology (3 cr.)****Description**

Introduction to the study of acoustics and digital audio, music synthesis, MIDI, music sequencing, and basic recording techniques. Students will produce and record audio projects with available facilities.

**Notes**

Preference will be given to declared music minors. No prior musical training is required.

**MUSC 331/2301 - Music Production Using Protools I (3 cr.)****Description**

After finishing this course, students will be qualified to apply for certification from Digidesign, the creator of Protools software, the industry standard. Students will learn to combine audio multi track recordings of live instruments with music instruments digital interface (MIDI) recording for arranging and composing, using software synthesizers and samplers (electric and real recorded acoustic instruments), and audio looping. Also, this course will develop essential techniques for recording, editing, and mixing. The software used to accomplish this will be Protools HD, Protools LE, and Protools M-Powered systems (v. 8.0.1), which are the market standard for digital audio workstation applications used for sound recording and mixing.

**MUSC 232-332-432/2302-3302-4302 - Digital Audio / MIDI Lab (1 cr. each)****Prerequisites**

MUSC 2200 and MUSC 2300 .

Students entering the course for the first time register in MUSC 2302. Students who have taken a semester of MUSC 2302 should register for MUSC 3302; those who have completed MUSC 3302 register for MUSC 4302.

**Description**

The course teaches the theory and practice of digital audio recording and editing, and music instruments digital interface (MIDI) composing and arranging, using a digital audio workstation (DAW) application and MIDI controllers. The DAW software used to accomplish this will be Protools HD , Protools LE, and Protools M-Powered systems (v.8.0.1), which are the market standard for digital audio workstation applications used for sound recording and mixing.

## **MUSC 333/2303 - Microphone Techniques (3 cr.)**

### **Prerequisites**

MUSC 2300 and MUSC 2301

### **Description**

A brief history of microphone development and a general introduction to microphone theory and design, with an overview of wireless microphones. Detailed study of microphone polarity, frequency response, and amplitude ability, which are the features that define how the microphone captures sound and its suitability to different instruments. In addition, the course will study microphone placement, and microphone preamplifiers and accessories, in recording in studio and in live performances.

## **MUSC 240/2400 - Western Music Theory I (3 cr.)**

### **Prerequisites**

MUSC 1805 ,MUSC 2200 and MUSC 1800. Concurrent with MUSC 2401.

### **Description**

Students will review the elementary concepts of pitch and rhythmic notation. The course quickly progresses through scale construction, pitch intervals, chord construction, and fundamental concepts of counterpoint and instrumentation. By the end of the semester, students will be able to compose two-part counterpoint, spell triads and seventh chords, and will begin to understand four-part notation and scoring.

### **When Offered**

Offered in fall and spring.

## **MUSC 241/2401 - Sight-Singing and Aural Skills I (1 cr.)**

### **Prerequisites**

Concurrent with MUSC 2400

### **Description**

Students will review the elementary concepts of pitch and rhythmic notation. By the end of the semester, they will be able to sing melodies in major and minor tonalities, articulate rhythms in simple and compound meters, and vocally arpeggiate triads and seventh chords. Students will practice dictation as well as aural skills.

### **Notes**

Students must be able to match pitch within a 1-octave range.

## **MUSC 245/2450 - Arab Music Theory I (3 cr.)**

### **Prerequisites**

MUSC 1805 ,MUSC 2200 and MUSC 1800. Concurrent with MUSC 2451.

### **Description**



Students will review the elementary concepts of jinses (Arab tri-, tetra-, or pentachord), maqamat (Arab music modes), and dorooob (Arab rhythm) notation. The course quickly progresses through maqam construction, jins intervals, darb construction, and fundamental concepts of Arab music texture and instrumentation. By the end of the semester, students will be able to compose Arab music simple forms, spell jinses and maqamat, and will begin to understand maqamat families and how to modulate between maqam family members, and the takht (traditional Arab music ensemble) notation and scoring.

### **MUSC 246/2451 - Maqam I (Arab Music Sight-Singing and Aural Skills) (1 cr.)**

#### **Prerequisites**

MUSC 1805 ,MUSC 2200 and MUSC 1800 . Concurrent with MUSC 2450.

#### **Description**

Students will learn the elementary concepts of Arab pitch and rhythmic notation. By the end of the semester, students will be able to sing Arab melodies in different maqams, and articulate dorooob in simple and compound meters. Students will practice dictation as well as aural skills.

### **MUSC 262/2620 - Arab Music Ensemble (1 cr.)**

#### **Description**

The class will constitute a vocal and instrumental performing ensemble, which will rehearse during class periods.

#### **When Offered**

Offered in fall and spring.

#### **Repeatable**

The course may be repeated multiple times for credit.

#### **Notes**

Rehearsal will lead to a concert performance of the music prepared.

### **MUSC 263/2630 - Guitar Ensemble (1 cr.)**

#### **Description**

The class will constitute a performing ensemble, which will rehearse during class periods. Work will also include the techniques of playing, and some study of how to read music.

#### **Repeatable**

Course may be repeated multiple times for credit.

### **MUSC 264/2640 - Chamber Music Ensembles (1 cr.)**

#### **Prerequisites**

Permission of the instructor

#### **Description**

Private coaching for a chamber music ensemble, normally of two to six players (rarely more). This may be a jazz combo, a takht, a vocal ensemble, or conventional chamber ensemble for Western art music (e.g. string quartet or piano-violin duo). Twelve one-hour coachings in the semester. Students will perform before a jury of teachers or in a

concert (with permission of the teacher) for the final examination. A lab fee will be assessed for each semester of instruction.

**When Offered**

Offered in the fall and spring semesters.

**Repeatable**

The course may be repeated multiple times for credit.

**MUSC 265/2650 - Rehearsal/Performance Practicum (1 cr.)**

**Prerequisites**

Permission of the instructor

**Description**

Rehearsal and performance with a suitable music ensemble other than those offered at AUC, by arrangement with the Director of the Music program. The Director or another AUC faculty member designated by the Director will assess the final performance and assign the final grade. Director or designee may request a juried final exam in case of need.

**Repeatable**

The course may be repeated multiple times for credit.

**Notes**

Offered by special arrangement with the Music Program with the permission of the Director.

**MUSC 266/2660 - Chamber Singers (1 cr.)**

**Prerequisites**

Consent of the director.

**Description**

The class will constitute a chorus, which will rehearse during class periods. Work will also include the techniques of singing, and some study of how to read music.

**When Offered**

Offered in fall and spring.

**Repeatable**

The course may be repeated multiple times for credit.

**Notes**

Rehearsal will lead to a concert performance of the music prepared.

**MUSC 267/2670 - Cairo Choral Society (1 cr.)**

**Prerequisites**

Permission of the instructor

**Description**

A community chorus dedicated to the study, promotion, and performance of the great choral works in the Western musical tradition. It presents performances with professional soloists and orchestra at various venues in Egypt. Students registered in this course will participate in all rehearsals and performances in the semester.

Students may also choose to join the chorus on a not-for-credit basis.

**When Offered**

Fall and spring semesters

**Repeatable**

The course may be repeated multiple times for credit.

**MUSC 284/2850 - Private Instruction for Piano Proficiency (1 cr.)**

**Prerequisites**

MUSC 1805 (Maybe taken concurrently)

**Description**

Private lessons in piano, intended for music technology or music performance majors or minors whose primary instrument is not piano. Twelve one-hour lessons in the semester. Students will perform before a jury of teachers for the final examination. A lab fee will be assessed for each semester of instruction.

**When Offered**

Fall and spring semesters.

**Repeatable**

Course may be repeated multiple times for credit.

**Notes**

All students are required to meet with their teacher in the first week of classes. They must contact the Music Coordinator in the Department of the Arts' Main Office on the first day of classes in order to arrange this. Students in MUSC 1800 may be assigned to a different teacher after this initial meeting, at the discretion of the Music Program.

**MUSC 370/3099 - Selected Topics in Music (3 cr.)**

**Prerequisites**

Prerequisite: consent of the instructor.

**Description**

Offered occasionally.

**Repeatable**

May be repeated for credit if content changes.

**MUSC 372/3110 - Diction for Singers in the Western Tradition (3 cr.)**

**Prerequisites**

MUSC 1800/4800 (at least two semesters) or permission of the instructor.

**Description**

Study of the fundamentals of diction for singing in German, French, Italian, and English. Students will learn the International Phonetic Alphabet (IPA), and perform repertory in these languages in class. Open to students outside the voice concentration, including non-majors, with permission of the instructor; some prior study of voice is required, however.

### **MUSC 371/3150 - Western and Arab Musical Instruments (3 cr.)**

#### **Prerequisites**

MUSC 2200

#### **Description**

Fundamentals of percussion, brass, woodwind, string, keyboard, and electric and electronic instruments in Western and Arab music. The course will explain how sound is produced in these instruments, looking at pitch and decibel ranges as well as playing techniques. Also, this course will examine the structure of music ensembles, from the orchestra and Arab takht to modern and contemporary ensembles in Western and Arab music.

### **MUSC 360/3200 - Music in the Western Tradition (3 cr.)**

#### **Prerequisites**

MUSC 2200 and MUSC 2400 .

#### **Description**

The study of western music in its historical and cultural context, from its medieval roots to the present day, with an emphasis on representative great works and their composers.

### **MUSC 342/3250 - Music in the Arab Tradition (3 cr.)**

#### **Prerequisites**

MUSC 2200

#### **Description**

Study of Arab music and song in its historical and cultural context, from its origins to the present day.

#### **Notes**

No previous experience in Arab music is required.

### **MUSC 334/3304 - Music Production for Visual Media (3 cr.)**

#### **Prerequisites**

MUSC 2200 MUSC 2300 and MUSC 2301

#### **Description**

This course is designed to introduce students to a range of techniques and technologies used in producing audio for visual media. The course will examine theory and practice used in music production for TV, film, web, video games, and art installations. Students will acquire skills in digital music production for visual media by working on projects which simulate actual professional productions. The course also provides the terminology of audio production and the basic theoretical framework upon which production skills can be built.

### **MUSC 335/3305 - Electronic Music (3 cr.)**

**Prerequisites**

MUSC 2200 and MUSC 2300

**Description**

A study of the history of Electronic music, in brief prior to 1945, and in more detail thereafter, touching on the different schools of electronic music in Paris (Musique Concrete), Cologne (Elektronische Musik), Milan, and America, the use of the Voltage-Controlled synthesizer, tape composition, live Electronic music, Rock and Pop Electronic music, and the Digital Revolution and MIDI. In addition to history, the course will explain Electronic musical instruments, forms, and composers.

**MUSC 336/3306 - Sound for Picture Production (3 cr.)****Prerequisites**

MUSC 2301

**Description**

This course provides an in-depth, interactive study of sound and its relationship to picture. Topics will include post production areas relative to time code, synchronization, workflow, data interchange, sound recording and editing, lip-syncing and voice over tracks using ADR (Automatic Dialog Replacement), creating special effects with Foley, routing structures, sound mixing, and delivery methods. All of the above will be first described in class lectures and then applied practically in projects.

**Cross-listed**

Same as FILM 3306 .

**MUSC 337/3307 - Music for Film (3 cr.)****MUSC 000/3308 - Live Sound Reinforcement (3 cr.)****Prerequisites**

MUSC 2300.

**Description**

The course is intended to provide understanding of the fundamentals of Live Sound and knowledge of the various components, equipment, tools, history and theory, as well as sound system design concerns commonly encountered in the real world. The practical part consists of setting-up a basic sound reinforcement system and hands-on operation. Previous experience or knowledge in music, recording or live sound is not expected nor required, although it is a plus.

**MUSC 340/3400 - Western Music Theory II (3 cr.)****Prerequisites**

MUSC 2400 and MUSC 2401 . Concurrent with MUSC 3401

**Description**

Students will review the concepts of counterpoint and harmony. The course will cover instrumentation, phrase, tonic

and dominant, embellishing tones, chorale harmonization and figured bass, phrase structure and expansion, diatonic sequence, and intensifying the dominant. Students will learn to analyze, compose, and write about music topics covered in class.

### **MUSC 341/3401 - Sight-Singing and Aural Skills II (1 cr.)**

#### **Prerequisites**

MUSC 2400 ,MUSC 2401 . Concurrent with MUSC 3400.

#### **Description**

Students will review the intermediate concepts of pitch and rhythmic notation. By the end of the semester, they will be able to sing more complex melodies in major and minor tonalities, and develop their ability to perform simple and compound meters, aurally identify all intervals, and study phrasing, cadences, and the harmonic expansion of secondary chords.

### **MUSC 345/3450 - Arab Music Theory II (3 cr.)**

#### **Prerequisites**

MUSC 2450 and MUSC 2451 .

Concurrent: Students in this course must also register for MUSC 3451

#### **Description**

Review of the instrumental and song forms of Arab music. The course will explore maqam construction, jins intervals, darb construction, and fundamental concepts of Arab music texture and instrumentation. By the end of the semester, students will be able to analyze Arab music instrumental and song forms and extract darbs and maqamat from them. In addition students will be able to compose Arab music, modulating between maqamat and changing darbs in the same piece.

### **MUSC 346/3451 - Maqam II (Arab Music Sight-Singing and Aural Skills) (1 cr.)**

#### **Prerequisites**

MUSC 2450 and MUSC 2451 . Concurrent: Students in this course must also register for MUSC 3450

#### **Description**

Study of pitch and rhythmic elements of Arab music at an advanced level. By the end of the semester, students will be able to sing complex Arab melodies in different maqamat and their families, and articulate and decorate darbs in simple and compound meters. Students will practice dictation as well as aural skills.

### **MUSC 311/3520 - Guitar Pedagogy (3 cr.)**

#### **Prerequisites**

MUSC 1805 MUSC 2200 and MUSC 1800/4800.

#### **Description**

Preparation for a professional career that balances performance and teaching. Coursework will involve the analysis of guitar methods, technique manuals, and literature. The topics that will be addressed over the semester will include early childhood education methods and group instruction, as well as how to coordinate beginning, intermediate and advanced level private guitar lessons and studios for adults.

### **MUSC 402/3900 - Independent Study (1-3 cr.)**

#### **Prerequisites**

Open to students with a minimum B average.

#### **Description**

In exceptional circumstances, some advanced music students may arrange, with departmental approval, to study beyond the regular course offerings.

#### **When Offered**

Offered in fall and spring.

#### **Repeatable**

May be repeated for credit if content changes.

### **MUSC 438/4308 - Music Production Using Protools II (3 cr.)**

#### **Prerequisites**

MUSC 2300 and MUSC 2301

#### **Description**

A continuation of Music Production Using Protools I. The course will teach students advanced sound engineering techniques. For example, students will learn how to adapt their workstation (including the rams, processor, and hard disks) to accommodate large recording sessions without facing problems of slow processing which can affect quality, by adjusting the playback engine and delaying compensation. Students will learn how to set time and tempo operations and key signature for composing and arranging songs using Protools, and how to upgrade the quality of the MIDI recorded tracks performed by amateurs into professional-quality output. The course will also explore different types of recording and advanced editing techniques, and develop essential techniques for using plug-ins in the mixing and mastering stages.

### **MUSC 439/4309 - Digital Mixing Techniques (3 cr.)**

#### **Prerequisites**

MUSC 2200 ,MUSC 2300 and MUSC 2301

#### **Description**

The course will examine the theory and practice of the music mixing process and mixing analysis, using a digital audio workstation (DAW) application, Protools v.8.0.1, currently the market standard. Students will study the different hardware (like studio monitors or speakers), software (i.e. the Protools application), and processes (like meters and signal flow), involved in digital mixing, the use of equalizers, dynamics processors, effects (reverb, chorus and delay) and pitch corrections, and the different types of panning, automation and bouncing of final mixes.

## **MUSC 440/4400 - Western Music Theory III (3 cr.)**

### **Prerequisites**

MUSC 3400 and MUSC 3401 . Concurrent: students in this course must also register for MUSC 4401

### **Description**

In-depth study of phrase rhythm and motivic analysis, tonicizing scale degrees other than V, modulation to closely related keys, binary and ternary forms, modal mixture and chromatic mediant and submediants, and the Neapolitan sixth and augmented sixth chords. Students will leave this course with ability to analyze, compose, and write about all of the topics covered in Western Music Theory I-III.

## **MUSC 441/4401 - Sight-Singing and Aural Skills III (1 cr.)**

### **Prerequisites**

MUSC 3400 and MUSC 3401 . Concurrent: students in this course must also register for MUSC 4400

### **Description**

Review of advanced concepts of pitch, harmony, and rhythmic notation. By the end of the semester, students will be able to sing melodies in all major and minor tonalities, articulate rhythms in simple, compound, and irregular meters, arpeggiate harmonic progressions include augmented and other predominant harmonies and modulation, and handle various chromatic techniques.

## **MUSC 480/4800 - Advanced Private Lessons in Voice or an Instrument (3 cr.)**

### **Prerequisites**

MUSC 1800

### **Description**

Advanced private lessons in voice or an instrument. Twelve one-hour lessons in the semester. Students are expected to practice three hours each day. Students will perform before a jury of teachers for final examination. A lab fee will be assessed for each semester of instruction.

### **When Offered**

Offered in the fall and spring semesters.

### **Repeatable**

The course may be repeated multiple times for credit.

### **Notes**

All students are required to meet with their teacher IN THE FIRST WEEK OF CLASSES.

## **MUSC 490/4900 - Advanced Seminar (3 cr.)**

### **Prerequisites**

Prerequisite: Consent of the instructor.

### **Description**

In-depth examination of special advanced topics in music determined by the special interest and expertise of the



faculty.

**When Offered**

Offered occasionally.

**Notes**

Designed for advanced students.

**MUSC 492/4980 - Capstone Final Recital (3 cr.)**

**Prerequisites**

MUSC 4802.

**Description**

Twelve one-hour private lessons in voice or an instrument, constituting final preparation for a solo recital at least forty minutes in length, of repertory chosen by the instructor, normally presented in the senior year. Students are expected to practice at least three hours each day. A lab fee will be assessed. The student must play the full recital as a juried exam with a grade of B or higher at least thirty days before presenting the recital. Students who do not achieve a grade of B or higher in the jury may repeat the course once for credit in order to qualify to present the recital, which is required for graduation with the B.M.A. The jury will also attend the recital and assign the final grade for the course.

**NANO 500/5200 - Nanomaterials, Synthesis, Processing and Applications (3 cr.)**

**Description**

This course provides a comprehensive introduction to nanomaterials, their synthesis, properties, processing techniques and applications. The coverage addresses top-down and bottom-up approaches including nanomaterials ranging from small particles and isolated clusters to nanostructured materials, multilayer and consolidated bulk products, thin film and coatings. Their chemical, mechanical, optical and magnetic properties will be introduced.

**NANO 502/5202 - Simulation and Modeling for Nanoscale Materials and Systems (3 cr.)**

**Description**

Principles of modeling structures and processes at the nanometer scale, including meshing techniques, finite element analysis, and molecular dynamics. Simulation of Materials Science-based or Mechanics-based modeling methods employed; mechanical response of nanostructured materials; Modeling methods including electronic structure, molecular dynamics and Monte Carlo techniques are included.

**Cross-listed**

Same as MENG 5232.

**NANO 503/5203 - Advanced Testing and Characterization Techniques (3 cr.)**

**Description**

Experimental techniques in the study of materials including quantitative measurements for the characterization of micro and nanostructured bulk and thin film materials using optical, electron and atomic force microscopy; Secondary ion

mass spectroscopy (SIMS), Auger Electron Spectroscopy (AES), Rutherford Backscattering (RBS); EDX; X-ray diffraction and differential scanning calometry for thermal analysis. Advanced and conventional testing techniques for characterization of the physical, optical, magnetic and mechanical properties of micron and Nanomaterials and devices.

**Cross-listed**

Same as MENG 5228.

**NANO 504/5204 - Fabrication of Nanomaterials For Films And Devices (3 cr.)**

**Description**

This course will cover different techniques implemented for preparing thin films such as chemical vapor deposition, physical vapor deposition (evaporation, sputtering, pulsed laser deposition, electron beam, etc), and molecular beam epitaxy. In addition, different techniques for enhancing the physical properties of materials will be covered. This will include post-laser treatments, metal induced crystallization, thermal treatments, etc.

**Cross-listed**

Same as MENG 5231.

**NANO 505/5205 - Nanochemistry (3 cr.)**

**Description**

This course introduces students to the basics of chemistry at the nanoscale, and would entail a general introduction to the nano world; physico-chemical considerations for properties at the nanoscale (band structures, typical and useful "nano effects" etc...); basic synthesis and fabrication methods for nano structures (top-down and bottom up approaches).

**Cross-listed**

CHEM 5205

**NANO 506/5206 - Management and Economics of Nanotechnology (3 cr.)**

**Description**

The course will discuss various aspects of management and economics of nanotechnology. It would include: (1) Nanotechnology's role in society and particularly within a fast changing world. (2) Nanotechnology is the next big driver of wealth creation within corporations and countries. (3) Product and Production Nanotechnologies, (4) Enhancing creativity and managing innovation in the context of nanotechnology. (5) Nanotechnology Life Cycles (The Curves of Technological Progress, Nanotechnology & Market Interactions and Products & Process Life Cycles)

**NANO 000/5207 - Advanced Nanophysics (3 cr.)**

**Prerequisites**

Consent of instructor

**Description**

Nanophysics fundamentals, physics of nanostructures, crystalline nanostructures, light-matter interaction on the nanoscale, quantum nanostructures, diffraction and scattering from nano objects.

**Cross-listed**

PHYS 5207

**NANO 520/5210 - Advanced Quantum Mechanics (3 cr.)**

**Prerequisites**

PHYS 4042 or equivalent.

**Description**

Fundamental concepts of quantum mechanics including the harmonic oscillator, the hydrogen atom, electron spin and addition of angular momentum. Qualitative and approximation methods in quantum mechanics, including time-independent and time-dependent perturbation theory, variational methods, scattering and semiclassical methods. Applications are made to atomic, molecular and solid matter. Systems of identical particles including many electron atoms and the Fermi gas.

**Cross-listed**

Same as PHYS 5043.

**When Offered**

Offered in fall and spring.

**NANO 521/5221 - MEMS/NEMS Technology and Devices (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Basic MEMS/NEMS fabrication technologies, various transduction mechanisms such as piezoelectric, pyroelectric, thermoelectric, thermionic, piezoresistive, etc. The theory of operation of few sensors including infrared detectors, radiation sensors, rotation and acceleration sensors, flow sensors, pressure and force sensors, and motion sensors. An introduction to different techniques for analyzing experimental data.

**Cross-listed**

Same as PHYS 5277, RCSS 5242 .

**When Offered**

Offered in fall

**NANO 522/5222 - Advanced Semiconductor Physics (3 cr.)**

**Description**

This course will cover three main topics namely: Near-equilibrium transport in the presence of small gradients in the electrochemical potential or temperature, with or without the application of a small magnetic field. Physics of carrier scattering and how the microscopic scattering processes are related to macroscopic relaxation times and mean-free-paths. High-field transport in bulk semiconductors and "non-local" transport in sub-micron devices.

**Cross-listed**

Same as PHYS 5236.

**NANO 532/5232 - Nanocomposite Science and Technology (3 cr.)**

**Description**

This course is designed to provide fundamental understanding of emerging nanocomposite materials science and technology. The topical areas to discuss include synthesis of various nanoscale reinforcements, such as nanowires, nanotubes, and inorganic nanoparticles; fabrication and processing techniques of nanocomposites; dispersion of nanoreinforcements; interfacial adhesion; mechanical and functional properties of nanocomposites including gas/moisture barrier characteristics, electrical and magnetic properties, thermal properties and flame retardancy; molecular dynamic simulations; design and applications of nanocomposites.

**NANO 533/5233 - Materials for Energy Conversion and Storage (3 cr.)**

**Description**

This course will focus on advanced electrochemical energy conversion and storage systems including fuel cells, lithium-ion batteries, and supercapacitors; Hydrogen storage; Advanced thermal storage . Through the journey in this course, students are anticipated to understand why and how these systems are advantageous in renewable energy applications.

**Cross-listed**

Same as MENG 5234.

**NANO 541/5241 - The Chemistry of Nanostructures (3 cr.)**

**Prerequisites**

NANO 5205

**Description**

This course addresses the synthesis and chemical properties of the different categories of nanostructures such as carbon NANOTubes/nanorods/ etc..., fullerenes, colloids, Self-assembled monolayer structures (SAMs), dendrimers and other macromolecules, oxide and inorganic nanotubes/fibers/rods/etc. For each category examples of applications would be giving to demonstrate the applicability of the properties discussed.

**Cross-listed**

CHEM 5241

**NANO 542/5242 - Nanoelectrochemistry (3 cr.)**

**Prerequisites**

NANO 5205

**Description**

This course addresses the fundamentals of electrochemistry, and their application to the synthesis of nanostructures, together with applications (e.g. sensors, fuel cells, batteries, electrolysis, photovoltaic cells, reduction of carbon dioxide, environmental remediation, water disinfection, ect...). Characterization and analysis techniques would also be addressed.

**Cross-listed**

CHEM 5242

### **NANO 551/5251 - Nanotechnology Applications in Construction Materials (3 cr.)**

**Description**

This course covers the use of nanotechnology in studying the particle shape, size and composition of conventional and advanced construction materials on a sub micro level. The correlation between the nano level characteristics and the mechanical properties as well as the durability of the materials is studied. Composition and arrangement of crystalline structures and chemical composition of materials are examined to yield materials of superior properties.

### **NANO 552/5252 - Nanotechnology in Studying Damage and Failure in Structures (3 cr.)**

**Description**

The course employs nanotechnology to study submicro cracks, flaws and damage indications in structures through examining the materials used. The course aims at providing early prediction of the life time of structures and nano-based prediction of the damage patters and hence around decision on repair intervention and the technique used.

### **NANO 561/5261 - Advanced Solid-State Devices (3 cr.)**

**Prerequisites**

Graduate standing in engineering and physics. Electromagnetics, vector algebra, differential equations, and MATLAB programming.

**Description**

This course covers crystal structures, band gap theory, ionic equilibrium theory, fundamentals of carrier transport, compound semiconductors III-V. This course will make special emphasis on the properties of various types of junctions (p-n junctions, heterojunctions, metal-semiconductor junctions) leading to various electronic devices such as field effect transistors (FETs), metal oxide-semiconductor FETS (MOSFETs), high electron mobility transistors (HEMTs), etc. Short Channel effects and nanoscale phenomena will be emphasized throughout the course and their impact on device modeling in analog and digital circuits.

**Cross-listed**

Same as ECNG 5210.

### **NANO 562/5262 - Advanced Integrated Circuit Design (3 cr.)**

**Description**

The objective of this course is to provide the students with the knowledge of designing emerging nanoelectronic devices and using these devices to build future computing systems. After an introduction to CMOS devices and circuits, the course will cover CMOS design and simulation topics. More attention will be paid to the applications of these devices in the implementation of future computers. The memory and logic architectures that take advantage of the properties of the emerging devices will be discussed. Particularly, signal integrity and timing issues, as well as power consumption will be emphasized.

**Cross-listed**

Same as ECNG 5218.

### **NANO 571/5271 - Bionanotechnology (3 cr.)**

**Description**

This course covers the use of various nanostructures for ultrasensitive detection of DNA, bacteria and viruses. Recent techniques for detection of single biomolecules that offers superior advantages over the conventional bulk measurements will also be presented. This course will also cover the use of different nanoparticles such as nanocrystals and gold nanoparticles for optical imaging, as hyperthermia agents for cancer therapy, and the development of smart drug delivery nanocarriers.

**Cross-listed**

BIOT 5271

### **NANO 592/5930 - Selected Topics in Nanotechnology (3 cr.)**

**Prerequisites**

Consent of the faculty advisor.

**Description**

Topics to be chosen every year according to specific interests. Maybe taken for credit more than once if content changes.

### **NANO 599/5980 - Research Guidance Thesis (3 cr.)**

**Prerequisites**

SCI 5940

**Description**

Consultation on problems related to student thesis  
Must be taken at least twice for credit.

### **NANO 621/6121 - Nanophotonics (3 cr.)**

**Description**

The course will cover: Maxwell's equations, light-matter interaction, dispersion, EM properties of nanostructures, etc.,

Photonic crystals Photonic crystal fibers, Photonic nanocircuits Metal optics, manipulating light with plasmonic nanostructures, plasmonic nano-sensors, near-field optics, metamaterials, negative refractive index and super-resolution.

**Cross-listed**

PHYS 6121

**NANO 630/6230 - Biomaterials (3 cr.)**

**Description**

Lectures will include: materials for biomedical applications and their biocompatibility; design at a molecular scale of materials used in contact with biological systems, including biotechnology and biomedical engineering; methods for biomaterials surface modification and characterization. Other topics include analysis of protein adsorption on biomaterials; tissue and organ regeneration; design of implants and prostheses based on control of biomaterials-tissue interactions; drug delivery, and cell-guiding surfaces.

**Cross-listed**

Same as MENG 5235.

**NANO 640/6240 - Nanoporous Materials (3 cr.)**

**Prerequisites**

NANO 5205

**Description**

Review of the field of nanoporous materials. Synthesis, characterization and surface modification. Adsorption and separation processes, biological and catalytic applications. Nanoporous materials for the removal of pollutants in the gaseous and liquid phases.

**Cross-listed**

CHEM 6240

**NANO 642/6242 - Nanocatalysis (3 cr.)**

**Description**

This course covers the characterization and reactivity of nanoscale catalysts. Concept of nanocatalysis. Reaction Engineering. Modeling in Nanocatalysis. Nanocatalytic membranes for gas to liquid conversion. Nanocatalysis for dehydrogenation of hydrocarbons. Charge transport in Molecular and Nanoscale systems. Synthesis of Nanoceramic catalysts by chemical and physical routes.

**NANO 699/6980 - Research Guidance Dissertation (3 cr.)**

**Description**

Consultation on problems related to student thesis. To be taken 11 times for credit.

## **PENG 200/2011 - Introduction to Petroleum Geology (2 cr.)**

### **Prerequisites**

CHEM 1005

### **Description**

Basic concepts of Geology; Uniformization, Geologic Time, Plate Tectonics, Rocks and Minerals (Igneous, Sedimentary and Metamorphic), Minerals, Origin of Sedimentary particles, Sedimentary Transport, Depositional Environments (Continental, Transitional and Marine), Sedimentary Facies, Lithification, classification of sedimentary rocks, Mechanical behavior of the rocks, Stratigraphy (correlation, superposition, unconformity, faunal succession and relative age), Structure, folds and its types, faulting and their types.

### **When Offered**

Offered in fall and spring.

### **Notes**

This course can only be offered to students matriculated before fall 2015.

## **PENG 201/2012 - Geology Lab. (1 cr.)**

### **Prerequisites**

PENG 2011 or concurrent.

### **Description**

Introduction to physical properties of the Earth's materials. Identification of rock forming minerals. Macroscopic description and identification of rocks. Brief introduction to microscopic methods used in identification of the different types of rocks; mode of preservation and identification of fossils and their significance to petroleum geology; topographic and subsurface maps; contour maps and cross sections and finally, introduction to remote sensing techniques.

### **Notes**

This course can only be offered to students matriculated before fall 2015.

## **PENG 000/2013 - Petroleum Industry Overview (1 cr.)**

### **Prerequisites**

ENGR 1001

### **Description**

Overview and history of the petroleum industry and petroleum engineering; nature of oil and gas reservoirs, exploration and drilling, formation evaluation, well completions and production, surface facilities, reservoir mechanics, improved oil recovery; overview of refining, petrochemical industry and downstream processing of oil and gas.

### **When Offered**

Every semester

## **PENG 218/2411 - Electrical Engineering (2 cr.)**



**Prerequisites**

PHYS 1021 and MACT 2123 .

**Description**

Electric circuit theory; Three-phase systems; circuit analysis; electrical insulation; electrical measurements; energy conversion; induction motors, switchgear and substation apparatus, electric heating, Acoustics.

**When Offered**

Offered in fall or spring.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 227/2415 - Materials Engineering (3cr.)****Prerequisites**

CHEM 1005 and ENGR 2122 or concurrent.

**Description**

Structure & properties of materials; Metals; Ceramics; Plastics; Phase Equilibria; Structure/Properties relationship; Materials Selection; Performance of materials in oil environment.

**When Offered**

Offered in fall or spring.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 301/3011 - Petroleum Geology and Exploration (3cr.)****Prerequisites**

SCI 2005

**Description**

History of petroleum geology, Oil & Gas accumulation, The occurrence of petroleum, Source rock, Migration and accumulation, Reservoir rocks, Reservoir pore space, Reservoir fluids, Stratigraphic traps, Structural traps, Hydrodynamic Traps, Combination traps, Subsurface geology and mapping, and Reservoir appraisal. Exploration engineering, Gravity surveying, Magnetic surveying, Seismic data Acquisition, Seismic data Processing, Seismic data Interpretation, introduction to logging and formation testing, hydrocarbon indicators, Exploration Risk and Analysis, and Project.

**When Offered**

Offered in fall or spring.

**PENG 302/3021 - Reservoir Rock Properties (3 cr.)****Prerequisites**

SCI 2005 , PENG 3211 (or Concurrent), and Concurrent with PENG 3022

**Description**

Porosity, permeability, saturation, core retrieval and handling, measurements of porosity, permeability and saturation in the lab, routine core analysis reports, wettability, capillary pressure, relative permeability, measurement of wettability, capillary pressure, and relative permeability in the lab, SCAL reports, other SCAL properties including electric and acoustic properties, and rock compressibility.

**When Offered**

Every semester

**PENG 303/3022 - Petrophysics and Fluids Lab (1 cr.)**

**Prerequisites**

PENG 3211 (or Concurrent) and Concurrent with PENG 3021

**Description**

Lab safety and core plug preparation, measurements of porosity, gas and liquid permeabilities, saturation, electrical properties of the rock, Dean stark and retort, surface tension (Amott Test), wettability, capillary pressure calculation, relative permeability, PVT analysis.

**When Offered**

Offered in spring or fall.

**PENG 311/3111 - Drilling Engineering I (3 cr.)**

**Prerequisites**

PENG 3021 and ENGR 2122

**Description**

Rig components, rig types, basic drilling tools, well head equipment, drilling fluids, casing types, cementing concept and equipment, drilling bits, practices of well drilling, drilling techniques, basics of drilling operations, well control equipment, simple drilling problems (e.g. hole stability and lost circulation).

Every semester

**When Offered**

Offered in fall and spring.

**PENG 313/3112 - Drilling Engineering I Lab (1 cr.)**

**Prerequisites**

Concurrent with PENG 3111

**Description**

Mud program design, Mud rheology tests (e.g. viscosity, Mud Balance, sand content, etc.); well control simulation, bits dulling, bits selection.

**When Offered**

Every semester

**PENG 305/3211 - Reservoir Fluids (3 cr.)**

**Prerequisites**

PENG 2013

**Description**

Petroleum fluid composition, phase behavior, phase envelopes, five reservoir fluids, ideal gas and real gas laws, z-factor, dry gas properties, modification for wet gases, black-oil PVT properties definition, PVT properties from correlations, PVT laboratory experiments, handling PVT reports, oil formation volume factor and solution gas oil ratio corrections, formation water properties, fluid sampling.

**When Offered**

Every semester

**PENG 331/3215 - Reservoir Engineering Fundamentals (3 cr.)****Prerequisites**

PENG 3211 and PENG 3021

**Description**

The course presents different phases of oil recovery including primary, secondary, and enhanced. It reviews basic rock/fluid properties and important fluid flow equations in porous medium for compressible and incompressible fluids. It presents reservoir drive mechanisms and volumetric calculation of oil and gas reserves.

The course also covers Material Balance Equation (MBE) techniques as a straight line (Odeh & Havlena) for calculation of oil reserve for saturated and undersaturated reservoirs. Water flooding process is covered and also different models for prediction of water coning problem. In addition horizontal well production and introduction to different enhanced oil recovery (EOR) processes are presented.

**When Offered**

Every semester

**PENG 351/3225 - Natural Gas Engineering (3 cr.)****Prerequisites**

PENG 3215

**Description**

The increased Importance of natural gas as an energy resource; The dynamics of Natural Gas Industry and differences from the oil industry; Properties of Natural Gas (wet gases and gas condensates); Estimating gas reserves for wet gases and gas condensates; fluid flow in Gas Reservoirs, p squared approach and Pseudo-Pressure  $m(p)$  approach; flow of gas through tubing and production pipes; introduction to gas processing.

**When Offered**

Every other semester

**PENG 320/3227 - Formation Evaluation (3cr. + 1cr.)****Prerequisites**

PENG 3011 and PENG 3021

**Description**

Introduction to modern well logging methods, petrophysical investigation of rocks in place, well to well correlations, Basics of well logging, Open hole logs, Gamma Ray logging, Calipers, Bore Hole Geometry, Resistivity logs, Porosity logs, Qualitative interpretation, and quantitative Well log interpretation such as calculation of Shale content, Porosity, Saturation, formation pressure prediction, and Net pay calculations. Quick look interpretation, Interpretation of Shaly formation, Effect of gas, Integration of well data to other geophysical data, core-log integration, running commercial software for petrophysical analysis, Dip log, NMR, and cased hole logs.

**When Offered**

Every semester

**PENG 321/3310 - Well Completion and Workover (3 cr.)****Prerequisites**

PENG 3111

**Description**

Introduction and definition of well completion and workover, Types of completions and pros and cons of each type (OH, CH, CH cemented, Linear, ....etc), Surface (SWHs) and Downhole components of completions (equipment) (tbg, packers, bridge plugs, SSDs, SSSV, SCSSV, ...etc) including the tubing design calculations, Coiled tubing/Wireline and coiled tubing operations, Stimulation (frac, acidizing and acid fracs), carbonate and sandstone acidizing, Perforation, Sand control/gravel pack, Formation damage, Workover fluid, Design completion of directional wells, Well completion economics, Lift systems.

**When Offered**

Every other semester

**PENG 322/3311 - Production Engineering Fundamentals (2 + 1 Lab)****Prerequisites**

PENG 3211

**Description**

Production system components; Inflow, outflow, chock performance calculations. Nodal analysis (reservoir, wellbore, wellhead, surface separator, and pipeline). Pressure draw down and productivity index. Formation damage in vertical and horizontal wells, factors affecting the inflow and outflow, applications of Nodal analysis Software.

**When Offered**

Every semester

**PENG 323/3321 - Surface Facilities (3 cr.)****Prerequisites**

PENG 3311 and PENG 3411

**Description**

Oil and gas gathering systems, gas separation and treatment, crude emulsion and desalting treatment, multistage separation, surface facilities sizing, treatment facilities design and sizing, transportation of crude and gas, classification

and fractionation of crudes.

**When Offered**

Every other semester

**PENG 361/3411 - Thermodynamics (3cr.)**

**Prerequisites**

ENGR 2122 and CHEM 1005

**Description**

Fundamental Concepts and Definitions; Properties of Pure Substances; First and Second Law of Thermodynamics; Reversed Cycles; Reversibility and Entropy; Vapor and Gas Power Cycles.

**When Offered**

Offered in fall or spring.

**PENG 363/3413 - Heat Transfer (3cr.)**

**Prerequisites**

PHYS 1011 and PENG 3411

**Description**

Steady and Unsteady State Conduction, Forced and Natural convection, Radiation Heat Transfer and Solar Radiation, Heat Exchangers.

**When Offered**

Offered in spring

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 373/3415 - Principles of Energy Engineering (3 cr.)**

**Prerequisites**

ENGR 2122 and PENG 3413

**Description**

Basic energy calculations; material, mass, and energy balance; reaction rates during chemical transformations in energy systems. Energy storage; Regeneration.

**When Offered**

Offered fall or spring.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 374/3420 - Corrosion and Oxidation Protection (3cr.)**

**Prerequisites**

CHEM 1005 ,PENG 2415 and PENG 3411

**Description**

Corrosion theory; types of Corrosion; Oxidation; Wagner's theory; gas solid reactions; Creep; Fatigue; Stress Corrosion; Hot Corrosion; Inspection; Corrosion and Oxidation Protection of Pipe Lines and Drilling equipment.; Underwater Protection.

**When Offered**

Offered in fall or spring.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 375/3421 - Hydrogen and Fuel cells (3 cr.)****Prerequisites**

PENG 2411 and PENG 3420

**Description**

Principles of electrochemical conversion; Hydrogen production; Chemical and physical storage; Multicomponent storage systems; Efficiency of hydrogen energy; Principles of fuel cell technology; Fuel Reforming; types and design of fuel cells; fuel cell materials; efficiency and emissions.

**When Offered**

Offered fall or spring.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 000/4015 - Exploration Methods (3 cr.)****Prerequisites**

PENG 3011

**Description**

Fundamental seismic principles and its exploration methods, oil exploration and sub-surface imaging. the elastic wave equation, the acquisition and processing of seismic reflection data and seismic, tomography data. Introduction to seismic stratigraphy, seismic inversion and attribute analysis, role of seismic in reservoir properties and facies modeling. Data acquisition, processing, and interpretation of gravity data, Data acquisition, processing, and interpretation of magnetic data. Introduction to electromagnetics and their applications in petroleum industry.

**When Offered**

Offered occasionally

**PENG 411/4121 - Drilling Engineering II (3 cr.)****Prerequisites**

PENG 3111 and PENG 3310

**Description**

Rig systems; advanced drilling tools; well control and BOP equipment and calculations; casing design; cementing calculations and operations; bits design; well drilling operations techniques and process optimization for directional drilling, horizontal drilling, multilateral drilling; predicting and over-coming drilling problems (e.g. hole stability, lost circulation, swelling, kicks, etc.); controlled drilling, geo-steering; offshore drilling; well survey; MWD and LWD tools; well trajectory calculations.

**When Offered**

Every other semester

**PENG 477/4123 - Drilling Fluids Engineering (3 cr.)****Prerequisites**

PENG 4121 .

**Description**

Definition and functions of drilling fluids, drilling fluid chemistry and rheology, drilling fluid design for carbonates, sandstone and shales, drilling fluid additives and chemicals, clay structure and shale problems, loss control material for complete loss circulation, types of mud systems and their characteristics, mud behavior at HPHT wells, calculation related to drilling fluid, hydraulics, mud surface equipment's, and contaminations, hole problem in related to drilling fluid, formation damage and hole instability, mud design, mud selection, completion and workover fluid, air drilling in correlation with drilling fluid, smart fluid and nano-technology.

**PENG 000/4125 - Advanced Well Construction (3 cr.)****Prerequisites**

PENG 4121

**Description**

Advanced well planning; rig selections; well cost estimation; advanced well design of horizontal and multi-lateral wells; deep water drilling techniques; HPHT wells; drilling operations optimizations; well control predictions and solutions (e.g. relief wells); cement evaluation; advanced geo-steering design and operations; drilling software.

**When Offered**

Offered occasionally

**PENG 471/4223 - Reservoir Simulation and Modeling (2 cr. + 1 cr.)****Prerequisites**

ENGR 3202 and PENG 4224

**Description**

Reservoir simulation fundamentals, input and output for reservoir simulation, understanding reservoir simulation, simulation equations, IMPES method, introduction to reservoir simulation matrix solvers, history matching, reservoir simulation prediction, types of simulators, static models, grid models, exercise on the use of a commercial simulator in single well and full field applications.

**When Offered**

Every other semester

**PENG 333/4224 - Well Testing (2+1 cr.)**

**Prerequisites**

PENG 3215

**Description**

Diffusivity equation, skin factor, radius of investigation, types of well tests, semi-log analysis for drawdown and build up tests, gas well testing, dimensionless variables, type curve analysis, derivative plots, hydraulically fractured wells, DST, well test design. Data Analysis and Modeling Exercises using the state of the art well testing software.

**When Offered**

Every other semester

**PENG 412/4225 - Secondary and Tertiary Recovery (3 cr.)**

**Prerequisites**

PENG 3215

**Description**

The course presents all aspects of enhanced oil recovery (EOR) processes of chemical, miscible, and thermal. It covers secondary recovery by water flooding and calculations of reservoir heterogeneity using V-number and Lorenz techniques. It also presents how to use mobility ratio and capillary number to maximize oil recovery for mature oil fields under development.

The course also presents principles, application, and screening depleted oil reservoir for application of different EOR processes. More materials will be assigned as technical report for updating the participants with edge technology and EOR actual field cases.

**When Offered**

Every other semester

**PENG 461/4226 - Petroleum Economics (3 cr.)**

**Prerequisites**

PENG 3311 and ENGR 3222

**Description**

The Dynamics of Oil Prices; Demand and Supply for Oil versus other Energy Commodities; Overview of Structure of Oil Companies (Public, Private, and National); Time value of money; Cash Flow Analysis, Inflation, and Interest Rate; Investments Choices & Performance Metrics (Yardsticks); Reserves and resources classification; Reserves estimation methods; Decline Curve Analysis; International contracts; Risk Estimation in the Upstream Petroleum Industry.

**When Offered**

Every other semester

**PENG 000/4227 - Reservoir Description and Characterization (3 cr.)**



**Prerequisites**

PENG 3227 and PENG 3215

**Description**

The course presents an integrated reservoir description and characterization techniques to build up experience for senior students in petroleum engineering and geology. Its emphasis is on reservoir description using reservoir routine and special analysis data for better interpretation and reservoir modeling.

The course also presents current and advanced models capable to identify reservoir flow units. More materials will be assigned as technical paper reading and report for updating the students with edge technology for better reservoir description and characterization using actual field cases.

**When Offered**

Every other semester

**PENG 000/4229 - Unconventional Reservoirs (3 cr.)****Prerequisites**

PENG 3215 and PENG 3227

**Description**

Unconventional resources; heavy oil, fractured shales, coal bed methane, and gas hydrate, emphasizing resources, geologic and geographic occurrences, Evaluation of Organic Shale Reservoirs, Petrophysics of Organic Shales, Shale Gas Stimulation, Drilling Aspects of Shale Plays, Perforating Horizontal Wells for Hydraulic Fracturing, Role of Geomechanics in Hydraulic Fracturing, Completions & Stimulation Aspects of Shale Plays, Efficient Operations for Completing Organic Shales, Microseismic monitoring. Petrophysics of heavy oil reservoirs, stimulation and production aspects of heavy oil reservoirs. Petrophysics coal bed methane, stimulation and production aspects of coal bed methane. Petrophysics of gas hydrate, stimulation and production aspects of gas hydrates, recovery technology and their economics.

**When Offered**

Offered occasionally

**PENG 451/4313 - Oil and Gas Transmission and Storage (3 cr.)****Prerequisites**

PENG 3311

**Description**

Pipe line transport, pipe line design, calculation of the pressure drop through the pipes, fittings, valves, and bends, pipe line construction, pumping and boosting stations, gas transmission lines, metering, pipe line automation, tanker and railroad transportation, pipeline safety, regulations, specifications of the pipeline for onshore and offshore networks, examples of international pipelines, pipeline operations and maintenance, crude oil storage type, temporary storage of crude oil, crude oil stock calculations.

**When Offered**

Offered every other semester.

**PENG 000/4320 - Artificial Lift Methods (3 cr.)**

**Prerequisites**

PENG 3311

**Description**

Overview of the artificial lifting methods screening criteria and their applicability, description of each method components, operation, design and field applications including Electric Submersible Pump (ESP), Gas Lift, Rod Pumping, Hydraulic Jet Pump and Progressive Cavity Pump. Problem solving sessions include full design calculations for ESP, Rod Pumping, Gas Lift, and Hydraulic Jet Pump applications. State of the art software application will be used in sessions for simulating gas lift and ESP. Modeling their performance and conducting full design and trouble shooting of each system.

**When Offered**

Offered occasionally

**PENG 423/4323 - Petroleum Refining (3 cr.)****Prerequisites**

PENG 3420

**Description**

Type and evaluation of crude, petroleum processing, material and energy balance, physical separation, distillation, absorption, cracking, reforming, chemical refining, sweetening, processing of petroleum gases, lubricating oil, refining schemes, refining equipment's.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 000/4325 - Well Stimulation (3 cr.)****Prerequisites**

PENG 3311 and PENG 3227

**Description**

Well stimulation involves matrix acidizing, hydraulic fracturing proppant, and acid fracturing in vertical and horizontal wells. New applications in the multistage frac, unconventional frac, Candidate selection, treatment design and execution of acidizing and hydraulic fracturing treatments. selection of acid additives, lab testing, QA/QC, and treatment evaluation

**When Offered**

Offered occasionally

**PENG 462/4421 - Renewable and Alternative Energy (3 cr.)****Prerequisites**

PENG 3415 and PENG 3421

**Description**

Principles of Renewable and Alternative Energy Systems: Wind, Solar, Biogas, Geothermal, Fuel Cells, and Hydrogen

Technologies. Economic Aspects; Efficiency; Introduction to Nuclear Energy. Connection to Grid, Smart Grids and intermittency, Market liberalization.

**When Offered**

Offered in fall or spring.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 463/4422 - Energy conversion and materials (3 cr.)**

**Prerequisites**

PENG 4421

**Description**

Conversion of fossil, nuclear, biomass to fuel; Electrochemical conversion in fuel cells and photovoltaics; Criteria determining efficiency of energy conversions; Materials for energy applications including membranes, catalysis, electrodes, supercapacitors, and semi conductors.

**When Offered**

Offered fall or spring.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 474/4423 - Energy and the Environment (3 cr.)**

**Prerequisites**

PENG 2411 PENG 3415 and PENG 3420

**Description**

Energy use and energy patterns in modern society; Resource estimates; Engineering analysis of energy systems; Managing carbon emissions; Environmental impact and protection, Environmental remediation technologies. Supply and Demand of energy; Energy Scenarios and modeling; Energy Policy and Auditing; Sustainable development.

**When Offered**

Offered in fall or spring.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 470/4425 - Environmental Protection & Chemical Pollution (3 cr.)**

**Prerequisites**

PENG 3415

**Description**

Air Pollution; Water Pollution; Chemical Pollution, Combustion Emissions; Toxicity, and Poisoning; Environmental

Management; Environmental Hazards; Industrial Pollution; Safety; Regional and Global Regulations and Certifications. Biological Oxygen Demand, Health and Safety, Oil spills and disasters, selected Case Studies.

**When Offered**

Offered every other semester.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 472/4427 - Ground Water Hydrology and Contamination (3cr.)**

**Prerequisites**

PENG 3413 and PENG 3420

**Description**

Underground Hydrologic Cycle; Aquifers; Ground Water Movements; Flow Lines and Flow Nets; Steady and Unsteady State Flow; Flow Problems; Oil Field Waters; Corrosion and Microbiological Problems; Scales and Sludge; Water Treatment and Disposal; Well Injection.

**When Offered**

Offered occasionally.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 475/4428 - Greenhouse Technology and Emission Reduction (3cr.)**

**Prerequisites**

PENG 2411 ,PENG 3415 and PENG 3420

**Description**

Technologies employed to reduce CO<sub>2</sub>, CH<sub>4</sub>, and soot emissions from energy utilization; Advantages and limitations of technologies applied to reduce energy emissions; Efficient use of energy; Catalytic conversion; Greenhouse challenges; Emerging greener technologies; Capture and storage of CO<sub>2</sub> ; Emissions from nuclear power; Reforming; Sulphur and sulphur scrubbers; Climate changes and green house gases; Energy efficiency in combating emissions NOFA (non fossil fuel agreements) Kyoto and beyond.

**When Offered**

Offered fall or spring.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 476/4429 - Principles of Nuclear Engineering (3 cr.)**

**Prerequisites**

PENG 3415 and PENG 4421

**Description**

Introduction to nuclear engineering; Global and national energy requirements; Radioactivity; Atomic models; Fission and fusion reactor concepts; Neutron diffusion theory; Radiation protection and safety.

**When Offered**

Offered fall or spring.

**Notes**

This course can only be offered to students matriculated before fall 2015.

**PENG 422/4525 - Petrochemical Technology (3 cr.)**

**Prerequisites**

PENG 4511 or (CHEM 3003 and CHEM 3522)

**Description**

Ethylene and propylene production, petrochemical products, thermoplastics, thermosetting resins, fertilizers from natural gas, gas to liquid processes, equipment design and calculations.

**Notes**

This course can only be offered to PENG students matriculated before fall 2015 or to CHEM students.

**PENG 480/4920 - Independent Studies in Petroleum and Energy Engineering (1-3 cr.)**

**Prerequisites**

Consent of instructor and department chair on the basis of a well-defined proposal.

**Description**

Independent study in various problem areas of Petroleum and Energy Engineering may be assigned to individual students or groups. May be repeated for credit if content changes. Readings assigned and frequent consultations held.

**PENG 494/4930 - Selected Topics in Petroleum and Energy Engineering (3cr.)**

**Prerequisites**

Senior standing.

**Description**

Petroleum Topics chosen from: Petroleum or Gas exploration, drilling production, simulation, recovery, and gas liquefaction. Field study including assessment, evaluation, feasibility and economic studies will be required.  
Energy Topics chosen from: Alternative Energy resources including solar, wind, biomass, fuel cells, nuclear or geothermal energy. Field study including assessment, evaluation, feasibility and economic studies will be required.

**When Offered**

Offered fall and spring.

**PENG 497/4950 - Industrial Training (1cr.)**

**Prerequisites**

A minimum of 12 credits of PENG courses

**Description**

Each student is required to spend a minimum of eight weeks of industrial training in Egypt or abroad. A detailed report is presented and evaluated.

**When Offered**

Offered fall and spring.

**PENG 490/4980 - Senior Project I (1cr.)****Prerequisites**

Senior standing and completed all 300 level courses

**Description**

A capstone project. Topics are selected by groups of students and approved by faculty advisor. Topics must be related to applied industrial problems using an integrated engineering approach.

**When Offered**

Offered fall and spring.

**PENG 491/4981 - Senior Project II (2cr.)****Prerequisites**

Prerequisite: Senior standing and PENG 4980

**Description**

Continuation of the capstone project. Oral presentation and report submission required.

**When Offered**

Offered fall and spring.

**PENG 000/5112 - Well Control (3 cr.)****Prerequisites**

consent of instructor

**Description**

The course covers the basics of well control such as causes of kick, well pressure control importance and strategies, well blow out and its consequences, well control methods and equipment, and some relevant case studies are presented. The course also covers the kill mud calculations, and problems & solutions related to well control system.

**PENG 000/5131 - Applied PVT and EOS Modelling (3 cr.)****Prerequisites**

consent of instructor

**Description**

Review of principles of PVT data in petroleum reservoirs. Classification of reservoir fluids and PVT data models. PVT laboratory experiments and quality control. Deriving PVT data from correlations and ANN models. Deriving PVT data from laboratory reports. Advanced PVT experiments for gas injection processes and EOR. Introduction to flow assurance. PVT experiments for flow assurance. Principles of cubic EOS. Fluid characterization and plus fraction modeling. Flash calculations. EOS tuning. Compositional gradients. Separator optimization.

**PENG 000/5134 - Reservoir Management (3 cr.)**

**Prerequisites**

consent of instructor

**Description**

Definitions of reservoir management. Elements of reservoir management. Reservoir management processes. Economic evaluation of reservoirs. Technologies enabling reservoir management. Static and dynamic reservoir models. Field Development Plans (FDP) and redevelopment. Integration between subsurface and surface components. Digital oil field. Case histories.

**PENG 000/5136 - Advanced Reservoir Simulation (3 cr.)**

**Prerequisites**

consent of instructor

**Description**

Classification of reservoir simulators. Chemical reservoir simulators to handle polymers and surfactants. Applications of chemical reservoir simulation in simulating EOR processes. Compositional simulators and their applications. Thermal simulators and their applications. Dual porosity/dual permeability simulators. Applications of dual porosity simulators. Assisted history matching concepts. Specific data inputs required for different simulator types.

**PENG 000/5141 - Advanced formation evaluation (3 cr.)**

**Prerequisites**

consent of instructor

**Description**

Review of basic formation evaluation using triple and quad combo. Review of basic interpretation techniques; clay volume, porosity, saturation and permeability. Fracture identification and quantification using both resistivity and acoustic imaging tools. Porosity, Pore sizes, fluid, and permeability evaluations using NMR tools. A direct measurement of water saturation using a combined dielectric tool and NMR. Integration of core description, routine core analysis and SCAL in all aspects of the course and the evaluation techniques.

**PENG 000/5142 - Cased-hole logging (3 cr.)**

**Prerequisites**

consent of instructor

**Description**

Cased-hole logging environment. Effect of casing and cement on cased-hole measurements and their environmental correction. Measurements of porosity through casing. Resistivity through casing. Saturation through casing using the SIGMA and the Carbon/Oxygen measurements. Evaluation methodology of water saturation behind casing. Borehole fluids evaluation using production logging. Three phase flow measurements and analysis.

### **PENG 000/5144 - Geostatistics (3 cr.)**

#### **Prerequisites**

consent of instructor

#### **Description**

Statistics, data analysis and transformation. Spatial variables. Variograms and variogram modeling. Uncertainty. Deterministic and stochastic models. Estimation and simulation. Kriging. Co-Kriging. Simulation methods. Using trends in geological modeling. Static model construction. Upscaling of static models.

### **PENG 000/5211 - Advanced Drilling (3 cr.)**

#### **Prerequisites**

consent of instructor

#### **Description**

This course provides students with a thorough understanding of the drilling operations and the various factors affecting them. Topics covered include advanced drilling techniques such as under-balanced drilling, mud cap drilling, etc. It covers surge and swab pressure, situational problems, smart wells, and real-time monitoring and adaptive control. Finally, the course introduces the wellbore stability, optimization of drilling operations and penetration rate.

### **PENG 000/5221 - Advanced Production Engineering (3 cr.)**

#### **Prerequisites**

consent of instructor

#### **Description**

The course covers petroleum production system, production from oil and gas reservoir, vertical lift performance, multiphase flow, surface gathering system, nodal analysis, well completion and formation damage, well stimulation techniques, artificial lift, and production related problem. In addition, a detailed study is offered on inflow performance relationships, horizontal, vertical and inclined multiphase flow correlations and mechanistic models. These are then used to determine the current and future performance of the well and the optimum size of the tubing and flow line as well as the optimum production strategy for the whole life of the well.

### **PENG 000/5222 - Petroleum Assets Evaluation (3 cr.)**

#### **Prerequisites**

consent of instructor

#### **Description**

This course discusses concepts related to economic valuation of petroleum projects.

The fundamentals of discounted cash-flow analysis are covered in class with focus on petroleum projects. The course highlights the notion of risk quantification and its relationship to economic valuation. It discusses capital budgeting and



project ranking process as well as sensitivity analysis of different factors on both the revenue side and the cost side (such as oil prices, cost of services, .... etc.). Relationships of subsurface reserves estimates to the economic valuation of a project is discussed, as well as the importance of subsurface reserves as a financial asset for the future existence of a petroleum company. The main types and elements of fiscal regimes are emphasized in the class with examples of cash flows for concessionary systems, production sharing contracts, as well as service agreements.

### **PENG 000/5232 - Advanced Well Testing (3 cr.)**

#### **Prerequisites**

consent of instructor

#### **Description**

Theoretical background of pressure transient testing. Diffusivity equation. Solutions of diffusivity equation. Laplace solutions principles. Superposition in space and time. Phase redistribution. Deconvolution. Pressure transient test types. Applications of pressure transient tests. Multiphase well test analysis methods. Numerical well testing. DST analysis. Slug and impulse tests analysis. Repeat formation testers.

### **PENG 000/5233 - Enhanced Oil Recovery (3 cr.)**

#### **Prerequisites**

consent of instructor

#### **Description**

The course introduces principles, mechanisms, and theories related to enhanced oil recovery, either as improved secondary recovery or some form of tertiary oil recovery techniques. The fundamental concepts of steam injection, CO<sub>2</sub> injection, chemical flooding, polymer flooding, microbial recovery, and miscible and immiscible flooding techniques are covered.

### **PENG 000/5235 - Compositional Simulation (3 cr.)**

#### **Prerequisites**

consent of instructor

#### **Description**

Differences between black oil, modified black oil, and compositional simulators. Principles of composition simulation. Solution vectors and compositional simulation solution schemes. Construction of PVT models using EOS. Miscibility concepts. Treatment of compositional gradients. Problems with compositional simulation. Application of compositional simulation in CO<sub>2</sub> injection.

### **PENG 000/5243 - Applied Techniques in Unconventional Reservoirs (3 cr.)**

#### **Prerequisites**

consent of instructor

#### **Description**

Review of the basics of unconventional reservoirs. Identifications of unconventional potential and source rocks. Pyrolysis analysis and unconventional reservoir quality determination. Unconventional reservoirs evaluation; porosity, adsorption, saturation and permeability. Calculations of hydrocarbon in place using pyrolysis and wireline logging

techniques. Drilling unconventional reservoirs. Completion and Production methods of unconventional reservoirs using different multi-stages fracturing techniques.

**PENG 000/5251 - Selected Topics in Fundamentals of Petroleum Engineering (3 cr.)**

**PENG 000/5252 - Selected Advanced Topics in Petroleum Engineering (3 cr.)**

**PENG 000/5253 - Independent Study (3 cr.)**

**PENG 000/5254 - Research Guidance Thesis (3 cr.)**

**PENG 000/5255 - Capstone Project (3 cr.)**

**PHDS 691/6291 - Advanced Research Seminar (1 cr.)**

**Prerequisites**

Graduate Seminar I (CSCE 5940 ,ENGR 5940 , SCI 5940 )

**Description**

- All Ph.D. students should attend a common class. This class will be a series of general lectures having a broad interdisciplinary nature.
- Each student should give a presentation in this series on a topic that shows how his/her capability of dealing with more than one discipline.
- The student will be evaluated based on:
  - Reports submitted at the end of each class.
  - The quality of the presentation and the extent of diversity.
- The first four lectures Will be given by faculty members or renowned researchers conducting diverse interdisciplinary research. This will give the students guidance on how to select their topics and how to link to other disciplines.
- The maximum number of students who can register in the Ph.D. seminar must not exceed 10.
- The Ph.D. seminar will be offered only once every academic year.

**PHDS/PHDE 612/6216 - Design and analysis of Experiments (3 cr.)**

**Prerequisites**

ENGR 5204 or equivalent.

**Description**

Learn how to plan, design and conduct experiments efficiently and effectively, and analyze the resulting data to obtain objective conclusions. Both design and statistical analysis issues are discussed. This course is intended for practical researchers and scientists from a variety of fields such as engineering, physics, chemistry, biotechnology, and biology. Applications from various fields of engineering, physics, chemistry, and biotechnology will be illustrated throughout the course. Computer software packages (Design-Expert, Minitab) to implement the methods presented will be illustrated extensively, and you will have opportunities to use it for homework assignments and the term project.

**PHDE 691/6291 - Advanced Research Seminar (1 cr.)**

**Prerequisites**

Graduate Seminar I, CSCE 5940 ,ENGR 5940 ,SCI 5940

**Description**

- All Ph.D. students should attend a common class. This class will be a series of general lectures having a broad interdisciplinary nature.
- Each student should give a presentation in this series on a topic that shows how his/her capability of dealing with more than one discipline.
- The student will be evaluated based on:
  - Reports submitted at the end of each class.
  - The quality of the presentation and the extent of diversity.
- The first four lectures Will be given by faculty members or renowned researchers conducting diverse interdisciplinary research. This will give the students guidance on how to select their topics and how to link to other disciplines.
- The maximum number of students who can register in the Ph.D. seminar must not exceed 10.
- The Ph.D. seminar will be offered only once every academic year.

**PHIL 221/2010 - Truth, Lies, and Logical Reasoning (3 cr.)****Description**

Truth, Lies, and Logical Reasoning aims to analyze and improve argumentation and reasoning as they occur in everyday life, to identify logical fallacies, and to critically examine common techniques of persuasion. The course examines logically valid forms and rules of inference, introduces deductive and inductive methods in ancient and modern logic, and elaborates the nature of definitions, categories and judgments. Students will mine their everyday lives, media, and various forms of public discourse for real-world examples of good and bad reasoning.

**When Offered**

Offered every year.

**PHIL 299/2099 - Selected Topics for Core Curriculum (3 cr.)****Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**PHIL 220/2100 - Philosophical Thinking (core curriculum requirement) (3 cr.)****Prerequisites**

RHET 1100 or concurrent (for students enrolled prior to Fall 2013).

RHET 1010 (for students enrolled in Fall 2013 or later)

**Description**

This course concerns the human desire to know. It is, therefore, a course in learning how to understand and how to be understood. It teaches students to listen to what others say, interpret what others have written, and take responsibility for one's own words. This is accomplished through reading texts of great intellectual distinction, patiently practising the

art of interpretation without easy answers, and carrying out a sustained effort to write thoughtfully. This course encourages students to think independently, responsibly, and critically.

**When Offered**

Offered in fall and spring.

**PHIL 226/2112 - Philosophy of Religion (3 cr.)**

**Description**

Many religions include an intellectual and theoretical component that can be investigated independently of the religion itself. This course examines and clarifies some themes that arise from the rational investigation of the intellectual component of religion. Topics may include: reason and religious belief, proofs of the existence of God, the nature of religious language, the problem of evil, mysticism as a form of knowledge, and theological paradoxes (omnipotence, omniscience and free will, etc.)

**PHIL 230/2113 - Introduction to Ethics (3 cr.)**

**Description**

This course introduces moral philosophy, the attempt to provide systematic explanations of standards for human conduct. Can we determine what the right thing is for us to do? How does society set its normative rules? How is a normative discourse possible? Selected texts provide the relevant context in which these questions will be examined.

**When Offered**

Offered in alternate years.

**PHIL 258/2117 - Political Philosophy (3 cr.)**

**Description**

This course is an introduction to the history of political philosophy and addresses dominant issues central to political thinking in the Western tradition. Themes may include the question of justice, the exercise of power, the meaning of democracy, the freedom and rights of the individual, the circumstances of revolution, the roots of authority, and the role of violence. Course readings are drawn from figures such as Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Mill, Kant, Hegel, Nietzsche, and Marx.

**PHIL 000/2200 - Philosophy and Globalization (3 cr.)**

**Description**

This course introduces the student to the phenomenon known as Globalization. The course will highlight a historical as well as systematic perspective. The approach is based on an interdisciplinary methodology that emphasizes the economic, political, social, religious, and moral aspects of globalization since 1492 (the discovery of America and the expulsion from Al Andalusia) up until the present wave of the globalization process. The course is designed for students from all majors, in order that they may gain a general view of globalization - but especially one from a philosophical perspective.

**PHIL 310/3010 - Philosophy and Art (3 cr.)**

**Description**

The course introduces the theme of beauty and issues of aesthetic value. Examples are drawn from areas such as literature, music, the plastic arts, and architecture.

**PHIL 315/3011 - Nineteenth Century Philosophy (3 cr.)****Description**

This course examines how nineteenth century philosophers reacted to the Enlightenment's faith in reason: Whereas earlier nineteenth century thinkers believed that all aspects of reality and human experience could be explicated with a rationalistic 'system', this faith in reason became increasingly undermined by the belief that a more adequate insight is provided by non-rational 'feeling' and/or aesthetic experience. The course will also explore the 'historical turn' in nineteenth century philosophy. Figures discussed might include: Reinhold, Fichte, Schelling, Hegel, Schopenhauer, Comte, Feuerbach, Mill, Kierkegaard, Marx, Nietzsche, and Bergson.

**PHIL 344/3014 - Literature and Philosophy (3 cr.)****Description**

The course concentrates on the intersection of the literary mode with the philosophical quest in Eastern and Western writing. Students are trained to analyze philosophical myths, tales, poems and dialogues as well as grasp the symbolic structures and expository techniques of philosophers.

**Cross-listed**

Same as ECLT 3014.

**Repeatable**

May be repeated for credit if content changes

**PHIL 354/3015 - Islamic Philosophy (3 cr.)****Prerequisites**

HIST 2203 or ARIC/HIST 3210 or consent of instructor.

**Description**

A survey of the rational and spiritual dimensions of Arab-Islamic civilization as shown in the thought and ideas of major theologians, philosophers, and mystics.

**Cross-listed**

Same as ARIC 3405.

**When Offered**

Offered occasionally.

**PHIL 356/3016 - American Philosophy (3 cr.)****Description**

The course examines philosophy in North America, focusing on the central themes of democracy and pragmatism. A guiding question of the course will be: How is the democratic process embedded in the philosophic enterprise? The views of major thinkers such as Peirce, James, Royce, Santayana, Dewey, Quine, and Hartshorne will be examined.

**Cross-listed**

Same as AMST 3016

**PHIL 382/3017 - Philosophy of Science and Technology (3 cr.)**

**Description**

The relationship between science and technology has become a serious topic of debate. Is technology applied science or is science itself techno-science? Both have become pervasive facts which have altered human abilities and experiences of the world. This increase in power brings with it new responsibilities for the creators and users of science and technology. This course will explore these new powers and attendant obligations upon humanity, other cultures and the environment.

**PHIL 000/3101 - Classical Philosophy (3 cr.)**

**Description**

This course is a survey of the history of philosophy from its beginnings in Greece through the revival of Aristotelian learning in thirteenth century Europe. This is a long period of time, and philosophers had interesting and important things to say about all manner of topics, including science, logic, ethics, politics, religion, and art. Our goal in this course will be to explore some of the most important things that some of the most important philosophers from this era had to say. Authors to be discussed may include Plato, Aristotle, Augustine, Anselm, Averroes, Avicenna, and Aquinas. Topics to be discussed may include the nature of knowledge, the relationship between faith and reason, the theory of Forms, the nature of the good life, and the existence of God.

**PHIL 314/3102 - Modern Philosophy (3 cr.)**

**Description**

Philosophical progress played an essential role in the historical changes of the Enlightenment and the development of industrial society. This course focuses on some of the major schools and figures of Modern thought, which include Rationalists such as Descartes and Leibniz, Empiricists such as Locke and Hume, and/or pivotal thinkers such as Bacon, Rousseau, Hegel, Kant, and Marx.

**When Offered**

Offered every year.

**PHIL 000/3104 - Metaphysics and Epistemology (3 cr.)**

**Description**

What is the fundamental structure of reality? What is reality really like? Why is there something rather than nothing? Is there a God? Do human beings have free will? Metaphysics is the study of questions like these. Epistemology is the study of the nature of knowledge. What is knowledge? Do we know anything? If so, how can we acquire more of it? In this class we will examine questions like these by reading classic texts both historical and contemporary. Students will be expected to read these texts carefully and charitably, while simultaneously being encouraged to think about them critically so as to draw their own conclusions.

**PHIL 000/3200 - Philosophy of History (3 cr.)**

**Description**

Philosophies of History offer a broad range of reflections on the historic dimension of our existence, i.e. on the fact that we understand ourselves in a temporal horizon of being-with-others. These reflections might prompt us to reflect on the genesis of notions such as 'universal history' or 'progress', or they might aim at clarifying what we mean when we ascribe causality to individuals, groups or any other kind of 'historical force'. Finally, we might even feel the need to analyze and evaluate which ways of conceiving of a maximal horizon of action are rationally justifiable in the situation we find ourselves in.

**PHIL 000/5100 - Independent Study in Philosophy (1-3 cr.)****Description**

In exceptional circumstances, some students may arrange for independent research projects in specific topics in Philosophy that are not covered by the course offerings for that academic year.

**PHIL 500/5101 - Advanced Seminar in Classical Philosophy (3 cr.)****Description**

This course will deal with issues in Ancient Greek and Medieval Philosophy that are relevant for an appreciation of Egypt's philosophical tradition, as well as for an understanding of the philosophical debates that contributed to the development of Islamic Philosophy. Special emphasis will accordingly be placed upon the following: Some of the great philosophers who lived and worked in Egypt (such as Philo Judaeus, Clement of Alexandria, Origen and Moses Maimonides); the history of Platonism (Plato, Plotinus and the Ancient commentators on Plato and Aristotle working in the schools of Athens and Alexandria); and the Aristotelian tradition (Aristotle, Alexander of Aphrodisias and Themistius).

**PHIL 000/5104 - Selected Topics in Contemporary Philosophy (3 cr.)****Description**

Contemporary philosophy is pluralistic. This trait expresses itself in different conceptions of the task of philosophy and its methods. The motives of this pluralism often reflect differing - scientific, liberalistic, modernist, posthumanist - attitudes towards the unprecedented dynamics with which historical processes originating in the 18th, 19th and 20th centuries are seen to continue to determine our articulation of the human condition. Along these lines this course explores thematic strands which are constitutive of both the unity in the questioning outlook and the plurality of the answers proposed in contemporary philosophy. Such explorations might concern the discourse on language as an unsurmountable horizon of our capacity to understand (Wittgenstein, Heidegger, Davidson, Derrida); they might delineate different conceptions of the status and role of philosophy vis-à-vis the natural sciences as developed in the analytic, neo-Kantian, pragmatic or phenomenological-hermeneutic tradition; finally such explorations could aim at a comparison of the various incarnations of the contemporary interest in the concepts of praxis and agency, which animates the discourse no less in critical theory and post-structuralism than it does in analytical theories of action and neo-pragmatist accounts of the grounding of sapience and agency in discursive practices.

**PHIL 000/5109 - Applied Ethics (3 cr.)****Description**

This course is an introductory survey of issues in applied ethics. Students will learn how to use philosophical theory and argumentation to provide answers to concrete, real-world ethical problems. Topics may include biomedical ethics, environmental ethics, business ethics, the ethics of technology and engineering, and social justice.

### **PHIL 410/5112 - Advanced Seminar in Aesthetics (3 cr.)**

#### **Prerequisites**

Prerequisites For Undergraduates: PHIL 3010 or consent of instructor.

#### **Description**

This course offers in-depth analysis and discussion concerning key texts from the history of aesthetics and/or addressing current debates in aesthetic theory. Issues covered may include the beautiful and the sublime, classicism and romanticism, tragedy and the absurd, modernism and post-modernity.

#### **When Offered**

Offered occasionally.

### **PHIL 360/5117 - Philosophy of Language (3 cr.)**

#### **Description**

Although the emphasis on the importance of a systematic philosophical reflection of language is a characteristic feature of its development in the 20th century which, thus, has been described as taking a 'linguistic turn', the philosophical interest in language is, nonetheless, almost coeval with the ancient origins of the discipline. As a result of this perennial interest, philosophers have studied various dimensions of language and the ways in which it is constitutive of the way we conceive of ourselves, relate to the world, establish and preserve political communities and partake in a shared historical world of meanings and linguistic practices. This course, consequently, aims at a both historically and systematically informed exploration of these dimensions of language in its philosophical reflection.

### **PHIL 458-558/5119 - Advanced Seminar in Political Philosophy (3 cr.)**

#### **Description**

This advanced seminar will focus on contemporary trends in political philosophy with an emphasis on how classical political texts and problems have served as points of departure for new perspectives. The approaches studied in this course will vary from semester to semester and may include deliberative democracy, theories of recognition, liberalism, secularism/post-secularism, cosmopolitanism, and the relationship between politics and aesthetics. Reading may include the work of Arendt, Schmitt, Agamben, Ranciere, Honneth, Habermas, Rawls, Taylor, Zizek, Fraser, and Foucault.

#### **When Offered**

Offered in alternate years.

### **PHIL 000/5120 - Advanced Seminar in Feminist Philosophy (3 cr.)**

#### **Description**

This advanced seminar will focus on a particular issue in feminist philosophy. Topics will vary and may include an emphasis on sex, gender, class, race, embodiment, power, intersectionality, disability, and other contemporary issues relevant to feminism.

### **PHIL 000/5121 - Philosophical Logic (3 cr.)**



### **Description**

Speaking of logic, we do not only mean that science which analyzes the components, forms and grounds of the soundness of reasoning; we do also refer to a human capacity that comes into play whenever we defend our claims and attack those of others. Logic, thus, is both: a theory that can be studied and a know-how, governing our practices of argumentation. With that in mind, philosophers are expected to cultivate their abilities to analyze and critically assess the logical structures of philosophical arguments. This course, therefore, offers an introduction to syllogistic and symbolic logic with a focus on the argumentative exigencies of the discipline.

### **When Offered**

offered occasionally

## **PHIL 501/5122 - Advanced Seminar in Islamic Philosophy (3 cr.)**

### **Description**

This course will survey the classical tradition of Islamic Philosophy. It will constitute a close study of the works of figures such as Al-Farabi, Ibn Sina, Al-Ghazali, and the Andalusian thinkers such as Ibn Tufayl and Ibn Rushd. Ibn Al-Arabi and the Sufi tradition, as well as selective writings by Shihab al-Din Suhrawardi and Mulla Sadra, may also be studied. Some consideration may also be given to the significant status of Islamic Philosophy within the History of Science. Additionally, towards the end of the course, some contemporary work in the field of Islamic Philosophy may also be considered.

## **PHIL 504/5123 - Kant and Idealism (3 cr.)**

### **Description**

This course will focus upon the transformation of philosophy during the late enlightenment period that was enacted by Immanuel Kant and which gave rise to what is now known as 'Continental Philosophy.' Kant's works will be studied alongside either those thinkers by whom he was influenced, such as Leibniz and Hume, or those thinkers upon whom he had an influence, such as Fichte, Schelling, Hegel and Schopenhauer.

## **PHIL 505/5124 - Advanced Seminar in Phenomenology (3 cr.)**

### **Description**

This course will begin by investigating the origins of phenomenology by means of a close reading of key selections from the work of Husserl. It shall then move on to consider Heidegger's transformation of phenomenology. The work of later phenomenologists, such as Sartre, Merleau-Ponty, and Edith Stein, may also be discussed.

## **PHIL 000/5130 - Philosophy of Mind (3 cr.)**

### **Description**

This course is an introduction to the philosophy of mind. Philosophy of mind is a branch of philosophy that deals with the analysis and resolution of conceptual questions concerning the nature of the mind. Research in the philosophy of mind tackles such questions as: What is a mind? What is consciousness? Is a person's mind a distinct thing from her body? Could a sufficiently complicated artificial neural network or robot be a conscious agent, in the fullest possible sense? Questions such as these clearly straddle a boundary between conceptual analysis and empirical science. Therefore, philosophy of mind is an interdisciplinary subject, which draws on cutting-edge research from a diverse range of fields, including psychology, neuroscience, cognitive science, and computer science

## **PHIL 000/5150 - Philosophy and Film (3 cr.)**

### **Prerequisites**

Students other than Philosophy majors must take FILM 3130 Film Theory prior to registering for this course.

### **Description**

This course considers the relationship between philosophical reflection and aesthetic practice through the lens of cinema, with the purpose of engaging students of both philosophy and film theory in a cross-disciplinary investigation into cinema. The course will draw both from philosophical texts on film, and classical and contemporary film theory. Topics may include epistemological, ontological and ethical questions about film; the role of memory, subjectivity, identity, and desire in cinema; time, space, and the nature of the image; perspectives on sexuality, gender, and race in film; psychoanalytic, feminist, and postcolonial film theory; and analytic and continental approaches to film and philosophy.

### **Cross-listed**

FILM 4350

## **PHIL 403/5199 - Selected Topics in Philosophy (3 cr.)**

### **Prerequisites**

Senior level, graduate level, or consent of instructor.

### **Description**

According to special interest of faculty and students.

### **Repeatable**

May be repeated for credit if content changes.

## **PHIL 599/5299 - Research Guidance and Thesis (0 cr.)**

### **Description**

Students are required to write a thesis of approximately 15,000 words in length, which should demonstrate the student's ability to conduct research and write critically and pointedly about a given subject. There will also be a final defense of the finished thesis.

## **PHYS 100/1001 - Physics for Poets (3 cr.)**

### **Description**

A conceptual overview of classical and modern physics. Mechanics, properties of matter, heat, sound, electricity and magnetism, light, atomic and nuclear physics, relativity theory.

### **When Offered**

Offered in fall and spring.

### **Notes**

No credit for Thannawia Amma Math/Science students, or equivalent, or students majoring in any of the departments of the School of Sciences and Engineering.

## **PHYS 111/1011 - Classical Mechanics, Sound and Heat (3 cr.)**

**Prerequisites**

MACT 1121;  
PHYS 1012 to be taken concurrently.

**Description**

An introduction to classical mechanics covering vectors, applications of Newton's laws, conservation laws and forces, motion in a plane, circular motion, equilibrium and elasticity, rotational motion, simple harmonic motion, energy and power; mechanical and sound waves, temperature, heat and the first law of thermodynamics.

**When Offered**

Offered in fall, spring and summer.

**Notes**

Thanaweyya Amma Math or Science, German Abitur, French Baccalaureate, IGCSE O-Level Physics, International Baccalaureate, Canadian certificates, or American Diploma (with SATII in MATH or PHYS) students are allowed to take MACT 1121 concurrently with PHYS 1011.

**PHYS 123L/1012 - General Physics Laboratory I (1 cr.)****Prerequisites**

Concurrent with PHYS 1011

**Description**

The fundamental quantities of physics are measured through selected experiments in mechanics, heat, and sound. Data are summarized, errors are estimated, and reports are presented.

**Hours**

.One three-hour laboratory period

**When Offered**

Offered in fall, spring and summer.

**PHYS 112/1021 - Electricity and Magnetism (3 cr.)****Prerequisites**

PHYS 1011 ,PHYS 1012 ,MACT 1122 or concurrent. Concurrent with PHYS 1022

**Description**

An introduction to electricity and magnetism covering the electric field, Gauss's law, electric potential, capacitance, dc circuits, magnetic fields, Faraday's and Ampere's laws, time-varying fields, Maxwell's equations in integral form and alternating currents.

**When Offered**

Offered in fall, spring and summer.

**PHYS 124L/1022 - General Physics Laboratory II (1 cr.)****Prerequisites**

Concurrent with PHYS 1021

**Description**

The fundamental quantities of physics are measured through selected experiments in electricity, magnetism, and optics. Data are summarized, errors are estimated, and reports are presented.

**Hours**

One three-hour laboratory period

**When Offered**

Offered in fall, spring and summer.

**PHYS 199/1930 - Selected Topic for Core Curriculum (3 cr.)****Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**PHYS 211/2041 - Foundations of Modern Physics (3 cr.)****Prerequisites**

PHYS 1021. Co-requisite MACT 2141 .

**Description**

Introduction to special relativity and quantum physics, experimental basis of relativity, Einstein's Postulates, Lorentz transformation, relativistic momentum and energy, experimental evidence of quantization, wave-particle duality, and Schrodinger equation.

**When Offered**

Offered in fall and spring.

**PHYS 000/2042 - Modern Physics Laboratory (1 cr.)****Prerequisites**

PHYS 2041 or Concurrent

**Description**

Quantization of electric charge, thermal radiation law, quantization of energy, particle nature of light, spin

**When Offered**

Offered in fall and spring

**PHYS 215/2211 - Introduction to Electronics (3 cr.)****Prerequisites**

PHYS 1021;  
PHYS 2212 (or PHYS 2213) is taken concurrently

**Description**

Foundation of circuit analysis, AC theory, introduction to semiconductor devices, amplifiers, feedback oscillators.

**When Offered**

Offered in fall, spring and summer.

**Notes**

For computer science and computer engineering students, the course should be taken concurrently with PHYS 2213 instead of PHYS 2212

**PHYS 221L/2212 - Electronics Laboratory (2 cr.)**

**Prerequisites**

Concurrent with PHYS 2211 .

**Description**

Basic experiments in electronics.

**When Offered**

Offered in fall, spring and summer.

**PHYS 222L/2213 - Electronics lab for Computer Scientists & Computer Engineers (1 cr.)**

**Prerequisites**

Concurrent with PHYS 2211

**Description**

Basic experiments in electronics for the Computer Science & Engineering majors.

**When Offered**

Offered in fall and spring.

**PHYS 214/2221 - Waves and Optics (3 cr.)**

**Prerequisites**

PHYS 1021 and PHYS 2222 concurrent.

**Description**

Wave phenomena; EM waves, geometrical and physical optics, and matter waves.

**When Offered**

Offered in fall and spring.

**PHYS 204L/2222 - Optics Laboratory (1 cr.)**

**Prerequisites**

PHYS 2221 or concurrent.

**Description**

Basic experiments in physical optics with special emphasis on laser optics.

**When Offered**

Offered in fall and spring.

**PHYS 312/3013 - Theoretical Mechanics (3 cr.)**

**Prerequisites**

MACT 233/2141 - Differential Equations (3 cr.);

MACT 232/2124 - Calculus IV (3 cr.) or Consent of Instructor

**Description**

Newton's laws of motion, projectiles and charged particles, momentum and angular momentum, energy, oscillations, calculus of variations, Lagrange's equations, Hamiltonian mechanics, mechanics in noninertial frames

**When Offered**

Offered in fall.

**PHYS 316/3023 - Electromagnetic Theory (3 cr.)**

**Prerequisites**

PHYS 2221 and MACT 2124

**Description**

Electric field and potential. Gauss's law; divergence. Conductors, dielectrics and capacitance. Poisson's and Laplace's equations. Electrostatic analogs. Magnetic field and vector potential. Time varying fields; displacement current. Maxwell's equations in differential form, Poynting's theorem, Electromagnetic waves in vacuum and in matter

**Cross-listed**

Same as ECNG 3401.

**When Offered**

Offered in spring.

**PHYS 311/3031 - Thermodynamics and Statistical Mechanics (3 cr.)**

**Prerequisites**

Concurrent PHYS 4042

**Description**

A macroscopic and microscopic study of equilibrium thermal physics, fundamental laws of thermodynamics, and statistical mechanics applied to various systems.

**When Offered**

Offered in spring.

**PHYS 321L/3052 - Nuclear Physics Lab (1 cr.)**

**Prerequisites**

PHYS 2041 or concurrent.

**Description**

Experiments in atomic and nuclear physics.

**When Offered**

Offered in fall and spring.

**PHYS 000/3071 - General Relativity and Cosmology (3 cr.)**

**Prerequisites**

MACT 2132 - PHYS 3023

**Description**

Coordinate symmetries, the principle of equivalence and its implications, metric description of a curved spacetime, Geodesic equation and Einstein field equation, applications of spacetime outside a spherical star, Hubble's law, dark matter, Robertson-walker metric, the expanding universe and thermal relics, inflation and the accelerated universe.

**PHYS 314/3223 - Advanced Optics (3 cr.)**

**Prerequisites**

PHYS 2222 ,PHYS 2221

**Description**

Geometric optics: generalized paraxial formulas, matrix formalism of Gaussian optics. Imaging properties of lens systems: lens combination, the vector nature of light: polarization effects, diffraction effects, superposition of waves: interference, spatial and temporal coherence length, and multilayer structures.

**When Offered**

Offered in spring.

**PHYS 322L/3232 - Solid-State Physics Lab (2 cr.)**

**Prerequisites**

PHYS 4231

**Description**

Experiments in solid-state physics and semiconductor devices.

**When Offered**

Offered in fall and spring.

**PHYS 279/3241 - Computational Methods in Physics (2 cr. + 1 cr.)**

**Prerequisites**

CSCE 106/1001 - Fundamentals of Computing I (3 cr.) MACT 240/2132 - Linear Algebra (3 cr.) MACT 233/2141 - Differential Equations (3 cr.)

**Description**

Linear systems of equations and matrices; eigenvalues and eigenvectors; numerical errors; numerical solution of linear and nonlinear equations; curve fitting; numerical differentiation and integration; numerical solution of ordinary differential equations; applications in various fields of physics. MATLAB will mostly be used as a programming language in the weekly computer laboratory sessions.

**Hours**

Two credits lectures and one credit computer lab.

**When Offered**

Offered in spring.

**PHYS 421/4042 - Quantum Mechanics I (3 cr.)****Prerequisites**

PHYS 2041 , MACT 2132, PHYS 3013

**Description**

Stern-Gerlach experiments, operators and measurement, Schrödinger time evolution, quantized energies and particle in potential wells, unbound states, angular momentum, Hydrogen atom, harmonic oscillator.

**When Offered**

Offered in spring.

**PHYS 000/4043 - Quantum Mechanics II (3 cr.)****Prerequisites**

PHYS 4042

**Description**

Perturbation theory, hyperfine structure and the addition of angular momenta, perturbation of Hydrogen, identical particles, time-dependent perturbation theory, periodic systems, modern applications of quantum mechanics.

**PHYS 413/4051 - Nuclear and Particle Physics (3 cr.)****Prerequisites**

PHYS 4042

**Description**

A modern view of the fundamental structure of matter, nuclear structure, nuclear models, nuclear decay and radioactivity, nuclear reactions; quarks, gluons, leptons; accelerators, particle interactions with matter, detectors; weak, electromagnetic and strong interactions.

**When Offered**

Offered in fall.

**PHYS 414/4224 - Photonics (3 cr.)****Prerequisites**



PHYS 2221 or consent of instructor.

**Description**

Light sources and transmitters, receivers, laser diodes, LEDs and photodiodes. Electromagnetic mode theory for optical propagation. Optical fiber measurements: fiber materials, multimode fibers, single-mode fibers. Fabrication, cabling, connectors and couplers. Optical amplifiers, Erbium-Doped fiber amplifiers. Modulation of light, multiplexing and de-multiplexing, fiber networking.

**When Offered**

Offered in fall.

**PHYS 404L/4225 - Photonics and Optical Communication Laboratory (1 cr.)**

**Prerequisites**

PHYS 2222

**Description**

Experiments in fiber optics illustrating concepts pertaining to fiber dispersion, attenuation measurements, characterization of light sources (LEDs and laser diodes) and detectors (photodiodes), optical multiplexing and de-multiplexing, optical and interferometric sensors.

**When Offered**

Offered in fall.

**PHYS 325/4231 - Introduction to Solid-State Physics (3 cr.)**

**Prerequisites**

PHYS 3031

**Description**

Classification of materials and their structural characteristics, symmetry and properties of materials, free-electron theory, band theory, dielectric processes, optical processes in material.

**When Offered**

Offered in spring.

**PHYS 412/4233 - Semiconductor Physics (3 cr.)**

**Prerequisites**

PHYS 4231

**Description**

Fundamental theory and characteristics of elemental and compound semiconductors. Semiconductor technology. P-N junctions and transistors.

**When Offered**

Offered in fall.

**PHYS 323L/4234 - Solar Energy Lab (1 cr.)**

**Prerequisites**

PHYS 2211 and PHYS 2212

**Description**

Experiments on solar cells and photovoltaic technology

**When Offered**

Offered in fall and spring.

**PHYS 000/4241 - Introduction to Solar Energy (3 cr.)****Prerequisites**

PHYS 2211 ,PHYS 2221 , PHYS 2041 . Consent of Instructor

**Description**

Working principle of a solar cell, fabrication of solar cells, PV module construction and the design of a PV system. The suitable semiconductor materials, device physics, and fabrication technologies for solar cells are presented. The cost aspects, market development, and the application areas of solar cells are also presented.

**PHYS 000/4242 - Introduction to Nanophysics (3 cr.)****Prerequisites**

PHYS 2211 , PHYS 2221 , PHYS 2041 . Consent of Instructor

**Description**

Nanophysics fundamentals, physics nanostructures, thermodynamics of nanostructures, monocrystalline structures, Quantum nanostructures, Nano optics, nanoplasmonics.

**PHYS 000/4243 - Physics of Solar Energy Conversion Nanosystems (3 cr.)****Prerequisites**

PHYS 2211 ,PHYS 2221 , PHYS 2041 . Consent of Instructor

**Description**

Atomic structures, basics of energy conversions, fundamental of nanoscience and nanotechnology, wave optics, light-matter interactions, diffractions and interference, Solar cell physics and design.

**PHYS 000/4244 - Introduction to Nanotechnology (3 cr.)****Prerequisites**

PHYS 2211 , PHYS 2221 , PHYS 2041 . Consent of Instructor

**Description**

Fabrication methods of nanomaterials and nano devices, properties of nanoparticles, nanowires and nanotubes. Electronic transport in nanostructures, nanoelectronics and nanophotonics, nanomagnetism

## **PHYS 416/4281 - Experimental Methods in Physics (3 cr.)**

### **Prerequisites**

Prerequisites: Junior standing. Consent of instructor.

### **Description**

Experimental techniques for studying thermal, optical, magnetic and electric properties of matter. Low temperature physics: gas liquefaction, storage of liquefied gases, cryostats for low temperature studies, applied cryogenics.

### **When Offered**

Offered in fall and spring.

## **PHYS 402/4910 - Independent Study (1-3 cr.)**

### **Prerequisites**

Prerequisites: consent of the instructor, senior standing.

### **Description**

In exceptional circumstances some senior physics students, with departmental approval, may arrange to study a selected topic outside of the regular course offerings. The student and faculty member will select a topic of mutual interest and the student will be guided in research and readings. The student would demonstrate achievement either by submitting a report or passing an examination, according to the decision of the supervisor. May be repeated for credit more than once if contents change.

## **PHYS 415/4930 - Selected Topics in Physics (3 cr.)**

### **Prerequisites**

Prerequisite: Junior standing or consent of instructor.

### **Description**

Topics may include Quantum Field Theory, Superconductivity, Laser Physics, Biophysics, and Geophysics. Can be taken more than once as long as the topic is different

### **When Offered**

Offered occasionally.

### **Repeatable**

May be repeated for credit more than once if content changes.

## **PHYS 401/4980 - Research Skills (1 cr.)**

### **Prerequisites**

Senior standing.

### **Description**

A capstone course, essential research methods such as preparing a literature survey, assembling a bibliography, using order of magnitude estimates and dimensional analysis. Each student selects a topic in his/her field of interest under the supervision of a faculty member. The student submits a written study plan and delivers a seminar in which this plan is presented for departmental approval. The approved plan is carried out in the student's Senior Thesis PHYS 4981

**When Offered**

Offered in fall and spring.

**PHYS 000/4981 - Senior Thesis (2 cr.)****Prerequisites**

PHYS 4980

**Description**

A capstone course. A continuation of PHYS 4980 where the approved study plan from this course is carried out. After finishing this research project, an oral presentation, defense, and a written thesis are required of each candidate in accordance with the departmental guidelines.

**When Offered**

offered in fall and spring

**PHYS 504/5013 - Classical Mechanics (3 cr.)****Prerequisites**

PHYS 3013 or equivalent.

**Description**

Variational principles and Lagrange's Equations, central force problem, kinematics and equations of motion of rigid body problem, oscillations, classical mechanics of the special theory of relativity, Hamiltonian equations of motion, canonical transformations, Hamilton-Jacobi theory and action-angle variables.

**When Offered**

Offered in fall.

**PHYS 502/5023 - Classical Electrodynamics I (3 cr.)****Prerequisites**

PHYS 3023 or equivalent and PHYS 5061

**Description**

Boundary value problems in electrostatics: Poisson and Laplace equations, formal solution of electrostatic boundary value problem with Green function, applications in rectangular, spherical and cylindrical coordinates, multipoles, electrostatics of macroscopic media, magnetostatics, Faraday's law and quasi-static fields, Maxwell equations, macroscopic electromagnetism and conservation laws.

**When Offered**

Offered in spring.

## **PHYS 549/5024 - Fundamentals of Microwaves (3 cr.)**

### **Prerequisites**

PHYS 502/5023 - Classical Electrodynamics I (3 cr.)

### **Description**

Transmission line theory, Planar transmission lines, Network parameters, Impedance matching circuits, Directional couplers, Noise in microwave systems, Microwave diodes and transistors, Dielectric resonators, Maximum gain / specified gain / low-noise / balanced / distributed / power amplifiers, Diode / transistor / dielectric resonator oscillators, Monolithic microwave integrated circuits.

### **When Offered**

Offered in spring.

## **PHYS 509/5032 - Advanced Thermodynamics and Statistical Mechanics (3 cr.)**

### **Prerequisites**

PHYS 3031 or equivalent.

### **Description**

The laws and applications of thermodynamics, Boltzmann transport equation and transport phenomena, classical statistical mechanics, canonical and grand canonical ensembles, quantum statistical mechanics, ideal Fermi and Bose gases, phase transitions and critical phenomena.

### **When Offered**

Offered in spring.

## **PHYS 506/5043 - Advanced Quantum Mechanics (3 cr.)**

### **Prerequisites**

PHYS 4042 or equivalent.

### **Description**

Fundamental concepts of quantum mechanics including the harmonic oscillator, the hydrogen atom, electron spin and addition of angular momentum. Qualitative and approximation methods in quantum mechanics, including time-independent and time-dependent perturbation theory, variational methods, scattering and semiclassical methods. Applications are made to atomic, molecular and solid matter. Systems of identical particles including many electron atoms and the Fermi gas.

### **Cross-listed**

Same as NANO 5210.

### **When Offered**

Offered in fall and spring.

## **PHYS 501/5061 - Mathematical Physics (3 cr.)**

**Prerequisites**

MACT 2141 or equivalent.

**Description**

Vector analysis, coordinate systems, tensor analysis, matrices, group theory, functions of a complex variable: conformal mapping and calculus of residues, series solutions of differential equations, special functions, partial differential equations of theoretical physics, separation of variables, nonhomogeneous equations-Green's function, integral transforms, Fourier and Laplace transforms.

**When Offered**

Offered in fall.

**PHYS 000/5207 - Advanced Nanophysics (3 cr.)****Prerequisites**

Consent of Instructor

**Description**

Nanophysics fundamentals, physics of nanostructures, crystalline nanostructures, light-matter interaction on the nanoscale, quantum nanostructures, diffraction and scattering from nano objects.

**Cross-listed**

NANO 5207

**PHYS 510/5235 - Solid State Physics I (3 cr.)****Prerequisites**

PHYS 4231 or equivalent.

**Description**

Classification of solids; preparation and characterization; binding energies; ionic, covalent and metallic bonds; crystallography; reciprocal lattice; Brillouin zones; vector representation; crystal symmetry and macroscopic properties; tensor formulation; diffraction in crystalline and amorphous solids; crystal imperfections; point-, linear-, and planar type; effects on properties; origin of microstructure in crystalline and amorphous solids.

**When Offered**

Offered in fall.

**PHYS 512/5236 - Advanced Semiconductor Physics (3 cr.)****Prerequisites**

PHYS 2211 and PHYS 4231 or equivalent.

**Description**

This is a course about how charge flows in semiconductors with an emphasis on transport in nanoscale devices. The course consists of three main parts. Part 1 focuses on near-equilibrium transport in the presence of small gradients in the electrochemical potential or temperature, with or without the application of a small magnetic field. The emphasis in Part 2 is on the physics of carrier scattering and how the microscopic scattering processes are related to macroscopic

relaxation times and mean-free-paths. Part 3 examines high-field transport in bulk semiconductors and so-called "non-local" transport in sub-micron devices. The course concludes with a brief introduction to quantum transport. The objective of the course is to develop a broad understanding of the basic concepts needed to understand modern electronic devices. It is intended for those who work on electronic devices - whether they are experimentalists, device theorists, or computationalists.

**Cross-listed**

Same as NANO 5222 .

**When Offered**

Offered in fall.

**PHYS 513/5237 - Solid State Physics II (3 cr.)**

**Prerequisites**

PHYS 5235

**Description**

Semi-classical theory of electron dynamics; classification of solids; failures of the static lattice model; classical and quantum theories of harmonic crystal: phonons and lattice vibrations; thermal properties of insulators; defects, dislocations and thermodynamics stability; dielectric properties; phenomena in insulators: excitons, photoconductivity, light amplification, non-linear optics, luminescence.

**When Offered**

Offered in spring.

**PHYS 507/5242 - Computational Physics (3 cr.)**

**Prerequisites**

MACT 2141 MACT 3143 or consent of instructor.

**Description**

Numerical methods for quadrature solution of integral and differential equations, and linear algebra. finite difference methods, finite element techniques, solving a system of equations. Use of computation and computer graphics to simulate the behavior of complex physical systems. Monte Carlo simulations.

**When Offered**

Offered in fall.

**PHYS 556/5277 - MEMS/NEMS Technology and Devices (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Basic MEMS/NEMS fabrication technologies, various transduction mechanisms such as piezoelectric, pyroelectric,

thermoelectric, thermionic, piezoresistive, etc. The theory of operation of few sensors including infrared detectors, radiation sensors, rotation and acceleration sensors, flow sensors, pressure and force sensors, and motion sensors. An introduction to different techniques for analyzing experimental data.

**Cross-listed**

Same as NANO 5221 ,RCSS 5242 .

**When Offered**

Offered in fall.

**PHYS 508/5282 - Advanced Experimental Techniques (3 cr.)**

**Prerequisites**

PHYS 3052 PHYS 3232 and PHYS 4234 or equivalent.

**Description**

This course is designed to introduce students to advanced techniques in experimental physics. The emphasis is on self-study of the phenomena, data analysis, and presentation in journal paper format. Experiments may vary each semester. Examples of topics: Thin film deposition and characterization, high pressure physics, photonics, solid state techniques, fluid flow visualization. This course is team-taught through a course coordinator.

**When Offered**

Offered in spring.

**PHYS 561/5910 - Independent Studies (1-3 cr.)**

**Prerequisites**

Prerequisite: Consent of supervisor, graduate standing.

**Description**

In exceptional circumstances, some senior graduates with departmental approval may arrange to study beyond the regular course offerings. Guided reading for research and discussions based on a subject of mutual interest to the student and the responsible faculty member. The student demonstrates his/her achievement by submitting a report and by passing a subsequent examination.

**Notes**

Maximum of 3 credit hours of independent studies can be used towards the M. Sc. degree in physics.

**PHYS 562/5930 - Selected topics in Physics (3 cr.)**

**Prerequisites**

Consent of the faculty advisor.

**Description**

Topics to be chosen according to specific interests. Maybe taken for credit more than once if content changes.

**When Offered**

Offered in fall and spring.



## **PHYS 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)**

### **Description**

Thesis consultation for qualified students. Two semesters are required, with credit being given each time.

## **PHYS 602/6025 - Classical Electrodynamics II (3 cr.)**

### **Prerequisites**

PHYS 5023

### **Description**

Plane electromagnetic waves and wave propagation, waveguides, resonant cavities, radiating systems, multipole fields and radiation, scattering and diffraction, covariant formulation of electrodynamics, dynamics of relativistic particles and electromagnetic fields, collisions, energy loss, and scattering of charged particles, Cherenkov and transition radiation, radiation by moving charges, radiation damping.

### **When Offered**

Offered in fall and spring.

## **PHYS 000/6121 - Nanophotonics (3 cr.)**

### **Prerequisites**

Consent of Instructor

### **Description**

The course will cover: Maxwell's equations, light-matter interaction, dispersion, EM properties of nanostructures, etc., Photonic crystals Photonic crystal fibers, Photonic nanocircuits Metal optics, manipulating light with plasmonic nanostructures, plasmonic nano-sensors, near-field optics, metamaterials, negative refractive index and super-resolution.

### **Cross-listed**

NANO 6121

## **PHYS 641/6225 - Integrated Photonics (3 cr.)**

### **Prerequisites**

PHYS 4224 or equivalent.

### **Description**

This course will introduce students to a range of passive photonic components; students will gain an understanding of the fundamentals of how these devices operate and an appreciation of where these components find applications in communications, energy and sensing systems. Topics covered in this course include: interaction of light with matter; resonator optics; periodic structures, optical thin films and gratings; photonic band gap materials; waveguides and couplers, Plasmonics and Nanoparticles. Hands on experience for modeling and design of these devices and structures using photonic software is of prime essential to illustrate and validates the fundamentals of the course.

### **When Offered**

Offered in fall and spring.

### **PHYS 642/6243 - Computational Electromagnetics (3 cr.)**

#### **Prerequisites**

PHYS 5023, PHYS 5242 or equivalent.

#### **Description**

Modeling electromagnetic phenomena related to microwave, millimeter, terahertz, and optical frequencies. Fundamentals of electromagnetic theory, Green's functions in layered media, Integral equation formulation, Method of Moments, The Mode Matching Method, Finite difference time domain, Variation approaches in electromagnetic and finite element methods, the Beam propagation method, Spectral Fourier method for periodic structures.

#### **When Offered**

Offered in fall and spring.

### **PHYS 662/6930 - Advanced Selected Topics in Physics (3 cr.)**

#### **Prerequisites**

Consent of the faculty advisor.

#### **Description**

Topics to be chosen according to specific interests. May be taken for credit more than once if content changes.

#### **When Offered**

Offered in fall and spring.

### **POLS 101/1001 - Introduction to Political Science (3 cr.)**

#### **Prerequisites**

RHET 1010 ,RHET 1020 ,RHET 1100 ,RHET 2010 ,RHET 1000 or ENGL 0210

#### **Description**

Methods of study and the nature of political phenomena; terminology and conceptual tools; origins, forms, and historical development of political organization; political institutions and functions; comparison of modern forms of political organization at the national, local, and international levels.

### **POLS 199/1099 - Selected Topics in Political Science (3 cr.)**

#### **Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major, and available for fulfillment of the primary level Social Sciences requirement in the core curriculum.

### **POLS 203/2003 - Introduction to Political Science II (3 cr.)**

#### **Prerequisites**

RHET 1010 ,RHET 1020 ,RHET 1100 ,RHET 2010 ,RHET 1000 or ENGL 0210

**Description**

This course is reserved for students above the level of their first semester sophomores who wish to major in Political Science, but cannot be taken if students have already taken POLS 1001 . See the description of POLS 1001 .

**POLS 299/2096 - Selected Topics for Core Curriculum (3 cr.)****Prerequisites**

RHET 1020 ,RHET 1100 ,RHET 2010 ,RHET 1000 or RHET 1010

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit if content changes.

**POLS 204/2104 - Introduction to Research Methods in Political Science (3 cr.)****Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010 or RHET 1000 along with ,POLS 1001 or POLS 2003

**Description**

The course is an introductory course intended for students seeking a career in political science-related fields. The key purpose of the course is to introduce students to main methods of scientific political enquiry. Using existing data sources, qualitative and quantitative research methods are the main topics to be covered in this course.

**POLS 205/2403 - Europe in the Age of Revolution and Reform (1789-1914) (3 cr.)****Description**

This Course explores Europe's so-called "Long 19th century" from the French Revolution to World War I including many of the phenomena that came to define the century such as capitalism, nationalism, socialism, feminism and imperialism.

**Cross-listed**

Same as HIST 2403.

**POLS 206/2404 - Europe in International Politics in the Twentieth Century (3 cr.)****Description**

This Course explores major development in European and international socio-economic politics from the end of the 1800's to the present day. It introduces the key events and trends of this tumultuous century including wars, revolutions, and ideological movements.

**Cross-listed**

Same as HIST 2404.

**When Offered**

Offered in fall and spring.

**POLS 000/2405 - History and International Politics (3 cr.)****Prerequisites**

RHET 1020

RHET 2010

**Description**

This course provides students with a foundational understanding of the historical events that gave shape to international politics and that today form the discipline of International Relations. It will give students the historical and conceptual foundations necessary to pursue a specialization in International Relations by introducing key events and their consequences in international politics.

**POLS 301/3201 - History of Political Theory I (3 cr.)****Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010 ,POLS 1001 or POLS 2003

**Description**

This course analyzes the major ancient and medieval thinkers and texts in the history of political thought. Students will study works by representative authors such as Plato, Aristotle, Cicero, Augustine, Aquinas, and Averroes. Topics and themes examined in the course include justice, equality, liberty, wisdom, the city, and the good life.

**POLS 302/3202 - History of Political Theory II (3 cr.)****Prerequisites**

RHET 1010 , RHET 1020 , RHET 1100 , RHET 2010 , POLS 1001 , POLS 2003

**Description**

This course analyzes major modern and late modern texts in the history of political thought. Students will study works by representative thinkers such as Machiavelli, Hobbes, Locke, Rousseau, Wollstonecraft, Kant, Hegel, Marx, and Mill. Topics and themes of the course include the state, individual rights, security, equality, revolution, commerce, cosmopolitanism, gender, and communism.

**POLS 313/3401 - Introduction to Comparative Politics (3 cr.)****Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010 or RHET 1000 along with ,POLS 1001 or POLS 2003

**Description**

This course provides an introduction to the analysis of comparative politics, exploring differences in the institutional make-up and the workings of political systems worldwide. Topics covered include an examination of the key institutions of the state, executive-legislative relations, the different tiers of government, the media in politics, interest group and party politics and political transitions.

### **POLS 303/3403 - American Government and Politics (3 cr.)**

#### **Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010 or RHET 1000 along with ,POLS 1001 or POLS 2003

#### **Description**

Formation and implementation of public policy, with attention to the structure, powers, and functions of the presidency, the bureaucracy, the Congress, and the federal courts and the forces that influence their actions.

#### **When Offered**

Offered occasionally.

### **POLS 305/3405 - Politics and Society in Contemporary Africa (3 cr.)**

#### **Prerequisites**

RHET 1000, RHET 1020 ,RHET 1100 ,RHET 2010 or RHET 1010 and 6 hours of social sciences.

#### **Description**

Introduction to the social arena within which politics occurs and the political arena which helps to shape society in Africa today. Focuses on understanding continuity and change in African politics and societies, and sheds light on both the significant potential of Africa, and the enormous challenges the continent faces.

#### **When Offered**

Offered occasionally.

### **POLS 308/3408 - Comparative Politics of the Middle East (3 cr.)**

#### **Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010 or RHET 1000 along with ,POLS 1001 or POLS 2003

#### **Description**

Comparative study of government and ideologies, social stratification, and institutions in the Middle East. Also includes a study of the problems of modernization and political development.

#### **When Offered**

Offered in fall and spring.

### **POLS 323/3423 - Comparative Government and Politics: Developing Systems (3 cr.)**

#### **Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010 or RHET 1000 along with ,POLS 1001 or POLS 2003

#### **Description**

The government and politics of selected countries in the developing world (Middle East, Africa, Asia, Latin America). Subjects covered may include the structural and functional characteristics of executive, legislative, and judicial institutions; bureaucracy, political parties, mass movements, political culture, the role of public opinion, foreign policy.

**When Offered**

Offered in fall.

**POLS 324/3424 - Comparative Government and Politics in Contemporary Eastern Europe and Russia (3 cr.)**

**Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010 or RHET 1000 along with ,POLS 1001 or POLS 2003

**Description**

The collapse of communism and post-communist political and economic developments. Transition to democracy and market economy. Ethnicity, nationalism and the emergence of nation states. Consideration of the government and politics of selected countries.

**When Offered**

Offered in spring.

**POLS 325/3425 - Government and Politics of Egypt (3 cr.)**

**Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010 or RHET 1000

**Description**

Examination of structure and process of the Egyptian government and political life including: the executive, legislative and judicial institutions and their powers; the legislative process; executive policy making; electoral processes; parties and interest groups; and other selected aspects of the interaction between state and society.

**POLS 354/3454 - Political and Social Thought in the Modern Arab World (3 cr.)**

**Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010 or RHET 1000

**Description**

Development of political and social ideologies in the Arab world since the beginning of the twentieth century. Topics will include the impact of liberal thought on Arab elites, the rise of nationalism, and the emergence of theories of political and social transformation.

**When Offered**

Offered in fall and spring.

**POLS 310/3510 - Introduction to Development (3 cr.)**

**Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010 or RHET 1000 along with ,POLS 1001 or POLS 2003

**Description**

Introduces students to development dilemmas in the "Global South," using a political economy approach. Questions raised include: What is development? How to measure it? Why are some nations "developed" and others are not? The

course covers theories of Modernization, Dependency, Neo-Liberalism, and Statism, as well experiences of various countries.

**When Offered**

Offered in fall and spring.

**POLS 350/3550 - Introduction to Political Economy (3 cr.)**

**Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010 or RHET 1000 and ECON 2021

**Description**

This course introduces students to the main approaches of political economy and the interconnections between power and wealth. It surveys the main schools of thought in political economy, their evolution, convergence, and divergence. The course covers issues essential to the understanding of the interaction between politics and economics in today's world, including wealth accumulation and distribution, the state, markets, gender, labor, and the environment.

**POLS 320/3620 - Introduction to International Relations Theories (3 cr.)**

**Prerequisites**

RHET 1010, RHET 1020 ,RHET 1100 ,RHET 2010, RHET 1000,POLS 2405

**Description**

This course provides students with a foundational understanding of international relations theories. Students will engage in discussions of how these theories are applied to cases throughout history, gaining a thorough knowledge of the explanatory capabilities and limits of each of the major theories.

**When Offered**

Offered in fall and spring.

**POLS 400/4000 - The Discipline and Critical Social Theory (3 cr.)**

**Prerequisites**

Honors Status, POLS 3201 , POLS 3202

**Description**

This course familiarizes students with the relation between political theory and social theory; introduces them to a range of authors, texts, and ideas associated with critical social theory; and helps prepare them to write their major research project. This course is the capstone seminar for the Department of Political Science's Honors Program and is only open to students enrolled in the Honors Program.

**POLS 000/4018 - East- West Dialogue: Cross-Cultural Perceptions and Reflections (3 cr.)**

**Prerequisites**

RHET 1020 or RHET 2010 and 6 credits at 3000 level in POLS

**Description**

This course provides a unique opportunity for students at AUC to share their educational experience with students in the west. The medium for this shared experience will be videoconferences held over the internet with university classes in the United States and other Western countries. For each videoconference, we will be reading the same texts as the students at our partner institutions. The videoconferences provide not only the medium for the shared component of the course; they also suggest its substantive theme. For, while we encounter the apparent cultural other over the internet, we will be exploring with them the question of our relationship to the other - especially how our perceptions of the other have developed over time and how they continue to influence the political interaction between "East" and "West" today.

**Cross-listed**

Same as SEMR 4018

**POLS 430/4030 - Seminar: Special Topics in Political Science for Undergraduates (3 cr.)**

**Prerequisites**

RHET 1020 or RHET 2010 and 6 credits at 3000 level in POLS

**Description**

Selected topics to be investigated under the guidance of a faculty member.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be repeated for credit if content changes

**Notes**

May be offered as a seminar.

**POLS 433/4033 - Individual Study and Selected Reading (1-3 cr.)**

**Prerequisites**

RHET 1020 or RHET 2010 and consent of instructor and department

**Description**

Guided reading, research, and discussion based on a subject of mutual interest to a student and faculty member.

**When Offered**

Offered in fall and spring.

**POLS 431/4035 - Political Sociology (3 cr.)**

**Prerequisites**

Prerequisites: 9 hours of social science, and junior or senior standing.

**Description**

Social bases of various political systems such as Western-type democracy, authoritarianism, and totalitarianism. Topics include: determinants of political behavior, power, elite formation, bureaucracy, and the political role of the military and intellectuals in Third World societies.



**Cross-listed**

Same as SOC 4035.

**When Offered**

Offered in fall.

**POLS 499/4099 - Senior Year Thesis (3 cr.)**

**Prerequisites**

The prerequisites for POLS 4099 are being enrolled in the Honors Program and accumulating the requisite credits in the prescribed courses, POLS 4000 and POLS 4104

**Description**

This course builds on work completed in POLS 4000 and POLS 4104 in order to provide students enrolled in the department's Honors Program with the opportunity to complete an original research thesis with faculty supervision.

**POLS 404/4104 - Political Science Methods (3 cr.)**

**Prerequisites**

RHET 1020 or RHET 2010 and POLS 2104 and 3 credit hours at 300 level in POLS.

**Description**

This course seeks to provide students with a critical understanding of political science methods, the ability to read statistical materials, and to use advanced qualitative and quantitative research methods. Electoral behavior and systems are extensively studied in this course and used to demonstrate how different research methods are applied to study a topic as important as elections.

**POLS 416/4216 - Race, Class and Gender: Theorizing Political Identity (3 cr.)**

**Prerequisites**

Six credits at 300 level in POLS; RHET 1020 or RHET 2010

**Description**

This course surveys a variety of contemporary trends in the political theorization of race, gender, and class as they relate to the development of notions of identity in a historical context and as categories of political exclusion and inclusion. Special emphasis will be given to modern and contemporary concepts of identity, including notions of subjectivity, gender, race, culture, class and ethnicity.

**POLS 417/4217 - Cosmopolitanism and Global Justice (3 cr.)**

**Prerequisites**

POLS 3201 or POLS 3202 ; RHET 1020 or RHET 2010

**Description**

This course considers questions of justice in a global context. It uses case studies and theoretical (historical and

contemporary) to explore issues associated with just war, human rights, migration, citizenship, as well as economic, environmental, and social justice across state borders.

### **POLS 426/4226 - Contemporary Political Islam (3 cr.)**

#### **Prerequisites**

RHET 1020 or RHET 2010

#### **Description**

This course is designed to provide an understanding of the phenomenon of political Islam in the Arab and Muslim worlds. It examines the reasons, implications, and consequences of the reassertion of Islam in today's politics. The course is divided into three parts. The first provides a thorough analysis of the main idea and model (s) that inspire contemporary Islamist activists. The second part critically examines the different trends within the Islamic movements and presents case studies of their origins, evolution, dynamics, and limitations. Finally, the course concludes with a critical analysis of the ideas of prominent Islamic thinkers that are considered as main ideologues of political Islam.

### **POLS 471/4371 - Introduction to Public International Law (3 cr.)**

#### **Prerequisites**

RHET 1020 or RHET 2010 and POLS 3620

#### **Description**

Introduces students to the practice and theoretical foundations of public International law, covering such topics as source doctrine (customary International law, treaty law, etc.), international personality, jurisdiction, state responsibility, self-determination and the use of force. This course may be counted toward the Dual Degree Option combining a BA in Political Science and an MA in International Human Rights Law.

#### **Cross-listed**

Same as LAW 4371

#### **When Offered**

Offered in fall and spring.

### **POLS 472/4372 - International Law in the Middle East (3 cr.)**

#### **Prerequisites**

RHET 1020 or RHET 2010 and POLS 4371 .

#### **Description**

An in-depth treatment of selected issues of contemporary international law. Provides students with an understanding of specialized areas of international law including the use of force and dispute resolution, acquisition of territory, state succession, law of the sea, and international human rights law by focusing on specific issues relevant to the Middle East.

#### **When Offered**

Offered in spring.

### **POLS 473/4373 - Special Topics in Public Law (3 cr.)**

**Prerequisites**

RHET 1020 or RHET 2010 and 6 credits at 3000 level in POLS

**Description**

Topics drawn from constitutional and administrative law, including related jurisprudence and judicial institutions.

**Repeatable**

May be taken a second time if content changes.

**POLS 474/4374 - Special Topics in Public International Law (3 cr.)****Prerequisites**

RHET 1020 or RHET 2010 and POLS 4371 .

**Description**

Specialized areas of international law, such as human rights and humanitarian law.

**Repeatable**

May be taken if content changes.

**POLS 475/4375 - Introduction to Egyptian and Islamic Law (3 cr.)****Prerequisites**

RHET 1020 or RHET 2010

**Description**

The Egyptian legal system will be considered according to its present structure and historical development including institutions, processes, laws, and the courts. There will be special emphasis on developments in constitutional law and the role played by the constitution in the political context of present day Egypt. The course also offers an introduction to Islamic jurisprudence in the classical doctrine, in the pre-modern Egyptian legal system, and in contemporary Egypt. This course may be counted toward the Dual Degree option combining a BA in Political Science and an MA in International Human Rights Law.

**Cross-listed**

Same as LAW 4375 .

**When Offered**

Offered once a year.

**POLS 477/4377 - Law and Development (3 cr.)****Prerequisites**

RHET 1020 or RHET 2010 ,POLS 3510 and POLS 4371

**Description**

This course will explore the interface between law and processes of development. by looking critically at what is meant by "law", we will explore the impact of law (however defined) on social and economic development. In so doing, the

beneficial and detrimental impacts of law on development will be assessed. The influence of law in the domains of population, constitutionalism, and the environment, among others, will be considered.

### **POLS 478/4378 - Introduction to International Human Rights Law (3 cr.)**

#### **Prerequisites**

RHET 1020 or RHET 2010

#### **Description**

The course provides an overview of the major human rights treaties, customary norms, international institutions and mechanisms of enforcement, while at the same time encouraging a critical stance that questions the role and effect of human rights in a world of distress and inequality. This course may be counted towards the Dual Degree Option combining a BA in Political Science and an MA in International Human Rights Law.

#### **Cross-listed**

Same as LAW 4378 .

#### **When Offered**

Offered once a year.

### **POLS 420/4420 - Issues in Middle East Politics (3 cr.)**

#### **Prerequisites**

RHET 1020 or RHET 2010 and POLS 3408

#### **Description**

Selected Topics in Middle East Politics investigated under the guidance of a faculty member. May be offered as a seminar.

#### **When Offered**

Offered occasionally.

#### **Repeatable**

May be repeated for credit if content changes

### **POLS 422/4422 - Contemporary Egypt (3 cr.)**

#### **Prerequisites**

RHET 1020 or RHET 2010 and POLS 3408

#### **Description**

This course examines the current Politics of Egypt, including elections, civil society activism and changing power relations between social forces.

#### **When Offered**

Offered in fall.

### **POLS 432/4432 - Seminar: Comparative Politics and/or Policies (3 cr.)**

**Prerequisites**

RHET 1020 or RHET 2010 and either POLS 3408, POLS 3423 or POLS 3424 .

**Description**

Selected topics in the field of comparative politics or policies, with concentration on a single country, problem, or policy.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be repeated for credit if content changes.

**POLS 435/4435 - The State and Society (3 cr.)****Prerequisites**

RHET 1020 or RHET 2010 and 6 credits at 3000 level in POLS

**Description**

The concept of the State is at the center of the study of politics and of our understandings of political and socio-economic problems like ethnic conflict, sectarian strife, law enforcement, economic development and democratization. This course offers a critical study of theories from Marx, Weber, and other social scientists about the State, its institutions, and its interactions with its society and its citizens.

**POLS 438/4438 - Modern China (3 cr.)****Prerequisites**

RHET 1020 or RHET 2010

**Description**

An examination of the evolution of modern China's political system in the light of Chinese history. Areas for consideration will include the structure of Chinese political culture, how communism has served China, how China's past may continue to determine China's future. When there is sufficient interest, and such arrangements are possible, the course will include a two- to three- week trip to China.

**When Offered**

Offered occasionally.

**POLS 439/4439 - Government and Politics in the Modern Caucasus and Central Asia (3 cr.)****Prerequisites**

RHET 1020 or RHET 2010 along with ,POLS 1001 or POLS 2003

**Description**

The policy of colonization and the collapse of the Soviet multi ethnic empire. New nation states in the post communist era including their relations with the Middle East.

### **POLS 470/4470 - The Politics of Human Rights (3 cr.)**

#### **Prerequisites**

RHET 1020 or RHET 2010 and 6 credits at 3000 level in POLS

#### **Description**

This is a research-oriented class on the politics of human rights in comparative perspective with special reference to issues in Egypt and the Middle East

### **POLS 480/4480 - Israeli Politics and Society (3 cr.)**

#### **Prerequisites**

RHET 1020 or RHET 2010 and 6 credits at 3000 level in POLS

#### **Description**

This course offers an analytic view of a wide variety of political and social aspects of Israel's domestic setting, including: Israel's political system; economy; civil-military relations; new immigrants; as well as the main political and social divisions.

### **POLS 481/4481 - The Politics of Palestinian-Israeli Relations (3 cr.)**

#### **Prerequisites**

RHET 1020 or RHET 2010 and POLS 3620

#### **Description**

This course critically examines the politics of Palestinian-Israeli relations. Topics will include, inter alia, the history of political relations between the two communities, and the manner in which the relations have been historicized and politicized, the political economy of the relations, mechanisms of Israel's occupation and the prospects of and for a Palestinian state.

### **POLS 402/4502 - Political Economy of Egypt and the Middle East (3 cr.)**

#### **Prerequisites**

RHET 1020 , RHET 2010, POLS 3510, POLS 3550

#### **Description**

This course applies political economy's approaches and tools to the study of Egypt and the contemporary Middle East. It cuts across domestic, regional, and international dynamics within and around the country by tackling the topics of rentierism, the impacts of neoliberal globalization on development and democratization, state-business and capital-labor relations, revolutions, and popular uprisings. In doing so it examines the political economy of states, regimes, and societies of Egypt and the region.

### **POLS 413/4513 - International Financial Institutions (3 cr.)**

**Prerequisites**

RHET 1020 or RHET 2010 along with,ECON 2021 and POLS 3620 .

**Description**

The politics of international economics, focusing on the role of the IMF, World Bank, WTO, and other multinational institutions as well as regional financial and economic integration with emphasis on European Union and Middle East and Islamic finance and banking. Special attention will be given to the political dimensions of such issues as debt rescheduling, structural adjustment, international trade regulations, foreign aid, trade wars and embargoes.

**POLS 423/4523 - The Political Economy of Poverty and Inequality (3 cr.)****Prerequisites**

RHET 1020, RHET 2010, POLS 3510, POLS 3550

**Description**

This course surveys different conceptualizations of poverty and inequality. It covers the different approaches to studying the issue on both global and national levels. Some of the major issues included are: the socio-economic and political characterization of the poor; poverty alleviation; the impact of globalization on poverty and inequality, poverty and gender, and urban and rural poverty; and different approaches to poverty reduction.

**POLS 424/4524 - Political Economy of the Middle East and North Africa (3 cr.)****Prerequisites**

RHET 1020 or RHET 2010 along with ,POLS 3510 and POLS 3550

**Description**

An examination of the interconnection between the socio-political forces and economic policies in the Middle East and North Africa. For instance: how liberalization affects democratization and vice versa, how economic national characteristics affect the political process and vice versa. Required for all students in Political Economy Specialization.

**POLS 425/4525 - Global Political Economy (3 cr.)****Prerequisites**

RHET 1020, RHET 2010, POLS 3620, POLS 3550

**Description**

This course offers an overview of international economic relations from the end of the Second World War to contemporary economic globalization and global production networks that have instituted a new international division of labor. The first portion of the course examines trade, protectionism, and monetary relations. In the second portion, students also examine the consequences of globalization in terms of new developmental opportunities; income inequality across all countries; and regulatory issues relating to labor flows, environment, and sustainability.

**POLS 000/4526 - Political Economy of the Global South (3 cr.)****Prerequisites**

RHET 1020 or RHET 2010 ,POLS 3510 and POLS 3550

**Description**

This course covers the political economy of the main regions and countries of the South, including Latin America, Africa, East Asia, and China, and the theoretical models pertinent to them. It is centered around global political and economic processes that have shaped the current contours of the Global South, such as colonialism, Southern perspectives on global capital accumulation, competing development narratives, foreign aid and humanitarian intervention, rentierism, globalization, and global inequality. The course also focuses on key issues such as poverty, migration, informality, cities, and gender.

**POLS 442/4542 - Environmental Politics (3 cr.)****Prerequisites**

RHET 1020 or RHET 2010

**Description**

This course analyzes environmental politics in an international arena. It examines the policies and tactics of a range of actors, including national and local governments, non-governmental and intergovernmental organizations, corporations, mass movements and scientists.

**POLS 450/4550 - Business -Government Relations (3 cr.)****Prerequisites**

RHET 1020 or RHET 2010 and POLS 3550 .

**Description**

The course will explore interactions and the impact of government and business relations in modern economies. It will first look at some of the key theoretical issues and then examine the nature of this relationship in a comparative international context.

**POLS 000/4551 - Theories of Political Economy (3 cr.)****Prerequisites**

RHET 1010 ,RHET 1020, RHET 1100, RHET 2010 or RHET 1000 and POLS 3550

**Description**

This course provides an in-depth look into the theories of modern political economy. It introduces the methodological and ideological diversity of schools and traditions of political economy, ranging from the left to the right. The syllabus covers key topics tackled by political economy, such as free markets, industrialization, the state, labor-capital relations, revolutions, and economic development. The course allows students to engage immediately and critically with political economy's formative texts and their basic concepts.

**POLS 460/4560 - Development Studies Seminar (3 cr.)****Prerequisites**

RHET 1020 or RHET 2010 and 12 hours of social science.

**Description**

Interdisciplinary and comparative analysis of development as a process and as a historical phenomenon. Critical



evaluation of economic, political, social, and cultural technological and managerial factors that structure developmental change.

**Cross-listed**

Same as ANTH 4560,SOC 4560.

**When Offered**

Offered occasionally.

**POLS 000/4565 - Special Topics in Development and Political Economy (3 cr.)**

**Prerequisites**

RHET 1020 or RHET 2010, POLS 3510 and POLS 3550

**Description**

This course introduces students to a selected topic in the fields of development and political economy.

**POLS 405/4605 - International Politics of the Middle East (3 cr.)**

**Prerequisites**

RHET 1020, RHET 2010, POLS 3408 ,POLS 3620, POLS 2405

**Description**

This course examines the relationships of the Middle East to the great powers of our time, with emphasis on the political, military, economic and cultural impact of these powers on shaping the region, and its future.

**POLS 000/4608 - Critical Approaches to International Relations and the Global South (3 cr.)**

**Prerequisites**

RHET 1020

RHET 2010

POLS 3620

POLS 2405

**Description**

This course subverts and critiques Eurocentrism in global politics and provides students with the full scope of critical scholarship available in the field. With this course, students will become familiar with the contemporary transformations of the discipline of International Relations and will be prepared for further engagement, independent research, and possible graduate studies.

**POLS 409/4609 - International Organizations (3 cr.)**

**Prerequisites**

RHET 1020 ,RHET 2010, POLS 3620, POLS 2405

**Description**

This course examines the structure and evolution international organizations, both intergovernmental (IOs) and non-governmental (NGOs), with an emphasis on the United Nations system, its specialized agencies, and recent issues of global governance.

**When Offered**

Offered in spring.

**POLS 410/4610 - Global Security (3 cr.)**

**Prerequisites**

RHET 1020, RHET 2010, POLS 3620, POLS 2405

**Description**

This course discusses theories of war and peace. It encompasses a study of international crisis, conflict, war, and strategies for managing conflicts. The course covers critical security studies to understand the challenges underpinning traditional security studies. Diverse topics including environmental security, global human security, and international terrorism will be studied with a view to focusing on the changing nature of international security.

**POLS 411/4611 - Comparative Foreign Policy Analysis (3 cr.)**

**Prerequisites**

RHET 1020, RHET 2010, POLS 3620, POLS 2405

**Description**

This course investigates the processes involved in foreign policy decision-making. This focus will be on understanding the contexts, constraints, and influences which foreign policy decision-makers have to deal with. This is combined with specialized knowledge of the post-1945 foreign policies of major and emerging states in the international system.

**POLS 414/4614 - Egyptian Foreign Policy (3 cr.)**

**Prerequisites**

RHET 1020, RHET 2010, POLS 3620, POLS 2405 , POLS 4611

**Description**

This course examines the main themes of Egyptian foreign policy from 1952 to the present. This includes: Egypt's relations with the great powers; inter-Arab relations, the Arab League, and the Gulf Cooperation Council; the effects on foreign policy of the Arab-Israeli conflict; relations with the Non-Aligned Movement, the Islamic Conference, and the Organization of African Unity. It also covers policy concerns of the national interest including Nile waters and the Suez Canal.

**POLS 415/4615 - U.S. Foreign Policy (3 cr.)**

**Prerequisites**

RHET 1020, RHET 2010, POLS 3620, POLS 2405 , POLS 4611

**Description**

This course examines the major issues and processes of U.S. foreign policy. It focuses on the post World War II era,

including processes of policy formulation and the values that are manifested in U.S. foreign policy. This is explored in the context of specific issue areas.

### **POLS 440/4640 - Seminar: Special Topics in International Relations for Undergraduates (3 cr.)**

#### **Prerequisites**

RHET 1020 or RHET 2010 and POLS 3620

#### **Description**

This course investigates special issues or themes in international relations under the guidance of a faculty member.

#### **When Offered**

Offered in fall and spring.

#### **Repeatable**

May be repeated for credit if content changes.

### **POLS 430/5130 - Seminar: Special Topics in Political Science for both Undergraduates and Graduates (3 cr.)**

#### **Prerequisites**

Junior standing, RHET 1020 or RHET 2010

#### **Description**

This course investigates special topics under the guidance of a faculty member

#### **When Offered**

Offered in fall and spring.

#### **Repeatable**

May be repeated for credit if content changes

#### **Notes**

May be offered as a seminar.

### **POLS 440/5140 - Seminar: Special Topics in International Relations for both Undergraduates and Graduates (3 cr.)**

#### **Prerequisites**

Junior standing

#### **Description**

Selected topics to be investigated under the guidance of a faculty member.

#### **When Offered**

Offered in fall and spring.

#### **Repeatable**

May be repeated for credit if content changes.

#### **Notes**

May be offered as a seminar.

## **POLS 501/5201 - Comparative Theory (3 cr.)**

### **Prerequisites**

Prerequisite: graduate standing.

### **Description**

An examination of the field of Comparative Politics and major relevant theories, approaches to research, and analysis. Required of all students in the Comparative Politics Specialization.

## **POLS 502/5202 - Scope and Method of Developmental Analysis (3 cr.)**

### **Description**

This course offers students a critical review of the theories, models, and methodologies relevant to the study of development using a political economy approach. The first part of the course discusses major paradigms and theories in the realm of development and their application to various regions. The second part of the course explores some major issues impacting developmental trajectories as well as some major outcomes of development such as trade, foreign aid, inequality, and environmental challenges.

### **When Offered**

Offered in fall and spring.

## **POLS 503/5203 - International Relations Theories (3 cr.)**

### **Description**

This course provides a critical review of major theories and concepts in international relations, and explores the relevance of theory to contemporary world politics. Special attention will be given to the development of theoretical and research skills needed for the conducting of graduate research and the writing of graduate thesis.

### **When Offered**

Offered in fall and spring.

## **POLS 504/5204 - Advanced Political Science Methods (3 cr.)**

### **Description**

The course provides students with a critical understanding of quantitative and qualitative research methods in political science. It should help students draft thesis proposals according to the department guidelines. Students should enroll in this course starting their second semester in the program. The topics covered include: the design of research projects, methods to gather and analyze data, and the ethical problems involved in conducting social science research.

## **POLS 505/5205 - Identity, Culture and Norms in World Politics (3 cr.)**

### **Description**

Studies identities, cultures and norms in world politics. It explores, inter alia, the construction of domestic and state identities and the making of norms and cultures, as well as the intersection of these three elements, at the global level.

**When Offered**

Offered in Spring.

**POLS 000/5206 - Foundations of Political Philosophy (3 cr.)**

**Description**

This course surveys the main thinkers and themes of political philosophy. Each year, students will organize their readings around a particular theme. Possible themes include power, history, liberty, equality, identity, and justice. Students will critically assess their own opinions in the light of the theories examined in the course, and address issues of contemporary importance in theoretical context where appropriate.

**POLS 000/5208 - Critical Approaches to International Relations Theories (3 cr.)**

**Description**

This course explores interdisciplinary and critical approaches to international relations. Critical theory in contemporary international relations has emerged as a key approach and perspective in the field and also produced stimulating formulations in other disciplines such as sociology, anthropology, history, and law. This course problematizes and interrogates the basic units of politics including concepts and notions of: the state, sovereignty, representation, nation, borders, identity, citizenship, and membership.

**POLS 000/5209 - Race, Gender, and Sexuality in International Relations (3 cr.)**

**Description**

This course considers the histories and politics of modernity, race, gender, and sexuality. The aim of this course is to explore issues in international relations by framing discussions within the interrelated contexts of race, gender, and sexuality. Students taking this course are encouraged to make interventions in case studies and international theory through these lenses.

**POLS 510/5210 - Global Governance and World Order(s) (3 cr.)**

**Description**

This course explores the ideas, institutions and practices of global governance, multilateralism and world order. A range of theoretical frameworks and case studies examine the role of social forces, state and non-state actors, issues such as cooperation and regulation, discourses of imperialism and institutional mechanisms in the current world order.

**When Offered**

Offered in Fall.

**POLS 520/5220 - Protracted Social Conflicts (3 cr.)**

**Description**

Protracted social conflicts (PSCs) are endemic conflicts based on horizontal inequalities such as ethnicity, religion, race and gender. This course will examine how PSCs affect development priorities, the distribution of income and services, etc; which exacerbates unequal access to economic resources and benefits, which in turn intensifies hatred and conflict

on non-class demarcation lines.

### **POLS 525/5225 - International Political Economy (3 cr.)**

#### **Description**

Patterns of the evolution, organization and functioning of the global political economy including the role of states and other international actors; theory and practice of international regimes and global issues of the third millennium.

#### **When Offered**

Offered in fall.

### **POLS 526/5226 - The Political Economy of Regionalism (3 cr.)**

#### **Description**

This course examines the patterns, criteria, and dynamics of regionalism in the global political economy. The course takes a comparative approach to analyzing the political economy of regionalism, studying the Middle East, Latin America, Asia, Europe and Sub-Sahara Africa. We will examine the positive and negative effects of the trends of regionalism, identify patterns, and compare the political, economic, military/security, socio-cultural, linguistic, historical, and ideological variables of each region under study.

### **POLS 530/5230 - Regime Change and Democratization (3 cr.)**

#### **Prerequisites**

POLS 5201

#### **Description**

The course addresses the academic debate on authoritarianism, regime change, and democratization in theoretical and empirical perspective. Conceptual approaches include regime type analysis, theories of democratic transition and consolidation, and hybrid regimes. Empirical cases compare developments in different world regimes.

### **POLS 534/5233 - Middle East Conflicts (3 cr.)**

#### **Description**

The Arab-Israeli conflict is at the core of Middle East conflicts; the numerous Arab-Israeli wars and peace efforts dominated the conflict scene in the region for more than half a century. Other conflicts are fueled, affected, and intertwined with the various aspects of Arab-Israeli conflict. This seminar analyzes roots of this protracted conflict since Zionism clashed with Palestinian nationalism in the early 20th century until the most recent effort to settle it.

#### **When Offered**

Offered in Fall.

### **POLS 535/5235 - Middle East Politics (3 cr.)**

**Description**

This course provides an in-depth examination of the nature and dynamics of Middle East politics. It explores some of the main approaches to understanding the Middle East Political system. The course will focus on state formation, national identities, leadership, elites and the impact of the west.

**POLS 536/5236 - Contemporary Issues in Political Islam (3 cr.)**

**Description**

This course is designed to examine current intellectual, economic, political, and foreign policy issues in political Islam. Among the topics that will be analyzed are political Islam and the challenges modernity,; secularism; the Islamic state; democracy and pluralism; human rights; women; Islamic economic system; and globalization.

**POLS 537/5237 - Modern Islamic Political Thought (3 cr.)**

**Description**

This seminar explores key thinkers in the development of modern Islamic political thought. It examines how thinkers from Morocco to South Asia have used religious arguments to inform their political philosophies.

**POLS 540/5240 - Politics of Modern Egypt (3 cr.)**

**Description**

This course offers an in-depth analysis of the nature and dynamics of modern Egyptian politics. Assessments of the Nasser, Sadat and Mubarak presidencies are followed by a treatment of the major issues and themes confronting and shaping Egypt's contemporary political arena.

**POLS 544/5244 - European Politics (3 cr.)**

**Description**

Considers the governance structures, processes, and patterns of politics in major states, institutions of the EU, and international organizations.

**POLS 545/5245 - Development Politics and International Cooperation (3 cr.)**

**Description**

This course examines the main features of the politics of development and international development cooperation, including, but not limited to, conceptual issues such as changing understandings of development, as well as theoretical approaches to explaining development or its absence

**When Offered**

Offered occasionally.

**POLS 550/5250 - Politics In Asia (3 cr.)**

**Description**

The general aim of this course is to acquaint the student with an overall historic view of contemporary Asian politics, in an evolving international political and economic environment. The course is divided into two parts: (I) an introduction to the continent, and to Comparative Politics; and (II) five case studies, most of them covering more than one country, which will be thought alternatively, according to the availability of lecturers, 2-3 cases studies per semester.

**When Offered**

Offered occasionally.

**POLS 551/5251 - African Politics (3 cr.)**

**Description**

The course provides an in-depth examination of the nature and dynamics of African politics. It explores issues related to state formation; post-colonial development processes; conflicts and civil wars; attempts at regional and sub-regional cooperation and integration and Africa international political and economic relations in the globalization era.

**POLS 552/5252 - Arab-American Relations (3 cr.)**

**Description**

This is a course which will introduce students to the growing importance of Arab-American relations in the post Cold War era. Informed by conceptual approaches in International Relations, it will examine changing patterns in political and strategic relationships, and will also assess the impact of US policy on some of the crucial regional issues which cause serious concerns to the governments and peoples of the region.

**POLS 554/5254 - Comparative Foreign Policy: Theories and Applications (3 cr.)**

**Description**

Patterns of the international system are greatly shaped by the strategies, objectives, and decisions of states, i.e. their foreign policies. Consequently, this course deals with the sources, processes and outcomes of these policies and how far they shape the global arena.

**When Offered**

Offered in spring.

**POLS 555/5255 - Conflict and Security in Global Politics (3 cr.)**

**Description**

This course examines, theoretically and through case studies, conflict and security in world politics. This includes analysis of the dynamics of inter-state, ethnic, and anti-imperial and -colonial conflict, as well as security arrangements, from balance of power to regional and global security regimes.

**When Offered**

Offered in fall.



## **POLS 558/5258 - Comparative Politics of the Middle East (3 cr.)**

### **Prerequisites**

POLS 5201 or POLS 5202

### **Description**

This course considers polity, economy, and society as interconnected areas for research in comparative politics; the impasse debate about theory in Middle East politics is explored in relation to comparative work on other areas and analysis of representative studies. It also examines materials relevant for studying the Middle East and practice in formulating a research proposal and in developing an agenda for research.

## **POLS 561/5261 - Public Policy and Development (3 cr.)**

### **Prerequisites**

ECON 2021 and POLS 5202 or POLS 5235

### **Description**

Public policy-making considered within contexts of current policy debates. Historical perspectives emphasized, as well as the effects of the globalization of trade, rise of multinationals, and the parameters of effective policy making at national and sub-national levels.

## **POLS 562/5262 - International Development Organizations (3 cr.)**

### **Prerequisites**

POLS 5202

### **Description**

The structure of international aid and assistance, with emphasis on analyzing the activities of multilateral, and bilateral organizations and NGOs which attempt to promote development. Emphasis will be on the political and bureaucratic environments in which these organizations operate.

## **POLS 570/5270 - Special Topics in Political Science for Graduates (3 cr.)**

### **Description**

Alternating selected Topics to be investigated and reported.

### **When Offered**

Offered in fall and spring.

### **Repeatable**

May be taken more than once if content changes.

## **POLS 571/5271 - Seminar: Special Topics in International Relations for Graduates (3 cr.)**

### **Description**

Issues in international relations regionally or topically defined. Each student will investigate an aspect of the topic as

defined, researching it and reporting on it within the seminar context.

**Repeatable**

May be taken more than once if content changes.

**POLS 580/5280 - Independent Study and Readings (3 cr.)**

**Prerequisites**

Prerequisite: Department approval.

**Description**

Guided individual readings and/or research on a subject of mutual interest to student and faculty member.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be taken only once.

**POLS 585/5285 - Project Seminar (3 cr.)**

**Description**

This is a special seminar for the practical development specialization. It includes the examination, specification and identification of problem areas; conceptualization and design of programs and their implementation; evaluation of project proposals and implementation. Students will be assessed by a variety of practical exercises, and the design of a project proposal.

**POLS 586/5286 - Skills in Development Practice and Internships (3 cr.)**

**Description**

This course examines various aspects of development work that are essential to the success of most if not all development enterprises. The approach will be thematic and the topics covered will include revision of basic appraisal techniques and concepts, projects under conditions of humanitarian crises, participation, sustainability, poverty alleviation, gender, and monitoring & evaluation, and aid-project coordination, all with a focus of community-based field visits and internships. The emphasis will be on application at the project level. Critiques of the various approaches examined will be encouraged.

**POLS 599/5299 - Research Guidance and Thesis (no cr.)**

**OPMG 202/2101 - Statistics for Business (3 cr.)**

**Prerequisites**

MACT 1112 or ECON 2061 .

**Description**

Basic concepts and applications of statistical analysis in business decisions. Methods include probability, risk analysis, estimation, forecasting, analysis of variances, and regression analysis.

**When Offered**

Offered occasionally.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**OPMG 310/3201 - Operations for Competitive Advantage (3 cr.)****Prerequisites**

MACT 1221 or ECON 2061 or MACT 2222 .

**Description**

How firms can gain competitive advantage from the operation function. This course introduces the basic concepts, tools and principles that are essential for the analysis and improvement of business processes. Topics may include forecasting, product and service design, capacity planning, quality management, materials management and project management.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**OPMG 409/4102 - Quantitative Approach to Management (3 cr.)****Prerequisites**

OPMG 4202

**Description**

Topics like the philosophy and techniques of operations research, the theory of probability, inventory models, utility and decision game theory, linear programming, queuing models, and simulation methods are emphasized.

**When Offered**

Offered occasionally.

**Notes**

Enrollment in is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**OPMG 402/4202 - Production/Operations Management II (3 cr.)****Prerequisites**

OPMG 3201

**Description**

Current theory and practice in the planning, operating, and control of production/service systems. Topics include: production planning, purchasing and materials management, quality assurance, and productivity analysis.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**OPMG 403/4203 - Business Process Management and Simulation (3 cr.)****Prerequisites**

OPMG 3201

**Description**

Initiatives in quality (TQM), time-based competition, balanced score card, business simulation and business dynamics, including recent development in benchmarking and business process reengineering, with particular attention given to process management through supporting process design and improvement.

**When Offered**

Offered in fall.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**OPMG 404/4204 - Service Operations and Strategy (3 cr.)****Prerequisites**

OPMG 3201

**Description**

Service organizations are dominating the global economy in terms of GDP share and employment, this is even more acute in the Egyptian economy. As such, the need to know how to design, operate and analyze service operational systems is more crucial than ever. This course covers the basic principles behind the design and operation of service enterprises with focus on service facility design, location, demand management, yield management and service capacity planning. Industries which could be considered include tourism, hospitality, financial, health care and government operations.

**When Offered**

Offered in spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**OPMG 401/4301 - Supply Chain Management (3 cr.)****Prerequisites**

OPMG 3201 and Senior standing

**Description**

The integrative managerial issues and challenges related to developing and implementing a firm's supply chain strategy. Attention is directed to the supply chain strategy mission confronted by varied types of business organizations.

**When Offered**

Offered in fall and spring.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**OPMG 470/4970 - Special Topics in Production / Operation Management (3 cr.)****Prerequisites**

Prerequisite: Consent of Instructor.

**Description**

Considers selected topics of current relevance in Production / Operation Management.

**When Offered**

Offered occasionally.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**OPMG 475/4975 - Independent Study in Production/Operation Management (1-3 cr.)****Prerequisites**

Prerequisites: Senior standing and consent of OPMG unit head and chair.

**Description**

Guided readings, research, and discussions on specific selected topic in Production/Operation Management.

**When Offered**

Offered occasionally.

**Notes**

Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

**OPMG 507/5201 - Introduction to Business Statistics (3 cr.)****Description**

This course provides a basic introduction to statistics as applied to finance, business, and accounting problems. Conceptual understanding of the concepts is stressed. Students will learn both limitations of statistics and how to interpret results. Hands-on experience in applying the concepts using Excel and SPSS is an integral part of the course.

Topics include graphical & tabular descriptive techniques, random variables and descriptive probability distributions, continuous probability distributions, sampling distributions, estimation, hypothesis testing, regression analysis, and analysis of variance. Application areas used include finance (e.g., portfolio construction), operations (e.g., statistical process control), and marketing.

**When Offered**

Offered in fall and spring.

**OPMG 520/5202 - Operations Management for Competitive Advantage (3 cr.)**

**Prerequisites**

OPMG 5201

**Description**

This course provides a basic understanding of manufacturing and service operations, and their role in the organization. Topics covered include process analysis, process capacity, quality management and control, forecasting, inventory control, lean operations, and planning and control. Topics are covered with emphasis on managerial, applications-oriented perspective.

**When Offered**

Offered in fall and spring.

**OPMG 521/5301 - Managing and Coordinating Supply Chains (3 cr.)**

**Prerequisites**

BADM 5310

**Description**

Supply Chain Management (SCM) deals with the efficient and effective flow of goods, services, information and financial resources through a network of suppliers, transformation facilities, distribution sites and customers. The goal of this course is to understand how supply chain decisions impact the performance of the firm as well as the entire supply chain. This course covers the major issues in supply chain management, including: definition of a supply chain; role of inventory; bullwhip effect and information sharing; vendor-managed inventories and other distribution strategies; third-party logistics; managing product variety; information technology and supply chain management; international issues. SCM focuses on managing material and information outside of the factory walls including aspects of sourcing, product design collaboration, demand planning and forecasting, inventory deployment, distribution system design, channel management, procurement, and logistics. We explore order fulfillment strategies and the impact of the Internet on distribution and back-end supply chain processes. We also examine strategies for enterprise integration.

**When Offered**

Offered occasionally.

**OPMG 528/5302 - Managing Dynamic Projects (3 cr.)**

**Prerequisites**

BADM 5310

**Description**

To compete successfully many organizations provide unique goods and/or services which are delivered via "projects." These include the professional services firms that provide a broad portfolio of services supporting their clients' projects. Even organizations that do not regularly engage in projects often utilize projects to enable organizational, process or technological change. In all cases effective management of projects is required in order to achieve the overarching project goal of customer satisfaction. The course focuses on strategies and tools useful in management of projects. Topics covered include efficient & effective management of tasks within individual project, project portfolio management. Managing distributed development, and common classification of project types.

**When Offered**

Offered occasionally.

**OPMG 530/5303 - Data Analysis (3 cr.)****Prerequisites**

BADM 5310

**Description**

This course uses the Excel/VBA environment for developing models. Students will develop spreadsheets and write programs for forecasting, financial price simulation, option pricing, and financial statements. Add-ins are used for optimization, simulation, and decision analysis.

**When Offered**

Offered occasionally.

**OPMG 532/5305 - Operations Strategy (3 cr.)****Prerequisites**

BADM 5310

**Description**

In this course we examine how firms can develop a competitive edge via excellence in operations strategy formulation and implementation. We study how companies can design operations to compete based on cost, quality, flexibility, or service. We will also study different scenarios in which firms make structural strategic decisions; dealing with "hard" issues such as technology choice, capacity expansion, and factory focus; and infrastructural strategic decisions; dealing with "softer" issues such as quality management & benchmarking, and procedures for global sourcing & inter-functional coordination.

**When Offered**

Offered occasionally.

**OPMG 533/5306 - Business Dynamics (3 cr.)****Prerequisites**

BADM 5310

**Description**

This course introduces system dynamics modeling for the analysis of business policy and strategy. Students will learn to visualize and analyze a business organization in terms of the structures and policies that create dynamics and

regulate performance. A common theme that runs through the course is the search for connections between the behavior of people (and groups) in organizations and the organizational trajectories they generate; and how interactions among physical, cognitive, social, and informational factors in various organizational settings lead to dynamic behavior over time. We will also introduce "management flight simulators" that allow us to experience the long term side effects of decisions, systematically explore new strategies, and develop our understanding of complex systems.

**When Offered**

Offered occasionally.

**OPMG 570/5370 - Selected Topics in Operations Management (3 cr.)**

**Prerequisites**

BADM 5310

**Description**

It considers selected topics of current relevance in Operations Management.

**When Offered**

Offered occasionally.

**OPMG 575/5375 - Independent Study in Operations Management (1-3 cr.)**

**Prerequisites**

Prerequisite: Consent of OPMG unit head and chair.

**Description**

Guided readings, research, and discussions on specific selected topic in Production/Operation Management.

**When Offered**

Offered occasionally.

**PSYC 201/1000 - Introduction to Psychology (3 cr.)**

**Description**

Survey of the general field of psychology. Topics include the history of psychology, research methods, biological aspects of behavior, sensation and perception, learning and memory, cognition and language, consciousness and cognitive abilities, motivation and emotion, human development, health and stress, personality, psychological disorders and their treatment, and the social aspects of behavior.

**When Offered**

Offered in fall and spring.

**PSYC 207/2000 - Introduction to Psychological Statistics (3 cr.)**

**Description**

Basic Introduction to the application and interpretation of statistical analysis in psychology. Begins with statistical methodology, branches of statistics, definition of a variable and its measurement. Topics include frequency tables and graphs, central tendency, variability, probability distributions, normal distribution, estimation, significant tests,



comparison of two or more groups, association between categorical variables, regression, correlation. Use of SPSS software.

**When Offered**

Offered in fall and spring.

**PSYC 299/2099 - Selected Topics in Psychology (3 cr.)**

**Description**

Selected topics of interest for the core curriculum. Topics will vary depending on contemporary trends in the field of psychology and may reflect interdisciplinary content.

**When Offered**

Offered occasionally.

**PSYC 208/2100 - Research Methods for Psychology (3 cr. + 1 cr. lab)**

**Prerequisites**

PSYC 1000 and PSYC 2000

**Description**

Review of qualitative and quantitative research methods that form the empirical basis of contemporary psychology. Progresses from the logic of scientific discovery and comprehension of research literature to the formulation, design, conduct, analysis, and reporting of specific research projects. The laboratory will provide applied exercises to facilitate an understanding of the research methods and mentorship in the comprehensive development and implementation of student research project required for this class.

**When Offered**

Offered in fall and spring.

**Notes**

This course is designed for psychology majors.

**PSYC 240/2201 - Introduction to Community Development (3 cr.)**

**Description**

Introduce the students to the different concepts and approaches to community development as well as to community organizing. Utilizes a critically reflective framework as part of the curriculum to overcome the potential division between theory and practice. Identifies the key issues that the students are likely to confront in community development and organizing work.

**Cross-listed**

Same as ANTH 2201, SOC 2201.

**When Offered**

Offered in fall.

**PSYC 302/3002 - Personal Growth and Adjustment (3 cr.)**

**Prerequisites**

PSYC 1000

**Description**

This course covers personal psychological adjustment with a focus on the practical and applied aspects of psychology as opposed to theoretical. Students will learn to apply psychological knowledge toward developing and achieving goals. Topics will include personal change, health, stress management, relationships and intimacy, communication, study skills, career development, and time management. For the course learning outcomes to be successfully attained, students will develop and implement a community-based learning project.

**When Offered**

Offered in fall or spring.

**PSYC 330/3003 - Community Psychology (3 cr.)**

**Prerequisites**

PSYC 1000

**Description**

This course will introduce students to theory and practice in community psychology. The practice of community psychology is directed towards the design and evaluation of strategies to prevent social pathologies such as crime, widespread drug abuse, and domestic violence, and promote community empowerment and healthy group coping strategies. While these strategies are, of course, aimed at promoting mental health in the individual, the idea is to target the social system of which he/she is a part and thus create a psychologically healthy setting for many individuals.

**When Offered**

Offered in fall and spring

**PSYC 301/3010 - Social Psychology (3 cr.)**

**Prerequisites**

PSYC 1000

**Description**

The extension of general psychological principles and methods to the study of interaction with social and physical environment. The nature and methodology of research in social psychology. The major theoretical concepts and their applications and contributions to a variety of areas in the field including development and socialization, social perception and attribution of causality, attitude formation and changes, pro- and anti-social behavior, interpersonal attraction and intimacy, and the social effects and functions of groups.

**Cross-listed**

Same as SOC 3010.

**When Offered**

Offered in fall and spring.

**PSYC 310/3011 - Educational Psychology (3 cr.)**

**Prerequisites**

PSYC 1000

**Description**

Educational Psychology introduces psychological principles, theories, and methodologies to issues of teaching and learning in education. The role of psychology of education in studying and influencing teaching and learning will be explored with an emphasis on direct application to planning, implementing, and evaluating instruction in the classroom.

**When Offered**

Offered in fall or spring

**PSYC 304/3040 - Lifespan Development (3 cr.)****Prerequisites**

PSYC 1000 .

**Description**

The study of human growth and development across the lifespan with emphasis on normal growth and milestones achieved in the physical, cognitive, social, and emotional systems. Educational and familial contexts are highlighted. Students will develop an understanding of the concepts, methods, and research findings central to the study of developmental psychology.

**When Offered**

Offered in fall and spring.

**PSYC 308/3080 - Cognitive Psychology (3 cr.)****Prerequisites**

PSYC 2100

**Description**

Current research and theory concerning mental processing and mental structures. Emphasis on the processes of perceiving, learning, remembering, and thinking. The merits and limitations of studying these processes from an information-processing perspective.

**When Offered**

Offered in fall and spring

**PSYC 313/3130 - Learning and Behavioral Psychology (3 cr.)****Description**

Reviews the fundamentals of the processes of learning, memory and conditioning, emphasizing both classical and operant conditioning in human and animal models. It is followed by an exploration of the techniques and theories of behavioral psychology in the applied setting.

**When Offered**

Offered in Fall and Spring.

**PSYC 315/3150 - Psychological Testing and Assessment (3 cr.)****Prerequisites**

PSYC 1000 and PSYC 2000

**Description**

Study of psychometrics, including measurement statistics, reliability, validity. Overview of test construction and development. Introduction to types of testing including intellectual/cognitive; achievement; and personality measures. Ethical and cultural issues in assessment.

**When Offered**

Offered in fall and spring.

**PSYC 340/3202 - Participatory Action Research in Community Settings (3 cr.)**

**Description**

This course will introduce students to the appropriate research methodologies when dealing with community organizing and development, particularly the participatory action research approach to community development.

**Cross-listed**

Same as ANTH 3202,SOC 3202.

**When Offered**

Offered in fall.

**PSYC 327/3270 - Theories of Personality (3 cr.)**

**Prerequisites**

PSYC 1000

**Description**

The study of the development and dynamics of personality from a variety of theoretical perspectives, including psychoanalytic, cognitive, behavioral, trait, biological, and humanistic. A critical analysis of the theories includes discussion of cultural and historical contexts and examination of scientific evidence.

**When Offered**

Offered in fall and spring.

**PSYC 342/3420 - Abnormal Psychology (3 cr.)**

**Prerequisites**

PSYC 1000

**Description**

Different theoretical approaches and empirical studies of causes, symptoms, and treatment of abnormal patterns of behavior. Problems and advantages of creating a classification scheme for abnormal behavior. The major diagnostic categories and review of the more common patterns of abnormal behavior. How such disorders arise from subtle interactions between organic or psychological predispositions.

**When Offered**

Offered in fall and spring.

## **PSYC 380/3800 - Biopsychology (3 cr.)**

### **Prerequisites**

BIOL 1010 or BIOL 1011 and PSYC 1000 and PSYC 2100 .

### **Description**

This course explores the relationship between the nervous system and behavior. Topics include biopsychology as a neuroscience, brain structures and functions, sensory and motor systems, human motivation, cognition, emotion and mental health.

### **When Offered**

Offered in fall and spring

## **PSYC 401/4001 - Supervised Research in Psychology (1-3 cr.)**

### **Prerequisites**

PSYC 2100 , minimum B average, and permission of instructor.

### **Description**

Student will assist with a research project by working under the individual guidance of a Psychology faculty member or a faculty member from another department conducting interdisciplinary research relevant to psychology. Requirements may include library research, data collection, data entry, statistical analysis, qualitative analysis, report-writing, and assistance in planning or implementing parts of a research project.

### **When Offered**

Offered occasionally.

### **Repeatable**

May be repeated for credit if content changes. May not be taken for more than 6 credits per faculty advisor during the student's academic path.

## **PSYC 402/4002 - Independent Study (1-3 cr.)**

### **Prerequisites**

Prerequisites: a minimum B average, consent of the instructor, and approval by the Unit Head and the Department Chair.

### **Description**

In exceptional circumstances some seniors and graduating seniors with department approval may arrange for independent study on a chosen topic in Psychology that is not covered in the regular offerings for that academic year. Guided readings, research and frequent consultations held.

### **When Offered**

Offered in fall and spring.

### **Repeatable**

May be repeated for credit if content changes

## **PSYC 410/4011 - Cultural Psychology (3 cr.)**

**Prerequisites**

PSYC 1000 and junior or senior standing.

**Description**

This course will explore the nature of different psychological systems (or "ethnopsychologies") that exist throughout the world and the complex relation of these to western psychology. Topics to be covered include the relationship of culture to human development, personality, psychopathology, and psychotherapy, paying particular attention to the impact of social change and cultural contact. This course will also address some major issues in applied psychology from a cultural and international perspective. The successful student will leave this course with an appreciation of the cultural underpinnings of western psychology, an in-depth understanding of the limitations of universalist perspectives, and a new appreciation for cultural and psychological diversity.

**When Offered**

Offered occasionally.

**PSYC 000/4012 - Psychology of Gender (3 cr.)****Prerequisites**

PSYC 1000 and junior standing

**Description**

This course will examine what is the difference between gender and sex and how does gender influences human functioning. The course will focus on theories that explain gender differences within the field of psychology. Students will develop an understanding of the differences between the sexes in areas such as intelligence, emotion, personality, interpersonal relationships & psychopathology.

**When Offered**

Offered occasionally

**PSYC 000/4013 - Psychology of Trauma (3 cr.)****Prerequisites**

PSYC 1000 and junior standing

**Description**

This course will introduce students to the psychology of trauma. The course will place emphasis on interpersonal trauma and betrayal on both the individual and institutional levels. Topics to be covered include childhood trauma, adult sexual assault, war, and domestic violence, and the perspectives of perpetrators of violence. An important focus of the course will involve considerations of how socio-political contexts affect trauma research and intervention.

**When Offered**

Offered occasionally

**PSYC 414/4014 - Child Psychology (3 cr.)****Prerequisites**

PSYC 3040

**Description**

Child psychology familiarizes students with contemporary theoretical and applied issues related to child development. The course discusses theories and contemporary models of child development, and may include an emphasis on children with special cognitive, emotional and medical needs. The course includes content relevant to the local context.

**When Offered**

Offered occasionally

**PSYC 407/4015 - Psychological Anthropology (3 cr.)****Prerequisites**

Prerequisites: 6 hours of anthropology, 6 hours of psychology, and junior or senior standing

**Description**

Interdisciplinary and cross-cultural approach to the study of the reciprocal relations of culture and personality; special focus on themes of identity, socialization, and the emergence of self in various cultural settings.

**Cross-listed**

Same as ANTH 4015.

**When Offered**

Offered occasionally.

**PSYC 000/4016 - Introduction to Forensic Psychology (3 cr.)****Prerequisites**

PSYC 1000 and junior standing

**Description**

This course will provide an introduction to forensic psychology and the numerous ways that psychology interacts with the law. Forensic psychology addresses the application of psychological research, methods, and expertise to issues that come before the legal system. Topics to be covered may include insanity, competency, jury-selection, expert-testimony, decision making, criminal profiling, psychopathy, violence risk assessment, and offender treatment programs.

**When Offered**

offered occasionally.

**PSYC 420/4022 - Industrial/Organizational Psychology (3 cr.)****Prerequisites**

PSYC 3010 and PSYC 3270 .

**Description**

This course provides students with the understanding of the scientific basis and professional practice of industrial/organizational psychology. Topics include personnel selection and placement, training and development, performance appraisal, organizational development, quality of work life, and ergonomics.

**When Offered**

Offered occasionally.

## **PSYC 403/4030 - History and Systems of Psychology (3 cr.)**

### **Prerequisites**

Junior or senior standing and 15 hours of psychology, or permission of instructor

### **Description**

The course covers the history, methods, and content of modern psychological theory, research, and application. It also reviews schools of psychology (e.g., structuralism, functionalism, behaviorism, Gestalt psychology) and central theories of psychology in their historical and philosophical context. The course goals are to familiarize students with how the social and intellectual forces throughout history have shaped the field of psychology and how psychology today is rooted in them.

### **When Offered**

Offered in fall and spring.

## **PSYC 442/4062 - Clinical Psychology (3 cr.)**

### **Prerequisites**

PSYC 3270 ,PSYC 3420 and PSYC 3800

### **Description**

This course will cover the history and current state of the field of clinical psychology. Topics that will be covered include clinical assessment, clinical interventions, psychotrauma, and clinical theories. This course is intended for advanced undergraduate students who are considering graduate work or practical work in fields related to clinical psychology.

### **When Offered**

Offered in fall and spring.

## **PSYC 430/4063 - Advanced Community Psychology (3 cr.)**

### **Prerequisites**

PSYC 1000 ,PSYC 3003

### **Description**

Provides an advanced introduction to theory and practice in community psychology, incorporating experiential community based learning as an integral part of the course requirements. Builds upon theories and concepts covered in Psychology 3003 (Community Psychology) by introducing special topics of particular importance to Egypt. Topics and skills covered may relate to oppression and liberation, social action, stress and coping, needs assessment, program development, program evaluation, public policy or special populations such as refugees and persons with disabilities or mental illness.

### **When Offered**

Offered in spring.

## **PSYC 000/4098 - Selected Topics in Neuroscience (3 cr.)**

### **Prerequisites**



BIOL 1011 or PSYC 3800

**Description**

An interdisciplinary course discussing current topics in neuroscience, through the examination of content related to neurobiology, neuroanatomy, neurophysiology. Examples of topics may be neuroscience research techniques, hormones and behavior, psychopharmacology, cognitive neuroscience, affective neuroscience, neurological disorders.

**PSYC 400/4099 - Selected Topics in Psychology (3 cr.)**

**Prerequisites**

junior or senior standing

**Description**

Topics of interest that reflect current trends or specialized content areas in psychology. Topics may relate to faculty research or practice interests, as well as intra-disciplinary or interdisciplinary areas of inquiry.

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit if content changes.

**PSYC 440/4203 - Practicum in Community Development (3 cr.)**

**Prerequisites**

Six hours of social sciences or consent of the instructor.

**Description**

One semester, field experience in an approved international development agency, local NGO or other professional setting approved by faculty supervisor. Supervised by a faculty supervisor.

**Cross-listed**

Same as ANTH 4203 and SOC 4203.

**When Offered**

Offered in spring.

**PSYC 000/5000 - Research Methods and Inferential Statistics for Psychology (3 cr.)**

**Prerequisites**

Post baccalaureate

**Description**

This course will introduce students to research methods in psychology, including the process of scientific inquiry, features of different research methods, and practical applications and challenges when conducting studies. Quantitative and qualitative research methods will be reviewed such as experimental designs, correlation studies, and single-case studies. Inferential statistics will include basic introduction, test of hypothesis, correlation and regression.

**PSYC 412-512/5112 - Psychosocial Issues in Forced Migration (3 cr.)**

**Prerequisites**

Prerequisites: Permission of the instructor.

**Description**

Explores the psychosocial dimensions of forced migration including ethno-cultural concepts of well-being, sources of stress and coping, the impact of forced migration on child development, psychosocial consequences of torture and sexual victimization, and the interaction of trauma and bereavement. Culturally appropriate mental health assessment, community-based intervention programs, methods of program evaluation, and ethical issues in working with refugee populations will be discussed. This course is required of all students seeking the diploma in Forced Migration and Refugee Studies.

**Cross-listed**

Same as MRS 5112.

**When Offered**

Offered occasionally.

**PSYC 000/5122 - Physiological Psychology (3 cr.)****Description**

This course reviews the biological bases of normal and abnormal behavior. The major contributions in this field are examined, including the neurological, biochemical, and genetic influences on sensation, motivation, cognition, and emotion. The course will cover applications and relevance of these influences in psychiatric disease, neurodegenerative disease, and drug abuse.

**PSYC 500/5200 - Fundamentals of Counseling (3 cr.)****Description**

This course is an introduction to culturally sensitive interviewing, listening, and report writing skills required of professional helpers. Students will gain familiarity with fundamental counseling concepts and experience in using basic counseling techniques. The course will enhance students' capacity for psychological mindedness and intervention.

**PSYC 504/5202 - Advanced Lifespan Development (3 cr.)****Description**

This course is an exploration of lifespan development through the lenses of biological, learning, cognitive, social, and cultural theories. Emphasis is on gaining a conceptual understanding of healthy development and better practical understanding of how to help children, adolescents, and adults address developmental challenges they face.

**PSYC 520/5205 - Psychology in the Schools (3 cr.)****Description**

This course will focus on prevention-oriented community and environmental interventions in school settings. General topics areas addressed are: assessment, consultation, intervention, special education, research, reform movement in education, multiculturalism, and diversity, and the future of education and school psychology.

### **PSYC 503/5206 - International and Multicultural Psychology (3 cr.)**

#### **Description**

This course is an overview of the mainstream as well as alternative theoretical, methodological, and applied approaches that are relevant to the study and practice of psychology. Specifically, the course will provide students with knowledge, awareness, and skills in international and cultural issues related to the field of psychology.

### **PSYC 575/5209 - Independent Study and Guided Readings (1-3 cr.)**

#### **Prerequisites**

Minimum 3.0 GPA, consent of instructor, and approval of graduate advisor.

#### **Description**

In exceptional circumstances some students may arrange for independent study on a specific topic in psychology that is not covered in the course offerings for that academic year. Guided readings, research and frequent consultations held.

#### **When Offered**

Offered occasionally.

### **PSYC 502/5210 - Community Psychology and Systems Theory (3 cr.)**

#### **Description**

This course examines the core theories, values, and methodologies of community psychology and systems theory. An emphasis is placed on the ecological perspective, empowerment theory, sociocultural and cross-cultural competence, community inclusion and partnership, and ethical, reflective practice.

### **PSYC 508/5220 - Applied Research Design and Statistical Analysis (3 cr.)**

#### **Description**

This course provides students with the conceptual knowledge and skills needed to understand, evaluate, and conduct multivariate research. The course will also acquaint students with the statistical techniques used to analyze data derived from such research.

### **PSYC 545/5226 - Seminar in Cross-Cultural Family Studies (3 cr.)**

#### **Description**

This course will expose students to contemporary issues affecting families in a global context from a systemic/ecological perspective. Issues of diversity and cross-cultural interactions will be integrated throughout the course, with an emphasis on the Arab/Middle Eastern experience.

### **PSYC 505/5230 - Ethics and Professional Issues (3 cr.)**

#### **Description**

This course is designed to introduce students to ethical decision-making that is an integral part of psychological practice and research. Students will learn about specific ethical principles and guidelines, and will be challenged to increase awareness, sensitivity and understanding of ethical and professional practices particularly within multicultural settings.

### **PSYC 530/5233 - Community Assessment and Program Evaluation (3 cr.)**

#### **Description**

This course exposes students to concepts and methods of applied research in community psychology, specifically community assessment and program evaluation. Assessment techniques may focus on community needs and assets/resources assessment. Students will gain knowledge and skills in program evaluation, including evaluation theories, different types of evaluation (including process, outcome, and impact), and qualitative and quantitative evaluation methodologies. There will be an emphasis on strengths-based, participatory, and empowerment-oriented approaches, as well as professional ethics.

### **PSYC 510/5241 - Theories of Counseling and Psychotherapy (3 cr.)**

#### **Description**

This course examines historical and contemporary approaches to counseling and psychotherapy. Theoretical assumptions and principle interventions and techniques of each paradigm will be studied, emphasizing evidence-based practice. Theories covered include psychodynamic, humanistic/experiential, cognitive, behavioral, brief/strategic, and postmodern approaches. There is an emphasis on multicultural considerations.

### **PSYC 535/5243 - Prevention and Intervention in Communities (3 cr.)**

#### **Description**

This course provides students with knowledge and skills related to prevention across the lifespan, health promotion, and other types of community interventions. Students are exposed to a variety of community and preventive interventions, so as to prepare them to think about, work with, and lead community and preventive interventions in the future. The course provides training in community program development by offering opportunities for students to participate in program development, implementation, or management. Multicultural sensitivity and professional ethics are addressed.

### **PSYC 515/5251 - Psychological Assessment (3 cr.)**

#### **Description**

This course increases familiarity with psychological assessment tools and standardized psychological tests used for diagnostic and behavioral health intervention planning purposes. Students examine strengths and limitations of tests and learn how to administer, score, and interpret findings. Students learn how to read and write integrated reports that can inform treatment. Ethical and multicultural issues throughout the assessment process are addressed.

### **PSYC 525/5253 - Consultation to Non-Profit Organizations (3 cr.)**

#### **Description**

This course provides students with knowledge and skills for consultation with nonprofit organizations, using a

participatory and strengths-based approach. Topics include understanding the nonprofit sector, phases and theories of consultation, establishing and marketing a consultation business, and ethical and professional competence. Nonprofit consultation often focuses on strategic planning, organization development, needs assessment, capacity and resource development, program evaluation, and fundraising.

### **PSYC 000/5255 - Assessment and Evaluation for Learning Enrichment (3 cr.)**

#### **Description**

This course provides students with knowledge of current concepts and issues related to assessment and evaluation tools used for diagnostic and learning interventions. Students examine strengths and limitations of both standardized and curriculum-based tools. They learn how to administer, score, interpret and use findings curriculum-based tools, as well as how to read and write integrated reports and use report findings to develop a learning plan for the individual assessed.

### **PSYC 570/5256 - Special Topics in Psychology (3 cr.)**

#### **Prerequisites**

Approval of advisor.

#### **Description**

In-depth examination of a specific topic in psychology of current theoretical, research, or clinical interest. Topics will vary depending on instructor.

#### **When Offered**

Offered Occasionally.

#### **Repeatable**

May be repeated for credit if content changes.

### **PSYC 506/5261 - Psychopathology and Resilience across Cultures (3 cr.)**

#### **Description**

This course is an overview of contemporary views on psychopathology and resilience from a multicultural perspective. The course will cover key processes influencing mental health across cultures such as belief systems and communication interaction as well as ways to cultivate resilience.

### **PSYC 580/5264 - Practicum I in Counseling Psychology (3 cr.)**

#### **Prerequisites**

PSYC 5200 PSYC 5210 PSYC 5202 PSYC 5230 PSYC 5241 PSYC 5251 and approval of advisor.

#### **Description**

Introductory practicum in which students provide direct counseling services with the support of individual and group supervision. This practical training will help students develop their skills in areas including but not limited to: a. counseling assessment and interventions; b. session and case management skills; c. ethical and legal principles, and d. documentation such as record keeping and report writing.

## **PSYC 000/5265 - Applied Projects in Inclusive Education (3 cr.)**

### **Prerequisites**

PSYC 5205 , EDUC 5204 , EDUC 5238

### **Description**

This is a hands-on course that will help students integrate theoretical acquired knowledge into their professional practice. The course will enhance the student's ability to utilize reflective, experiential, and pragmatic pedagogic approaches in order to teach for diverse learners effectively. The course aims at promoting the facilitation of learning through peer observation, critical friends groups, and cognitive coaching. The 5265 course should be taken in the final semester of the diploma, after the student has completed PSYC 5205, EDUC 5204, and EDUC 5238. It can be taken concurrently with either PSYC 5255 or EDUC 5232

### **Cross-listed**

EDUC 5265

## **PSYC 540/5270 - Group Work (3 cr.)**

### **Description**

This course provides an overview of the concepts and applications of group interventions in community and counseling contexts including task, psychoeducational, counseling, and psychotherapy groups. Principles of group work will be reviewed, including group dynamics; leadership skills, tasks, and challenges; and stages of group development. A minimum 10 hour experiential component is integrated into the course.

## **PSYC 000/5271 - Career Development and Counseling (3 cr.)**

### **Description**

This course provides an overview of career development over the lifespan from various theoretical frameworks, while taking into consideration the contributions of other facets of life. Students will gain knowledge and skills in career program development and career counseling. The course will review various instruments and assessments that are often used in career counseling. Ethical, legal, and diversity considerations are addressed, including gender and culture.

## **PSYC 581/5274 - Practicum II in Counseling Psychology (3 cr.)**

### **Prerequisites**

PSYC 5200 PSYC 5210 PSYC 5202 PSYC 5230 PSYC 5241 PSYC 5251 and approval of advisor.

### **Description**

Advanced practicum in which students provide direct counseling services with the support of individual and group supervision. This practical training will help students develop their skills in areas including but not limited to: a. counseling assessment and interventions; b. session and case management skills; c. ethical and legal principles, and d. and documentation such as record keeping and report writing.

### **PSYC 550/5281 - Couples Counseling and Human Sexuality (3 cr.)**

#### **Description**

The course will focus on theories and methods of effective counseling with couples. The course will also cover the influence of socio-cultural factors on couples' relationships. The human sexuality portion of the course will address issues such as sexual development across life span, sexual attitudes, sexual dysfunction, sexual assault, commercial sex and sex therapy.

### **PSYC 596/5283 - Internship in Community Psychology (3 cr.)**

#### **Prerequisites**

PSYC 5200 PSYC 5210 PSYC 5230 PSYC 5220 PSYC 5233 PSYC 5243 and approval of advisor.

#### **Description**

This course provides students with applied fieldwork experience in community psychology during an academic year-long field internship. Students are placed at NGOs, community agencies, or private or public institutions as interns with an approved external supervisor at the site. In addition, students meet regularly with a psychology faculty member for individual and group supervision.

### **PSYC 590/5284 - Internship in Counseling Psychology (3 cr. + 3 cr.)**

#### **Prerequisites**

Completion of PSYC 5261 PSYC 5220 PSYC 5270 PSYC 5281 PSYC 5264 and PSYC 5274

#### **Description**

This course provides students with clinical training and experience in counseling during an academic year-long field internship. Students are placed at NGOs, community agencies, or private or public institutions as interns with an approved external supervisor at the site. In addition, students meet regularly with a psychology faculty member for individual and group supervision.

### **PSYC 599/5299 - Research Guidance and Thesis (3 cr.)**

#### **Prerequisites**

Approval of advisor.

#### **Description**

Supervision in the preparation and writing of the Masters thesis. May be repeated for credit.

### **PPAD 299/2099 - Selected Topics for the Core Curriculum (3 cr.)**

#### **Prerequisites**

RHET 1000

#### **Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**PPAD 308/3198 - Management in Government (3 cr.)**

**Description**

Introduction to management and policy-making in government and non-profit organizations, with an emphasis on development programming in Egypt. Exploration of current policy and governance issues of importance to Egypt. Overview of management techniques applied in designing, implementing, and assessing development programs in government and non-profit settings.

**When Offered**

Offered in spring.

**PPAD 000/4111 - Introduction of Public Policy and Administration (3 cr.)**

**Description**

This course covers a number of topics in nonprofit management that provides a thorough introduction and understanding to the significant issues of the sector - topics include the management, leadership, governance, and accountability of nonprofit organizations in both developed and developing countries with special reference to Egypt and the Middle East.

**PPAD 000/4113 - Selected Topics in Global and Public Affairs (3 cr.)**

**Description**

Selected topics in Global and Public Affairs addresses a myriad set of contemporary issues in the field. The course will rely on a mix of theoretical approaches and case studies to address the topic in focus.

**PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)**

**Description**

Introduction to public policy and administration for students with limited preparation in political science and social science generally. Exploration of what constitutes policy and how it is made, implemented, and evaluated, including role of different institutions and actors in shaping policy outcomes. Overview of major management issues in nonprofit and government agencies, including setting strategy, developing operational plans, and managing human and financial resources to achieve desired outcomes. May be taken for MPP credit only by students with limited background in management or social sciences (advisor approval required).

**When Offered**

Offered in fall.

**PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)**



**Description**

Factors that shape how employees and managers interact with each other, with partners, citizens, and clients, and with the institutions themselves in public and nonprofit settings. Theories of motivation, leadership, group dynamics, power, communication, and ethical behavior in organizations. Application of theoretical constructs to the reality of developing country conditions, preparing students to address organizational challenges in professional settings.

**When Offered**

Offered in alternate years.

**PPAD 512/5114 - Management of Development Programs (3 cr.)****Description**

Theory and practice of management as applied to development projects, programs, and organizations. Managerial aspects of social and economic development, with extensive use of case material to explore how management shapes development outcomes. Implementation of management reforms in public and nonprofit settings, including project design and management.

**When Offered**

Offered in fall.

**PPAD 511/5122 - Administrative Environment and Public Policy in Egypt and the Middle East (3 cr.)****Description**

In-depth exploration of the interaction of public policy and government institutions in Egypt and the Middle East to achieve public purposes. Consideration of how administrative structures shape outcomes and how performance constraints can be overcome, with application to selected social and productive sectors of public policy concern in Egypt and the region.

**When Offered**

Offered in alternate years.

**PPAD 518/5123 - Governance, Accountability, and Stakeholder Negotiations (3 cr.)****Description**

Provides students with an understanding of governance and accountability concepts, tools, and applications as applied in governmental and nonprofit settings, including international development organizations, and corporations working in developing countries. Strategies to overcome governance deficiencies including corruption, weak accountability to stakeholders, and nontransparency. Approaches to negotiation, especially between sectors (government-nonprofit-private sector) and with community stakeholders. Communication tools and other approaches for improving stakeholder relations.

**When Offered**

Offered in fall.

**PPAD 519/5124 - Leadership and Communication for Public Affairs (3 cr.)**

**Description**

Approaches to leading change in government and nonprofit settings at the organizational, local, and national levels. Consideration of how to develop personal leadership skills based on case studies and analysis of successful and unsuccessful leadership models in the public sphere, and how to develop effective change strategies, overcome barriers, and shape group behavior to achieve desired outcomes. Development of better oral and written communication skills, problem-solving approaches, and skill in using management tools to build collaboration within and between organizations.

**When Offered**

Offered in alternate years.

**PPAD 523/5125 - Citizen-centered government (3 cr.)**

**Description**

Exploration of institutional reforms to expand citizen engagement and government accountability in the Middle East, including decentralization of government services, community-based services, and creation of mechanisms to engage citizens in governance. Use of technology to improve citizen services and communication, including e-government.

**When Offered**

Offered in alternate years.

**PPAD 517/5126 - Managing NGOs in Developing and Transitional Countries (3 cr.)**

**Description**

Application of management concepts, approaches, and tools in a nonprofit setting, including strategic management, human resource management, budgeting and financial management, and project management. Interaction of NGOs with partners including participatory development approaches, relations with donors and governments, coalition-building and fundraising. Both project and advocacy approaches will be covered.

**When Offered**

Offered in spring.

**PPAD 525/5127 - Reforming Delivery of Social Services (3 cr.)**

**Description**

Exploration of the causes and consequences of ineffective government programming in social service delivery and strategies to improve performance. Comparative analysis of issues in health, education, anti-poverty programming, including the interaction of financial, human resource, and governance failures and ways to address them in a developing country context. Application of intervention strategies to increase responsiveness to citizen needs, including the uses of information, technology, capacity-building, and accountability mechanisms.

**When Offered**

Offered in alternate years.

**PPAD 526/5128 - Corporate Social Responsibility and NGO Partnerships (3 cr.)**

**Description**

Overview of corporate social responsibility principles and applications from a developing country perspective. Issues in responsible corporate management, including addressing environmental, social, and accountability challenges. Tools for implementing and assessing corporate social responsibility programming, including mechanisms for developing effective partnerships with nonprofit organizations. Extensive use of cases from developing country experience.

**When Offered**

Offered in alternate years.

**PPAD 524/5129 - Globalization and Development (3 cr.)**

**Description**

Integrative approach to the debate on globalization and development in the 21st century. Analyzes globalization through the lens of diverse regions, using cases and analysis to explore global aspects of social change, growth and development, social and economic stability and development finance. Considers emerging issues reshaping global development, including migration of labor and capital, trade, technology, conflict, and global warming. Impact of globalization on sustainable development, including environment, debt, crisis management, global governance, poverty, and inequality.

**When Offered**

Offered in alternate years.

**PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)**

**Prerequisites**

Completion of economics core or equivalent economics preparation.

**Description**

Role of government expenditure, taxation, and financing in public policy, with emphasis on socioeconomic development and related policy issues. Application of financial and economic principles to government finance, with emphasis on rigorous theory, empirical evidence, public choice analysis, and policy applications in a market economy. Design, selection, and evaluation of spending programs (emphasizing social programs and social insurance); revenue generation including taxation, non-tax funding mechanisms, government credit; subsidy and income transfer programs.

**When Offered**

Offered in alternate years.

**PPAD 516/5132 - Social and Environmental Policy (3 cr.)**

**Description**

Overview of issues and analytic approaches for social and environmental policy, including programmatic and policy responses to development challenges in the environment, health and social services, and anti-poverty programming, with an emphasis on applications and case studies of experience in the Middle East and North Africa. Application of analytic methods to understand the root causes of barriers to providing social services and protecting the environment, and potential solutions to address these challenges from an interdisciplinary perspective.

**Cross-listed**

Same as GREN 5203 .

**When Offered**

Offered in spring.

### **PPAD 520/5133 - Global Health Issues and Policies (3 cr.)**

#### **Description**

Examination of health issues in developing countries from a global perspective, with an emphasis on strategies to address social, economic, and managerial barriers to better health outcomes. Consideration of healthcare delivery in the broader context of development, equity, and government performance. Role of poverty, environmental degradation, and related social factors in health outcomes and development of new approaches to tackle social determinants of health. Introduction to health finance issues and approaches. Exploration of global issues affecting health such as migration, intellectual property rights, and governance failures.

#### **When Offered**

Offered in alternate years.

### **PPAD 521/5134 - Government Regulation of Business and Investment (3 cr.)**

#### **Description**

Introduction to government strategies to regulate social and economic sectors to overcome market failures. Comparative analysis of regulatory structures and issues in financial markets, telecommunications, the utility sector (power, water), environment, and social services (education, healthcare). Regulatory tools and analysis of alternative regulatory strategies as applied in developing countries. Privatization and public-private partnerships, including legal frameworks, approaches to community involvement in decision-making, accountability, and dispute resolution.

#### **When Offered**

Offered in fall.

### **PPAD 522/5135 - Promotion of Local Economic Development (3 cr.)**

#### **Description**

Introduction to government strategies to promote broad-based and employment-creating growth at the national, regional, and local levels. Small and midsize enterprise development, including financing tools. Mobilization of local resources through collaboration with the business sector and community partners. Identification and removal of barriers to investment to create an environment conducive to growth. Tools to attract investors and create local capacity for growth.

#### **When Offered**

Offered in spring.

### **PPAD 541/5136 - Gender in Public Policy and Administration (3 cr.)**

#### **Description**

The course approaches the topic of gender in public policy and administration by exploring frameworks for thinking about both gender differences and public affairs; examining policy issues that have gendered outcomes; and looking at the representation of women in leadership positions as agents of social change

### **PPAD 536/5141 - Policy for Sustainable Cities (3 cr.)**

**Description**

Explores policy choices facing urban managers, planners, and the communities they serve with regard to putting cities on a path to sustainability. Considers how allocation of, control over, and use of key land and financial resources shapes urban development from political economy, governance and space planning perspectives. Examines participatory planning and other methods to engage urban stakeholders in management of cities as well as tools to promote adoption of green technologies in the urban housing, industrial, transport, power, water, and commercial building sectors.

**Cross-listed**

Same as GREN 5231 .

**PPAD 537/5142 - Greening the Built Environment (3 cr.)**

**Description**

Examines core concepts, analytic tools, and program models needed to develop the urban built environment in ways that are socially and environmentally sustainable. Gives particular attention to retrofitting and sustainability upgrades for the existing urban core, developing new communities on a sustainable model, and providing affordable options for low-income urban residents, including upgrading of informal areas as well as new developments. Explores how the spatial distribution of work and housing choices interacts with transport/transit systems, energy use, and infrastructure to shape urban sustainability outcomes.

**Cross-listed**

Same as GREN 5232 .

**PPAD 538/5143 - Urban Infrastructure Development for Sustainability (3 cr.)**

**Description**

Considers how the development of critical infrastructure (power generation and transmission, water/wastewater, transport/transit, and waste management) can be directed toward socially and environmentally sound and economically viable models. Provides an understanding of alternative infrastructure financing, regulation, and implementation models from state provision to public-private partnerships. Explores how infrastructure network choices shape city expansion, urban quality of life, and efficiency outcomes in a dynamic urban context.

**Cross-listed**

Same as GREN 5233.

**PPAD 529/5151 - Issues in International Security (3 cr.)**

**Description**

Exploration of strategies and techniques for managing potential and active conflicts at the national and international levels, including such traditional and new threads to international security as inter-state territorial, intra-state ethnic-based, and violent transnational extremist groups, dispute over non-renewable resources, and climate change. Consideration of institutions and methods for managing each stage of the conflict process, from prevention and deterrence through conflict resolution and post-conflict rebuilding.

**When Offered**

Offered in spring.

**PPAD 530/5152 - Conflict Prevention and Resolution (3 cr.)**

**Description**

This course focuses on international intervention and conflict management with the objective of assessing the policy implications of various conflict management strategies such as crisis management, mediation, peace-keeping, partition, humanitarian intervention (responsibility to protect) and prevention. In addressing these issues, the course will examine the application and outcomes in specific cases from the Middle East, Bosnia-Herzegovina, Sri Lanka and Sub-Saharan Africa.

**When Offered**

Offered in spring.

**PPAD 531/5153 - Armament, Arms Control and Disarmament (3 cr.)**

**Description**

This course reviews the history of arms control and disarmament, especially during the cold war period and in its aftermath. The role of the United Nations, the current focus on nuclear non-proliferation, the regime set up by the Non-proliferation Treaty (NPT), the conformity of counter-proliferation policies with international law and the present status of treaties on weapons of mass destruction will be discussed. The course will examine current issues of nuclear armament, particularly non-proliferation in the Middle East.

**When Offered**

Offered in alternate years.

**PPAD 532/5154 - Contemporary Security Issues in the Middle East (3 cr.)**

**Description**

This course is about comparable and other issues of regional security with special emphasis on the Middle East. It will address categories of issues and then focus on specific case studies of occupation, water, oil, other natural resources, and ethnic and intra-State conflicts. Policies of regional and extra-regional powers and multilateral approaches towards these security cases will be reviewed.

**When Offered**

Offered in alternate years.

**PPAD 533/5155 - Governance of the Global Economy (3 cr.)**

**Prerequisites**

The course explores the evolving status of developing countries in the multilateral system. Are developing countries having a role that allows them to promote their legitimate interests in global international governance and the multilateral trading system? Does International Cooperation work in their favor? Going through the different development paradigms in the UN system, post WW II Bretton Wood system, the course investigates how developing countries remain sidelined from global governance and continue to be mere standard takers.

**Description**

This course will review the foundations of multilateral cooperation for development and the current development issues tackled by the United Nations system such as poverty, employment, food security, the environment and population. It will examine the processes through which multilateral approaches are defined; the attitudes towards these approaches of great, middle range powers and developing countries; as well as the principles and means of multilateral action. The realization of the Millennium Development Goals (MDGs) will be particularly studied.

**When Offered**

Offered in alternate years.

**PPAD 534/5156 - Multilateral and Bilateral Cooperation for Development (3 cr.)****Description**

This course will review the policies of international cooperation put in place by industrialized countries. It will examine their priority issues, such as fighting poverty, promoting entrepreneurship, gender equality, preservation of the environment and migration, the objectives and geographic focuses of these policies. The course will also review modalities and delivery institutions such as USAID, CIDA, SIDA, JAICA and GTZ.

**When Offered**

Offered in alternate years.

**PPAD 540/5161 - Diplomacy: Theory and Practice (3 cr.)****Description**

The course analyzes both the limits and potential of diplomacy. It examines how thinking about diplomacy has evolved from the classical period through to the beginning of the twenty-first century and how it might develop in the future in response to the interrelated and changing issues and the interdependence between actors in world society.

**PPAD 000/5168 - Proposal Writing and Grant Management for Nonprofit Organizations (3 cr.)****Description**

For most non-profit organizations, having access to grants makes all the difference between either thriving or being defunct. For any non-profit manager, the ability to write effective proposals is a necessary first step towards securing the all-important grant. This course is designed to introduce non-profit and public sector workers to the rudiments of

effective proposal writing and grant management. It will assist students to learn and apply critical skills including grant identification, proposal writing, planning of fundraising events, management of secured funds and financial accountability.

### **PPAD 000/5169 - Issues in Social Entrepreneurship (3 cr.)**

#### **Description**

Social Entrepreneurship is a rapidly emerging field of for-profit and nonprofit business practice aimed primarily at advancing the social and economic welfare of persons at 'the bottom of the pyramid'. Within this evolving field, social entrepreneurs create new business models for neglected markets that corporations can emulate, partner with or acquire to take to scale. As the traditional lines among government, business and non-profits continue to blur in the wake of increasing business interest in sustainable value creation, it is critical for Public Administration students to understand how the opportunities in this field can be leveraged to alleviate poverty. Using primarily, guest speakers, case discussion, lectures and student presentations, this course will help students to understand:

1. The emergence of the field of social entrepreneurship
2. The situations, resources and business structures used by social entrepreneurs
3. The mechanics, tensions, and realities of starting and/or managing a social enterprise and
4. The potential for scaling social enterprises

### **PPAD 000/5170 - Volunteer Management (3 cr.)**

#### **Description**

The role of volunteers in development efforts across the globe today cannot be overemphasized. The impacts of persistent conflicts, disease, climate change and migration in the Middle East, Africa, Asia and Latin America means that volunteer efforts will continue to be a vital part development efforts not only in the global south but also in the global north. For the public and nonprofit organizations that are financially-strapped, volunteering efforts provide a pathway to enhance their capacity and ameliorate public problems. Understanding the management aspect of volunteers is therefore important for the nonprofit manager. The objective of this course is to provide a comprehensive introduction to the design and management of volunteer programs.

### **PPAD 000/5171 - International and Comparative Human Resources Management (3 cr.)**

#### **Description**

This course introduces students to the complexities of public human resources management from an international comparative perspective. It surveys the theoretical, strategic, cultural and functional contexts of IHRM and identify some of the everyday challenges of managing public personnel in the MENA region as well as other parts of the globe. Topics of interest include issues related to recruitment and selection, training and development, performance management, career management and employee compensation in international contexts.

### **PPAD 000/5172 - Compensation Management (3 cr.)**

#### **Description**

This course focuses on the principles and basic concepts of managing work compensation in both public and non-profit organizational settings. It explores ways in which HR Managers deal with employee pay systems, how they support their skill development, and how they ensure that personnel are incentivised to maintain high pay-performance levels. Topics that will be addressed in the class include person-based pay structures, designing pay levels, pay-for-performance, performance appraisal and plan design and the ways to strengthen the pay-for-performance link.



## **PPAD 000/5173 - Public Administration, Technology, and Innovation (3 cr.)**

### **Description**

This course introduces students to the emerging role of technology and innovation in contemporary public sector management. Although not a new concept, innovation has mostly been associated with work related activities in the private sector. Evidence across the globe suggests however, that where public institutions have adopted innovation and technology, including the use of digital communications and analytics, there has been accelerated solutions to public problems. The objective of this course is assist students to understand and utilize concepts and practices related to innovation and technology specifically in the public sector. The course will draw on international best practices to help students examine the role and potential of use of innovation in public policy design, policy execution and communication.

## **PPAD 000/5174 - Internship in Public and Non-Profit Organizations (3 cr.)**

### **Description**

This course offers students the opportunity to participate in a full-time or part-time internship experience, within the public and non-provident sector. Students work under the supervision of both an approved internship provider and a faculty adviser. The course provides practical, hands-on training to enhance student learning and the implementation of theory to real-world problems.

## **PPAD 575/5175 - Independent Study in Public Policy and Administration (1-3 cr.)**

### **Prerequisites**

Pre-requisites: Permission of the instructor and unit head

### **Description**

Guided readings, research, and discussions on specific selected topics in Public Policy and Administration

## **PPAD 000/5178 - Program Evaluation (3 cr.)**

### **Description**

Public resources are limited, and decisions regarding how to use these scarce public resources must be informed by an understanding of how well public programs and policies produce their desired outcomes. However, measuring causal effects can be a challenge. This course is designed to provide a broad - yet rigorous - overview of the tools available to evaluate the causal effects of public programs and policies. These tools and methods include randomized control experiments and quasi-experiments, such as difference-in-difference, regression discontinuity, and instrumental variables.

## **PPAD 000/5179 - Big Data Analytics for Public Policy (3 cr.)**

### **Description**

The goal of the Big Data Analytics class is to develop the key data analytics skill sets necessary to harness the wealth of newly-available data. Its design offers hands-on training in the context of real big data. The main learning objectives are to apply new techniques to analyze public policy problems using and combining large amount of heterogeneous data from a variety of different sources. It is designed for graduate students who are seeking stronger foundation in data analytics.

## **PPAD 000/5180 - Introduction to Data Analytics (3 cr.)**

### **Description**

The course will cover the following topics: construction of statistical models, especially the use of statistical tools and techniques such as chi-square tests of independence, analysis of variance, simple and multiple linear regressions and correlation, and the use of extrapolating methods such as moving average and exponential smoothing.

## **PPAD 000/5181 - Public Policy Theory and Practice (3 cr.)**

### **Description**

This course examine approaches to the study of public policy. It is examine public policy as an intellectual exercise to study why and how policy is developed overtime.

This course provides a review of the theoretical and philosophical underpinnings of the state, institutions and public policy and explores the dynamic relationship between state, society and the economy. The course addresses the issue of who governs and how policies are made and relates these questions to democracy and decision-making. Throughout the course we analyze to what extent the concepts that we encounter are applicable to the Middle East. Furthermore, the course encourages students to examine how institutions (positively and negatively) shape a variety of political phenomena and outcomes in developing countries, including (economic) reform policy and democratic transition.

## **PPAD 491/5198 - Practicum (3 cr.)**

### **Prerequisites**

Junior or Senior status.

### **Description**

Students work on an approved individual or team professional assignment with a relevant government, non-profit, or other organization. Class meets alternate weeks during the term to work on practicum assignments and to translate practicum products into polished professional work products, which may become the basis of student theses or master's projects. Work may be begun prior to the term in which the student enrolls in the class with instructor's approval. Assessment based on practicum supervisor's review, and other products prepared, and contribution to peer reviews or team products.

### **Cross-listed**

Same as PPAD 5198

### **When Offered**

Offered in fall and spring.

### **Notes**

Grading Pass/Fail.

## **PPAD 591/5198 - Practicum (3 cr.)**

### **Prerequisites**

Completion of at least 3 courses or approval of department and instructor.

### **Description**

Students must complete an approved individual or team professional assignment with a relevant government, non-profit, or other organization. Class meets alternate weeks during the term to work on practicum assignments and to

translate practicum products into polished professional work products, which may become the basis for student theses or master's projects. Work may be begun prior to the term in which the student enrolls in the class. Assessment based on practicum supervisor's review, research paper and other products prepared, and contribution to peer reviews or team products. Students may arrange to complete an individual practicum assignment on an independent study basis under faculty supervision.

**Cross-listed**

Same as PPAD 5198

**When Offered**

Offered in fall and spring.

**Notes**

Grading Pass/Fail.

**PPAD 570/5199 - Special Topics in Public Policy and Administration (1-3 cr.)**

**Prerequisites**

Consent of the instructor and advisor.

**Description**

Considers selected topics of relevance to public policy and administration. May be repeated with permission of the supervisor if the topic varies from the previous enrollment.

**When Offered**

Offered occasionally.

**PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)**

**Description**

Theoretical and applied aspects of developing a research project, including definition of research questions, literature review, overall research design, and methodology, as well as research implementation planning (use of library sources, field investigation, and scheduling). Each student will develop a research proposal that will generally serve as the basis for the thesis proposal.

**When Offered**

Offered in spring.

**PPAD 515/5202 - Public Policy Theory & Practice (3 cr.)**

**Description**

Introduction to analytic tools, methods, and approaches to policy analysis in diverse development issues areas and country situations. Develops skills in selection and application of tools to analyze policy problems, assess alternative solutions, and develop recommendations for action, including cost-benefit and simulation. Approaches to program evaluation ex ante and ex post, including identification of data needs, assessment of implementation issues and outcomes, and definition of strategies to achieve desired outcomes.

**When Offered**

Offered in spring.

### **PPAD 508/5211 - Qualitative Analysis for Policy and Administration (3 cr.)**

#### **Description**

Use of qualitative data in policy and public administration research and analysis. Fundamental concepts and applications of methods including interviews, case studies, historical research, focus groups, and qualitative surveys. Ethics in qualitative analysis. Design, execution, and interpretation of qualitative results, including issues of validity and replicability.

#### **When Offered**

Offered in fall.

### **PPAD 509/5212 - Applied Quantitative Analysis (3 cr.)**

#### **Description**

Application of statistical techniques to policy analysis and policy/program evaluation. Use of the empirical techniques to understand policy issues, analytical modeling and forecasts. Essentials of multivariate regression analysis with policy applications, problems in regression analysis, forecasting, time series/panel data modeling, and simultaneous equations models, with an emphasis on application rather than theory and use of statistical packages (SAS and SPSS) for policy analysis.

#### **When Offered**

Offered in fall.

### **PPAD 501/5221 - Strategic Management for Government and Nonprofit Organizations (3 cr.)**

#### **Description**

Concepts of strategic management as applied to government and nonprofit organizations, including development agencies. Methods and practical considerations related to developing organizational strategies to achieve public purposes, translation of strategies into organizations plans in light of theory and practice of organizational behavior, and assessment of performance relative to strategy.

#### **When Offered**

Offered in spring.

### **PPAD 504/5222 - Fundamentals of Financial Planning and Management for Government and Nonprofit Organizations (3 cr.)**

#### **Description**

Essentials of financial management in nonprofit and governmental settings, providing an overview of budget planning, management, monitoring, and controls at the program, agency, and government-wide level. Review of government financial management principles and applications, including managing tax and expenditure programs, sources and uses of funds for government organizations, control of corruption, fundamentals of performance measurement, budgetary decision-making concepts and processes, and citizen participation in budgeting. Financial management of non-profits, including introduction to fundraising and revenue generation strategies, sustainability, financial monitoring and reporting, and controls.

**When Offered**

Offered in alternate years.

**PPAD 513/5223 - International Models of Public Management (3 cr.)**

**Description**

Explores international approaches to structuring and managing the public sector to meet national objectives. Examines alternative models and their implications for government performance and effectiveness, with an emphasis on MENA region and developing countries, but also considering European, North American, and Asian models. Application of analytic tools and models of government behavior to compare approaches to reforming government management in diverse contexts.

**When Offered**

Offered in alternate years.

**PPAD 514/5224 - Human Resource Management for Government and Nonprofit Organizations (3 cr.)**

**Description**

Study of key concepts, tools, and methods for human resource management in government and nonprofit organizations. Implementation of management tools to improve human resource productivity and performance through strategic application of HR tools including structural reform, recruitment, capacity-building, motivation, promotion, evaluation, benefits, and conditions of work.

**When Offered**

Offered in spring.

**PPAD 000/5225 - Regionalism and Regional Integration (3 cr.)**

**Prerequisites**

Admission in the Master in Global Affairs (MGA) program. having taken PPAD 5251 is advisable but not a per-requisite.

**Description**

The course is about regionalism and regional integration. Regionalism is understood as policies and projects whereby groups states and non-state actors cooperate and coordinate strategy, whether within a given geographical region or not, with the aim of pursuing and promoting common goals in one or more issue areas. Under "New Regionalism", regionalist schemes cover issues of economic, social, cultural and, in some cases, security nature. As they display great diversity, the course will review the different expressions contemporary regionalism has taken up, which reflect diverse conditions, values and ideological approaches. The review will be carried out against the background of the global system since it is considered that regionalism is a response to globalization and a reaction to the diverse aspects of global processes. The course is also about regional integration, which indicates processes in given regions extending from close intergovernmental cooperation between "sovereign" states to integration as such, involving the creation of new organizational or supranational entity. After a conceptual introduction, regionalism in Europe, the Arab Middle East and Africa, as well as in Latin America and Asia will be examined.

**PPAD 502/5231 - Economics for Public Policy Analysis (3 cr.)**

**Description**

Overview of concepts and methods for microeconomic and macroeconomic analysis as applied to public policy and public sector/nonprofit management. Tools and concepts of microeconomic analysis, including factors shaping demand and supply, theory of the firm, market distortions, externalities, and public goods, and application of economic tools to policy assessment. Introduction to macroeconomic concepts including national income, monetary and fiscal policy, debt and financial markets, growth and employment, savings and investment, and international trade, foreign exchange, and the balance of payments.

**When Offered**

Offered in fall.

**PPAD 503/5232 - Role of Government in a Market-Oriented Economy (3 cr.)****Prerequisites**

PPAD 5231 or equivalent economic preparation.

**Description**

Overview of the interaction of markets with the economic and social development of developing countries and consideration of the role of governments in promoting, regulating, and supplementing the action of markets to achieve public purposes. Consideration of alternative government strategies in key social and productive sectors, including prevention of and responses to market failures, promotion of equity and the rule of law, provision of social services, and maintenance of stable growth. Application of economic analytic tools to assess and select government strategies in a market-oriented system.

**When Offered**

Offered in spring.

**PPAD 527/5251 - International Organization in Global Governance (3 cr.)****Description**

Exploration of how international organizations interact with each other and with national actors in defining and implementing norms and functions of global governance. Focus on global governance actors and regimes developed for priority issue areas, including peace and security; human development; trade; finance; human rights; the environment; labor and working conditions; and international migration. Consideration of the role of United Nations, international and regional organizations and mechanisms for collaboration with state, international, and non-state actors to strengthen and manage global regulatory regimes.

**When Offered**

Offered in fall.

**PPAD 528/5252 - Theory and Practice of Negotiation (3 cr.)****Description**

This course reviews theories as well as practice of international negotiation, at the bilateral, regional and bilateral levels. It examines determinants, drivers and hypotheses in negotiation processes as well as their different stages and

forms. The course also studies the practice of negotiation in specific bilateral, regional and global processes such as South Africa, Sri Lanka the Arab-Israeli conflict and the law of the sea.

**When Offered**

Offered in spring.

**PPAD 539/5258 - Role of Force: Strategy and Statecraft (3 cr.)**

**Description**

This course focuses on force as an instrument of policy in modern statecraft. Major concepts include the functions of force and the formation of national security policy; classical military strategy and the influences of material resources, technology and structural factors on its evolution; legal and moral limits on force; and the extension of military power into the realm of peace-keeping, humanitarian relief and military occupation. The course also considers contemporary strategy challenges such as insurgency, terrorism, non-violent resistance and civil military relations.

**PPAD 000/5288 - Comprehensives (1 cr.)**

**Prerequisites**

Completion of all degree required courses

**Description**

Individual consultation for students preparing for the comprehensive examination.

This is a pass/fail option course

**PPAD 000/5293 - Capstone Project (0 cr.)**

**Prerequisites**

Permission of adviser and instructor

**Description**

Students enrolling in this course will work towards the completion of their capstone project per departmental requirements. This project should present a thorough analysis of an issue with relevance to their course of study in Public Administration, Public Policy or Global Affairs. Final products for the course include a written report and an oral presentation that will be evaluated by and faculty supervisor and a client representative.

**PPAD 598/5298 - Research Seminar (0 cr.)**

**Prerequisites**

Supervisor approval of a thesis or master's project proposal or permission of the supervisor and instructor.

**Description**

Support to students in research phase of the thesis or master's project. Weekly meetings and assignments to support

ongoing analysis, research, and writing, guided discussions, peer-to-peer assessment, and critique of thesis or master's project components. Ungraded; required for all students.

**When Offered**

Offered in fall and spring.

**PPAD 599/5299 - Research Guidance (0 cr.)**

**When Offered**

Offered in fall and spring.

**RHET 101/1000 - Approaches to Critical Writing (3 cr.)**

**Description**

Develops proficiency in critical expository writing, critical reading and greater fluency in expression. Focuses on the writing process with an emphasis on developing the student's voice, organizing and developing ideas independently within the context of academic writing. Introduces library research and use of sources.

**When Offered**

Offered in fall, spring and summer.

**Notes**

For students beginning fall 2013 and later, RHET 1000 and RHET 1100 have been replaced with one course RHET 110/1010 - Freshman Writing (3 cr.) .

**RHET 110/1010 - Freshman Writing (3 cr.)**

**Description**

RHET 1010 is designed to help first year students improve their analytical and argumentative skills. This involves reading texts analytically and critically within various disciplines, considering the rhetorical situations in which they are working, organizing and supporting ideas to make a convincing argument while maintaining their voice as writers. This course also provides training in the use and integration of sources, library and online research and fosters a more discriminating attitude to academically acceptable sources. Ultimately, the course provides opportunities for students to develop effective and coherent communication skills.

**When Offered**

Offered in fall and spring. Summer only for students repeating the course.

**Notes**

RHET 1010 replaces RHET 101/1000 - Approaches to Critical Writing (3 cr.) and RHET 102/1100 - Effective Argument (3 cr.) for students beginning in the Freshman Program in fall 2013 and later.

**RHET 120/1020 - Research Writing (3 cr.)**

**Prerequisites**

RHET 1010 CORE 1010

**Description**



RHET 1020 introduces students to the process of research and the different cultures of inquiry in the disciplines. Students explore various types of research questions, making decisions about the most appropriate approach to collecting evidence, conducting analysis, organizing and presenting their work to particular discourse communities. Through this critical approach, students develop a well-informed and insightful research paper which demonstrates understanding of the processes and conventions of writing in academic contexts.

All students must take RHET 1020 concurrently with LALT1020

**When Offered**

Fall, Spring and Summer

**Notes**

Students registering in RHET 1020 will automatically be registered as well in a section of LALT 1020

**RHET 199/1099 - Selected Topics (3 cr.)**

**Description**

Course addressing broad intellectual concerns and accessible to all first year students irrespective of major.

**When Offered**

Offered occasionally.

**RHET 102/1100 - Effective Argument (3 cr.)**

**Prerequisites**

RHET 1000

**Description**

Develops the skills to produce effective argument with a focus on organization, content, analysis of readings, critical thinking. Provides training in the use and integration of sources, library and online research.

**When Offered**

Offered in fall, spring and summer.

**Notes**

For students beginning fall 2013 and later, RHET 1000 and RHET 1100 have been replaced with one course: RHET 110/1010 - Freshman Writing (3 cr.)

**RHET 201/2010 - Research Writing (3 cr.)**

**Prerequisites**

RHET 1100 or its equivalent.

**Description**

Develops the skills to produce extended forms of academic essays and research papers with a focus on the methods of research, process of research paper writing, integration and evaluation of sources and critical analysis.

**When Offered**

Offered in fall, spring and summer.

**Notes**

For students beginning fall 2013 and later, RHET 2010 has been replaced by RHET 120/1020 - Research Writing (3 cr.)

### **RHET 299/2099 - Selected Topics (3 cr.)**

#### **Prerequisites**

RHET 1020 or its equivalent

#### **Description**

Course addressing broad intellectual concerns and accessible to all students irrespective of major.

### **RHET 399/3099 - Selected Topics (3 cr.)**

#### **Prerequisites**

RHET 1020 or its equivalent

#### **Description**

Course addresses broad intellectual concerns, and is accessible to all students irrespective of major.

### **RHET 345/3110 - The Writer's Workshop (3 cr.)**

#### **Prerequisites**

RHET 1020 or its equivalent

#### **Description**

This course offers students a unique opportunity to learn the fundamentals of nonfiction writing, and to grow as critics, both on the page and in the classroom. Students engage life questions in a number of personal contexts, reflecting upon their places as individuals within the larger contexts of family, country, and/or region. They also practice writing formal critiques of peers' narratives and participate in class workshop discussions.

### **RHET 340/3120 - Life Narratives (3 cr.)**

#### **Prerequisites**

RHET 1020 or its equivalent

#### **Description**

This reading-intensive course will familiarize students with writing in the genres of 'life writing'. Students learn to write critical reviews of classic and contemporary memoirs, confessions, letters, diaries, and visual portraits as well as autobiographies and biographies, through key themes of self, identity, secrets, truth, inheritance and ethics. The course will consider how critical examinations of new paradigms that consider the self are expressed through writing. The course invites discussion about the social and cultural uses of life writing, from legal testimony to medical case history, and the pervasive ethical dilemmas that arise. In addition, using a variety of texts, the course explores the tensions between local identities rooted in culture, history and language, and global, trans-national identities, driven by the pressures of the modern inter-connected world.

### **RHET 341/3130 - Travel Writing (3 cr.)**

**Prerequisites**

RHET 1020 or its equivalent

**Description**

In this course, students will become familiar with the genre of travel writing, the history, politics and economics of place, and how these influence culture. Through various reading, writing, and travel experiences, students will gain an understanding of themselves vis a vis the Other and develop an appreciation of how travel can transform the self. They will learn how to respond critically to travel narratives, identify credible sources to inform their writing, make original observations, and modify perspective to compose alternative texts.

**RHET 342/3140 - Writing Children's Literature (3 cr.)****Prerequisites**

RHET 1020 or its equivalent

**Description**

Students in this course will assess and write works of fiction and nonfiction addressing children through different media (picture books, plays, short stories, novellas). Students will explore who writes and illustrates for children and why, and the language used to address children during different stages. They will engage in projects to entertain children, while providing indirect instruction, and produce written works for organizations that serve the needs of children.

**RHET 380/3150 - Poetry Writing (3 cr.)****Prerequisites**

RHET 1020 or its equivalent

**Description**

This workshop-based course encourages students to explore their ideas through the language and imagery of poetry. Students will experiment with rhythm, rhyme, modes of discourse and poetic form. Throughout the course, they will examine the work of poets from diverse traditions, and the impact of their own expression. In a final portfolio, students will show careful analytical thinking about their work and consideration for how their poems are situated in the larger literary and cultural context.

**RHET 390/3160 - Fiction writing (3 cr.)****Prerequisites**

RHET 1020 or its equivalent

**Description**

This course focuses on the craft and discipline of fiction writing. Students study writers in the Arab and Western literary tradition, and from that study, they learn the fundamentals of rhetorical and literary strategies in fiction, understand how to transform small ideas from daily life into fiction, consider how their cultural background affects how they tell stories, and develop a broadened familiarity with cultures different from their own. Students will also learn how to critique other students' stories in workshops, and how to revise and develop their own work.

**RHET 320/3210 - Business Communication (3 cr.)**

**Prerequisites**

RHET 1020 or its equivalent

**Description**

Today's globalized and highly competitive world requires businesses, organizations, and individuals to excel in effective communication. This course focuses on helping students to master methods of persuasion that business professionals and administrators of organizations need. Students learn about and analyze various types of correspondences and documents to produce effective and appropriate business documents for professional and public audiences. They conduct research on real life topics and present findings in the form of proposals, formal reports, and presentations.

**RHET 225/3220 - Public Speaking (3 cr.)****Prerequisites**

RHET 1020 or its equivalent

**Description**

This course is designed to train students in the craft and practice of public address, focusing on the composition of well-researched speeches and their delivery. Students learn techniques of presentation and speech writing to address a specific rhetorical situation. Through a variety of instructional strategies - discussion, class workshops, readings, written analyses, and presentations - students learn the processes by which effective and coherent speeches are conceived, prepared, and delivered. Students prepare an informative speech on a critically-analysed topic, a well-reasoned persuasive speech on a complex social issue, a special-occasion speech that integrates diverse fields of knowledge, and multiple other exercises that hone their public speech construction and delivery. Students also practice methods of analytic and constructive peer evaluation, as well as self-evaluation of their video-taped speeches.

**RHET 321/3230 - Technical Communication (3 cr.)****Prerequisites**

RHET 1020

; at least 60 credits; SSE major or instructor approval

**Description**

This course develops the knowledge and skills to produce documents that meet professional and ethical standards required by technical fields such as Engineering and the Sciences. Throughout the course, students will analyze and discuss the context, audience and conventions specific to technical communication. They learn how to produce documents in diverse genres, including proposals and formal reports.

**RHET 332/3240 - Principles of Mediation and Negotiation (3 cr.)****Prerequisites**

RHET 1020 or its equivalent

**Description**

In today's world, conflict resolution and negotiation skills can be invaluable for the success of individuals and

organizations. This course equips students with the interpersonal skills needed to create solutions for common mediation and negotiation situations. A student will learn active listening, problem solving, relational maintenance, and problem-solution presentation skills. Students will also learn the interpersonal skills necessary for third-party facilitation and mediation in contexts of business and community dispute.

### **RHET 334/3250 - Digital Rhetoric (3 cr.)**

#### **Prerequisites**

RHET 1020 or its equivalent

#### **Description**

This is a course in the rhetorical analysis of the increasingly important genres that comprise the practices of E-Writing, including: blogging, wiki-development, networked writing, hypertext, and social networking. The course offers students an opportunity to work within various online contexts, with attention to their evolving conventions, textual features, the relationship between discourse and social practice, and the importance of medium in terms of opportunities and constraints offered. Students analyze and write about the social and cultural implications of developments in electronic literacy. Assignments involve the critique and construction of texts using new media tools and the exploration of how communication practices, notions of audience, elements of argument, narrative and meaning-making are enriched and complicated by the new possibilities of a global, digital environment.

### **RHET 310/3310 - Discourse and Power (3 cr.)**

#### **Prerequisites**

RHET 1020 or its equivalent

#### **Description**

This course reveals the power of words and what lies behind them. How can language be used to empower or disempower? Who controls the conversation? Students explore how discourse is constructed and how it maintains complex relations of power. As they develop strategies to become more articulate, confident and persuasive writers, students critically analyze various discourse resources - textual, aural and visual - for their intellectual, social and political power dimensions. The course guides students through key readings in rhetorical theory to provide a foundational knowledge of major questions, concepts and debates in the field.

### **RHET 322/3320 - Writing in the Social Sciences (3 cr.)**

#### **Prerequisites**

RHET 1020 or its equivalent

#### **Description**

This course is designed for students who want to develop the writing and critical thinking skills acquired in the 1000-level courses to produce more advanced discipline-specific academic and public writing in the social sciences. The course may be theme-based, with each student approaching the theme from a perspective appropriate to his/her discipline, and abiding by the style and conventions of the particular discipline. Course readings and discussions allow students to explore social phenomena, adding valuable research to the existing body of knowledge, and stimulating public interest and action.

### **RHET 323/3330 - Words that Change the World (3 cr.)**

**Prerequisites**

RHET 1020 or its equivalent

**Description**

Which words have had the greatest impact on people? What theories inform the works of authors, artists, and filmmakers? Do the arts have an intrinsic value, or are they related to and serve a purpose in the wider world? Words that Change the World examines those questions by engaging students in contemporary discourse in the liberal arts. Students employ critical reading strategies for the analysis and discussion of key texts that have had an impact on the practice and conceptual understanding of the humanities and fine arts. Through art, photography, cinema, history, dance, architecture, and other modes of expression from countries and cultures around the globe, students critically explore these thematic connections and engage in contextualized arguments.

**RHET 325/3340 - Making Your Case: The Art of Persuasion (3 cr.)**

**Prerequisites**

RHET 1020 or its equivalent

**Description**

This course immerses students in the study of argumentation in the humanities and social sciences (philosophy, law, rhetoric, journalism and politics). It offers an overview and comparison of its theory, structure, mechanisms and practice. By approaching argument in a systematic fashion, students will be introduced to instruments for identifying differences of opinion, analyzing and evaluating argument, researching theory, and presenting coherent arguments in oral and written discourse.

**RHET 330/3350 - Writing and Cognition: The Mind and the Machine (3 cr.)**

**Prerequisites**

RHET 1020 or its equivalent

**Description**

This course explores the invention and reinvention of writing over time. Students look at the social and personal uses of writing, consider what writing makes possible, and the ways we take it for granted in daily life. By exploring different forms of writing, students experiment with writing, and research the different methods adopted by scientists and authors from different cultures, to gain new perspectives. By looking at the relationship between thought and language, the course surveys the ways written expression has been used as a tool for reconstructing perception, memory, and self in society. It also employs writing to explore and analyze complex issues in today's rapidly-changing world.

**RHET 460/4060 - Independent Study (1-3 cr.)**

**Prerequisites**

RHET 1020 or its equivalent; at least 60 credits completed; instructor approval, and if taken for CORE credit, then Core Director approval is also required

**Description**

In exceptional circumstances, students, in consultation with a faculty member and with approval of the Chair/Associate Chair (and approval of the CORE Director, if taken for CORE credit), may design or take a course that is not regularly offered. In such a case, the student, in consultation with the instructor, will propose a course of study, and work will culminate in one of the following: a scholarly research paper on some aspect of the history, theory, or application of

rhetoric and composition; a practical application of writing, such as a grant or report submitted to an outside agency; a body of work that is normally expected in a listed course not being offered during the current term.

### **RHET 450/4160 - Imagining the Book (3 cr.)**

#### **Prerequisites**

RHET 1020 or its equivalent; at least 60 credits completed or instructor approval

#### **Description**

Students in this course will propose and then initiate the writing of a book-length manuscript. Each student will design and generate a different project. Manuscripts, therefore, may span across genres (i.e., a group of personal narratives or short stories, a novel, a book of poetry, a collection of critical and/or academic essays, etc.) offering students the opportunity to respond to a variety of texts as they develop. Class workshops and various forms of analysis will allow for building as well as refining projects. Students in a number of writing contexts and disciplines, as well as those in the Writing Minor, are encouraged to take this capstone course.

### **RHET 410/4260 - Writing for Project Funding (3 cr.)**

#### **Prerequisites**

RHET 1020 or its equivalent

#### **Description**

Grant writing skills may be used for fundraising, applying for scholarships and fellowships, starting new businesses, securing research and conference grants, and acquiring funding for the cultural, non-profit and non-governmental sectors. This course develops the skills of effective fund-seeking and proposal writing through a step by step service-learning activity, where students learn how to access donor funds to meet the needs of local non-profit organizations.

### **RHET 480/4270 - Research and Writing Internship (3 cr.)**

#### **Prerequisites**

RHET 1020

#### **Description**

This capstone course provides students with an applied, real-world writing experience that helps them transition smoothly from academic writing to work-place writing, and prepares them for the job market. The students may produce a variety of writing and editing work - manuals and tutorials, research papers, news articles, grant applications, reports, letters, policy documents, promotional brochures, creative works, book reviews or other materials as required by the internship. At the end of the semester, the students are issued a letter acknowledging their participation in an unpaid, credit-bearing internship.

### **RHET 490/4280 - Advanced Scientific and Technical Writing (3 cr.)**

#### **Prerequisites**

RHET 1020 or its equivalent; at least 60 credits completed; SSE major or instructor approval

#### **Description**

This course strengthens and refines advanced scientific and technical communication skills for both academic and

professional non-academic environments. Students develop capstone level proficiency in organizing, refining and formatting scientific reports, senior theses, articles for publication in scientific journals, and technical reports for the workplace. In addition, students build on basic oral and visual presentation skills acquired at the 300 level, in order to improve their performance in the oral defense of their theses in their science and engineering majors, and acquire greater competitiveness in the job market.

### **RHET 400/4360 - Writing for Publication (3 cr.)**

#### **Prerequisites**

RHET 1020 or its equivalent; at least 60 credits completed or instructor approval

#### **Description**

This course develops the skills to produce effective articles and presentations with a focus on journal submission requirements, journal review, and publication processes. It provides training in the integration of information technology for presentations, and in primary and secondary research methods.

### **RCSS 501/5201 - Robotics: Kinematics, Dynamics and Control (3 cr.)**

#### **Description**

Robot mechanisms, End-effector mechanisms, Actuators and drives, Sensors. Robot forward and inverse kinematics. Differential motion and Jacobian (Velocities and forces). Simulation software and analysis. Acceleration and Inertia, Robot dynamics. Trajectory generation and control of robot manipulators. Robot planning and control. Task oriented control, Force compliance control. Robot programming, Robot work cell design and work cycle analysis. Robot vision, Teleoperation and Interactive haptics. Closed-Loop Kinematic chains, Parallel-link robot kinematics. Non-holonomic systems, Legged robots.

#### **Cross-listed**

Same as MENG 5271.

### **RCSS 502/5202 - Embedded Real Time Systems (3 cr.)**

#### **Description**

Fundamentals of embedded control system design, embedded processor architecture and operation. General overview of existing families of micro-controllers, DSPs, FPGAs, ASICs. Selected embedded 8/16/32 processor architectures, and programming. Real-time, resources and management, I/O, Virtual memory and memory management. Concurrency, resource sharing and deadlocks. Scheduling theory. Real-time programming and embedded software. Real-time kernels and operating systems. Bus structure and Interfacing. Programming pervasive and ubiquitous embedded system. Designing embedded system. Discretization and implementation of continuous-time control systems. Networked embedded systems and integrated control.

#### **Cross-listed**

Same as MENG 5272.

### **RCSS 503/5203 - Modern Control Design (3 cr.)**

#### **Description**



Basic linear system response: Analysis in time domain, stability analysis, Routh-Horwitz stability criteria of LTI. Feedback analysis and design continuous-time systems on the basis of root locus: analysis, design, lead/lag compensators, and Control synthesis in frequency domain: (Bode response, Nyquist stability criteria, sensitivity and design). Control design concepts for linear multivariable systems using state variable techniques. State space representation and transition matrices. Control system design in state space: controllability, pole method and pole placement design, observer/observability and compensators design. Optimal observer based feedback. Lyapunov Stability. The solutions to LQR problem, Kalman filtering problem. LQG and LTR based design methods. Discrete-time systems and computer control.

**Cross-listed**

Same as MENG 5273.

### **RCSS 504/5204 - Applied Estimation (3 cr.)**

**Description**

Introduction to Probability, Probability theory, Bayes theorem, Bayesian Inference. Introduction to estimation. Linear Optimal Filters, Predictors, Smoothers, Nonlinear Filters. Kalman and Information filter, Continuous and Discrete Time Kalman Filter. Extended Kalman filter and implementation, Unscented Kalman Filter (UKF). Distributed Kalman filter over network. Particle filter, Rao-Blackwellized Particle Filter (RBPF). Particle filter Fast SLAM. Case Studies.

### **RCSS 521/5221 - Intelligent and Autonomous Robotic Systems (3 cr.)**

**Description**

Autonomous and Mobile robots, Locomotion concepts and mechanisms, Degrees of mobility and steering. Non holonomic concept and constraint. Wheeled mobile robots: Kinematic and dynamic models. Trajectory generation and Control methods. Sensors, sensor models and perception. Mapping and knowledge representations. Control architectures and Navigation: Planning, Subsumption, Potential field, Motor Schemas, Probabilistic, Learning from observations and Reinforcement learning. Relative and absolute localization. Navigation and localization techniques. SLAM (Simultaneous Localization and Mapping). Multi robotic system: navigation, cooperation and autonomy.

**Cross-listed**

Same as MENG 5274.

### **RCSS 522/5222 - Mechatronics Innovations and Experimental Robotics (3 cr.)**

**Description**

Mechatronics innovations: Concepts and innovative ideas, design and hands-on experimentation. Sensors and intelligent sensor systems. Interfacing techniques. Controllers. Electrical motors: selection and control, encoders, and drivers. Power systems and control: pneumatic, electro-pneumatic, hydraulic and electro-hydraulic. Technologies and techniques associated with industrial and mobile robots. Joint space and operational space control. Velocity saturation, trajectory generation and tracking. Project work supporting design, simulation and experimentation.

### **RCSS 523/5223 - Bioinspired Robotics and Multi Robotic Systems (3 cr.)**

**Description**

Traditional and Biomimetic robots. Bioinspired robot design: actuators, sensors, and material. Bioinspired algorithms for robot control. Social Networks. Multi robotic systems (MRS): concept, homogeneous and heterogeneous architectures. MRS control architecture: MRS planning, Motor schema based MRS, Behavior based MRS. MRS and machine learning. Inter-robot communication and coordination. Auction-based task negotiation for MRS. Autonomy and cooperation. Task definition, decomposition and knowledge representation. Resource management and deadlocks. Collaborative Observation and Localization. Multi-Robot Navigation. Human-Robot Interaction. Biological inspired solutions: Ant colony and social insect behavior, Swarm intelligence and self organization.

**RCSS 524/5224 - Robotics and Intelligent Automated Manufacturing (3 cr.)****Description**

Manufacturing systems: organization, facility layout, performance indicators. Robotics in Manufacturing. AGVs in Manufacturing. Robot work cells. Sensors in Manufacturing. Communication protocols. Agile manufacturing. Models and Metrics. Automation, NC/CNC. Design for Manufacturability. Manufacturing systems design: single cell, assembly line, group technology, cellular and flexible systems. Material transport and storage systems. Analysis of flow lines, assembly systems and line balancing. Quality measurement and reliability. Manufacturing support systems: CAD/CAM/CIM tools and product cycle, process and production planning, shop floor control, inventory control. Modern manufacturing systems: Push/pull systems, pull systems (KANBAN and CONWIP), Just-In-Time, TQM.

**RCSS 531/5231 - Teleoperation, Haptic Systems and Collaborative Control (3 cr.)****Description**

Technical specifications: teleoperation and haptics systems. Haptics: Human, Machine, and Computer haptics, and their interrelation. Haptic systems: sensors, actuators and interfaces. Haptic device modeling and control. Event-based haptics. Rendering of stiff walls and friction, rigid-body and deformable body interaction. Haptic teleoperation. Bilateral teleoperation. Teleoperation and haptic systems architecture control approaches. Force control, impedance control, stiffness control Feed-forward control, Adaptive motion/force control. Performance specifications and stability issues, Stability and Transparency, stability against passive human and environment impedances. Design for time-delayed teleoperation. Robustness issues. Collaborative control and collaborated virtual environment.

**RCSS 532/5232 - Robust and Optimal Control (3 cr.)****Description**

Linear system theory and robust control. System analysis: stability and performance, sensitivity function, integral quadratic constraints, small-gain argument,  $H_2$  and  $H_\infty$  space and performance. NORMs. Robustness and Uncertainty. Robust stability, quadratic stability, and stability margin. Robust performance, controller parameterization, design constraints. Balanced Model Reduction, Modeling uncertainty. Linear fractional transform (LFT). Structured singular values,  $\mu$ -Analysis, LMI analysis.  $\mu$  synthesis.  $H_2$  optimal control,  $H_\infty$  control and controller order reduction,  $H_\infty$  loop shaping. Optimal control theory: optimization of static functions, calculus of variations, optimal linear regulators, dynamic programming.

**RCSS 533/5233 - Nonlinear and Adaptive Control (3 cr.)**

**Prerequisites**

Consent of instructor.

**Description**

Introduction to the analysis and design of nonlinear control systems. Linearization of nonlinear systems. Phase-plane analysis, Lyapunov stability analysis. Design of stabilizing controllers. Properties of adaptive systems, Adaptive control and real-time parameter estimation, Deterministic self-tuning regulators, model reference control, Adaptive observers, model reference adaptive control, gain scheduling controller modeling. Stability of adaptive control systems.

**Cross-listed**

Same as MENG 6270.

**RCSS 534/5234 - Networked Control Systems: Design and Applications (3 cr.)****Prerequisites**

ECNG 3202 and ECNG 4306

**Description**

Introduction to Networked Control Systems, real-time systems, network architecture, wired and wireless network protocols, international standards, NCS in industrial control, NCS in terrestrial transportation systems, Study of different software packages and simulation tools for NCS.

**Cross-listed**

Same as ECNG 5226.

**RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)****Description**

Intelligent systems and evolutionary algorithms. Computational methods, intelligent behaviors and algorithms observed in nature and humans. Neural networks: Supervised and unsupervised Neural Networks (NNs), Single and Multi layer feed-forward NNs, Feedback NNs, Hopfield NNs, Associative memories (Kohonen networks), Learning vector quantizer (LVQ) Radial base function (RBF) NNs. Evolutionary algorithms, genetic algorithms. Fuzzy logic: memberships. reasoning, Fuzzy controllers, Neuro-Fuzzy networks, Fuzzy ARMAP. Swarm Intelligence and Colony optimization. Feature selection. Computational intelligence: imprecise and uncertain knowledge, learning, adaptive behavior and real time problems. Case studies.

**RCSS 542/5242 - MEMS/NEMS Technology and Devices (3 cr.)****Prerequisites**

Consent of instructor.

**Description**

Basic MEMS/NEMS fabrication technologies, various transduction mechanisms such as piezoelectric, pyroelectric, thermoelectric, thermionic, piezoresistive, etc. The theory of operation of few sensors including infrared detectors, radiation sensors, rotation and acceleration sensors, flow sensors, pressure and force sensors, and motion sensors. An

introduction to different techniques for analyzing experimental data.

**Cross-listed**

Same as PHYS 5277,NANO 5221.

**When Offered**

Offered in fall

**RCSS 543/5243 - Image Analysis and Computer Vision (3 cr.)**

**Description**

Perception and image systems. Pinhole Camera Model. Auto-calibration. Digital image processing fundamentals. Image normalization, gray and binary image processing, RGB and IHS color space representations. Image enhancement: contrast stretching and digital filtering in the spatial and frequency domains. Image restoration. Coding and compression. Image segmentation. Image Convolution / Correlation Matching / De-convolution. Object classification and classifiers. Object recognition and interpretation. Estimating image field and image motion, Optical flow and motion. Stereo vision. Multi-view and motion-based 3-D object reconstruction. Dynamic vision: object tracking, recursive state estimation, autonomous navigation, discrete self-localization. Robotic Control via visual servoing.

**RCSS 544/5244 - Sensors, Perception and Smart Systems (3 cr.)**

**Description**

Sensors and perception. Physical principles of sensing. Static and dynamic characteristics of sensors. Sensor classifications and selection. Interfacing techniques. Calibration and self-calibration of smart sensors. Sensors and intelligent systems: design trends in the field of smart sensors systems. Sensors for: intelligent and autonomous robots, smart systems, automotive and manufacturing industries, smart structures, and other modern industries and smart products. Sensor integration and data fusion. Sensors in remote control and real time systems. Wireless sensor networks, features, architecture and technology, topology, energy, communication protocols and security, distributed & collaborative signal processing, and applications.

**RCSS 545/5245 - Advanced Artificial Intelligence (3 cr.)**

**Description**

Problem Solving by Search, Knowledge Representation and Reasoning, Planning, Quantifying Uncertainty, Probabilistic Reasoning, Learning from Examples, Learning Probabilistic Models, and Reinforcement Learning.

**Cross-listed**

Same as CSCE 5261.

**RCSS 592/5930 - Selected Topics in RCSS (3 cr.)**

**Prerequisites**

Consent of the faculty advisor.

**Description**

Topics to be chosen according to specific interests. Maybe taken for credit more than once if content changes.

**RCSS 593/5980 - Capstone Project (3 cr.)**

**Description**

Students are required to attend the library and the writing modules of SCI 5940 and , to undertake an engineering project approved by student's advisor and the director of the program. A final report of the project should be submitted and orally defended in the presence of a supervisory committee consist of student's advisor and two faculty members.

**RCSS 599/5989 - Research Guidance Thesis (3 cr.)**

**Prerequisites**

ENGR 5940

**Description**

Consultation on problems related to student thesis.  
Must be taken at least twice for credit.

**RCSS 692/6930 - Advanced Selected Topics in Robotics, Control and Smart Systems (RCSS) (3 cr.)**

**Description**

Advanced topics in the field of Robotics, Control and Smart Systems (RCSS) to be chosen every year according to specific interests and the evolution of knowledge and development trends in RCSS. May be taken for credit more than once if content changes.

**RCSS 699/6980 - Research Guidance Dissertation (3 cr.)**

**Description**

Consultation on problems related to students thesis. To be taken 11 times for credit.

**SOC 199/1099 - Selected Topics for Core Curriculum (3 cr.)**

**Description**

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.

**SOC 210/2005 - Arab Society (3 cr.)**

**Prerequisites**

RHET 2010 or concurrent.

**Description**

Description and analysis of social and cultural characteristics and problems of contemporary Arab Society, taking into consideration the specific historical, economic, and ideological forces that shape it. The social basis for Arab unity and identity. Introduction to basic concepts and principles for understanding social phenomena.

**Cross-listed**

Same as ANTH 2005.

**When Offered**

Offered in fall and spring.

**SOC 299/2099 - Selected Topics for Core Curriculum (3 cr.)****Prerequisites**

RHET 1000

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.

**SOC 201/2101 - Introduction to Sociology (3 cr.)****Description**

General sociology concepts and theoretical issues. Survey of the field covering the sociology of small groups, the family, education, work, community structure, and political life; discussions on the uses of sociology.

**When Offered**

Offered in fall and spring.

**SOC 240/2201 - Introduction to Community Development (3 cr.)****Description**

Introduce the students to the different concepts and approaches to community development as well as to community organizing. Utilizes a critically reflective framework as part of the curriculum to overcome the potential division between theory and practice. Identifies the key issues that the students are likely to confront in community development and organizing work.

**Cross-listed**

Same as ANTH 2201 ,PSYC 2201 .

**When Offered**

Offered in fall.

**SOC 203/2301 - Social Problems of the Middle East (3 cr.)**

**Description**

Major theoretical perspectives in studying social problems. Systematic examination of the salient stresses and strains in Egyptian, Arab, and Middle Eastern societies. Discussion of selected concrete problems, such as population, bureaucracy, youth unrest, deviance, drugs, prostitution.

**When Offered**

Offered in fall.

**SOC 206/2302 - Arab Family Structure and Dynamics (3 cr.)****Description**

The family as a social institution with emphasis on Middle Eastern characteristics, selected aspects of marriage and family life, special attention to the social consequences of changing family styles.

**When Offered**

Offered in spring.

**SOC 301/3010 - Social Psychology (3 cr.)****Prerequisites**

PSYC 1000

**Description**

The extension of general psychological principles and methods to the study of interaction and social environment. The nature and methodology of research in social psychology. The major theoretical concepts and their applications and contributions to a variety of areas in the field including development and socialization, social perception and attribution of causality, attitude formation and changes, pro- and anti-social behavior, interpersonal attraction and intimacy, and the social effects and functions of groups.

**Cross-listed**

Same as PSYC 3010 .

**When Offered**

Offered occasionally.

**SOC 304/3025 - Development Agencies (3 cr.)****Description**

The course examines the various agencies active in the field of development. It investigates how these organizations, such as NGOs, state bureaucracy and international development organizations shape the process of development.

**When Offered**

Offered occasionally.

**SOC 306/3030 - Sociology of Literature (3 cr.)****Description**

The social bases of literary productions both oral and written and the functions of literature for social integration. The

interrelationship of literary expression and movements for social change.

**When Offered**

Offered occasionally.

**SOC 321/3045 - The Urban Experience (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**

This course will explore a variety of approaches for the study of life in cities, providing students with tools to think critically about the meaning of urban life in the new century. Are cities the vibrant, vital centers of all that is exciting, new and provocative in modern life or are they the decaying, decadent and dangerous remnants of an industrial age whose time has passed? How do we link the lives of corporate elites and pop icons with crack dealers and shanty town dwellers? How do we place migration, world capital flows, transnational media, and global consumption in our studies of city life?

**Cross-listed**

Same as ANTH 3045.

**When Offered**

Offered occasionally.

**SOC 322/3050 - Rural Sociology (3 cr.)**

**Description**

The Middle Eastern rural community and its relation to agricultural development, tenure systems, ecological processes, urbanization, migration, and changing technology.

**When Offered**

Offered occasionally.

**SOC 323/3055 - Fundamentals of Population Studies (3 cr.)**

**Description**

Facts and issues of human population. Creates demographic literacy, and an ability to deal with population realities. Substantive knowledge covering processes and determinants of population structure, growth, and changes: fertility, mortality, and migration, as well as challenges of population growth.

**When Offered**

Offered in alternate years.

**SOC 332/3060 - Social Constructions of Difference: Race, Class and Gender (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**



The course will first introduce students to the vast theoretical literature on the concepts of race, class and gender from sociology and anthropology. Second, the course will expect students to shift focus away from looking at different cultures to analyzing cultural productions of difference. In the course we will be concerned with how racial, class and gender identities are shaped by diverse hegemonic systems, modes of resistance, and the structuring of social relations in different societies.

**Cross-listed**

Same as ANTH 3060.

**When Offered**

Offered occasionally.

**SOC 370/3085 - Environmental Issues in Egypt (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**

The technical aspects of environmental issues in Egypt are examined taking into account the cultural, social, and political dimensions upsetting the balance of the environment. Major issues such as water scarcity, global warming, desertification, urban pollution, tourism, and demographic pressures are presented and analyzed.

**Cross-listed**

Same as ANTH 3085.

**When Offered**

Offered in alternate years.

**SOC 309/3102 - History of Social Theory (3 cr.)**

**Prerequisites**

Prerequisites: 9 hours of social sciences, and junior or senior standing, or consent of instructor.

**Description**

The nature and function of social theory and its development, especially since the Enlightenment. Emphasis on the cumulative insights and ideas which have contributed to modern social theory. The essential aspects of the philosophy of social science, especially epistemological problems in the sciences of sociology and anthropology.

**Cross-listed**

Same as ANTH 3102.

**When Offered**

Offered in fall.

**SOC 204/3103 - Social Statistics (3 cr.)**

**Prerequisites**

Three hours of Social Sciences

**Description**

This course is designed for students in the social sciences who do not have a background in mathematics except high school algebra. The course will provide an introduction to statistics as a tool for analyzing and understanding data

related to social life. The course deals with basic concepts and procedures and integrates SPSS demonstrations and exercises.

**When Offered**

Offered in fall.

**SOC 310/3104 - Contemporary Sociological Theory (3 cr.)**

**Prerequisites**

SOC 3102 or consent of instructor.

**Description**

The main trends, basic problems, and unresolved issues of post-war sociological thought. Essential aspects of the logic of scientific inquiry; contemporary theories as model building in sociology including new functionalism, critical theory, structuralism and poststructuralism.

**When Offered**

Offered in spring.

**SOC 381/3105 - Doing Survey Research in the Social Sciences (3 cr.)**

**Prerequisites**

SOC 2101 and SOC 3103 . For sociology minors only: An equivalent statistics course may be substituted for SOC 3103 only with the permission of the instructor.

**Description**

.This course introduces students to the basic survey methods used in the social sciences. Emphasis is on the logic of social science and the implications of the major forms of quantitative research methodology. Allows students to recognize and analyze merits of research in the social sciences including public opinion and policy action research .

**When Offered**

Offered in spring

**Notes**

Students will be encouraged to conduct mini-scale surveys on the campus and beyond.

**SOC 340/3202 - Participatory Action Research in Community Settings (3 cr.)**

**Description**

This course will introduce students to the appropriate research methodologies when dealing with community organizing and development, particularly the participatory action research approach to community development.

**Cross-listed**

Same as ANTH 3202 ,PSYC 3202 .

**When Offered**

Offered in fall.

**SOC 303/3303 - Social Movements (3 cr.)**

**Prerequisites**

Three hours of Social Sciences.

**Description**

Basic processes by which societies initiate, consolidate, transform, and change their basic institutions and social structures. Anatomy of reform and revolutionary social movements, especially those affecting Arab and Third World societies.

**Cross-listed**

Same as ANTH 3020.

**When Offered**

Offered in spring.

**SOC 307/3304 - Social Class and Inequality (3 cr.)****Description**

The basic theory and methods of the sociology of inequality. The nature and variety of stratification systems, major theories of stratification, empirical studies and social correlates of class phenomena, social mobility, and class conflict. Emphasis on Middle Eastern material.

**When Offered**

Offered in fall.

**SOC 000/3305 - Selected Topics in Sociology (3 cr.)****Prerequisites**

Three hours of Social Sciences

**Description**

This is a selected topics course that can vary according to the area and expertise of the faculty member.

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit if content changes.

**SOC 405/4005 - Sociology of Work (3 cr.)****Prerequisites**

Prerequisites: Junior or senior standing, 6 hrs. of social science or the permission of the instructor.

**Description**

The course examines the concept of work and how it is defined and understood in contemporary society. It investigates the changing nature of work, labor issues, changing management styles, and gender and the work place.

**When Offered**

Offered occasionally.

## **SOC 406/4010 - Educational Sociology (3 cr.)**

### **Prerequisites**

Prerequisites: 9 hours of social sciences, and junior or senior standing.

### **Description**

The nature and interrelationship of educational agencies to other social institutions. The emergent structure of Middle Eastern educational programs and their implications for social change and integration.

### **When Offered**

Offered occasionally.

## **SOC 408/4020 - Criminology (3 cr.)**

### **Prerequisites**

Prerequisites: 9 hours of social sciences, and junior or senior standing.

### **Description**

Theories of crime and social control. Institutional programs charged with the custody and treatment of law violators. Problems of deviance as related to class structure and social change.

### **When Offered**

Offered occasionally.

## **SOC 422/4025 - Religion in a Global World (3 cr.)**

### **Prerequisites**

9 hours of social sciences and junior or senior standing.

### **Description**

Comparative study of religion in culture and society. The course will explore a variety of theories and controversies in the anthropological understanding of religion. Emphasis is on how religion may restrict but also empower believers, inform their social identities, and intersect with political and economic practices and institutions in a globalizing world.

### **Cross-listed**

Same as ANTH 4025.

### **When Offered**

Offered in fall.

## **SOC 431/4035 - Political Sociology (3 cr.)**

### **Prerequisites**

Prerequisites: 9 hours of social sciences, and junior or senior standing

### **Description**

Social bases of various political systems such as Western-type democracy, authoritarianism, and totalitarianism. Topics include: determinants of political behavior, power, elite formation, bureaucracy, and the political role of the military and intellectuals in Third World societies.

**Cross-listed**

Same as POLS 4035 .

**When Offered**

Offered in fall.

**SOC 435/4040 - Gender and Power in Development (3 cr.)**

**Prerequisites**

Prerequisite: nine hours of social sciences, at least junior standing or the consent of the instructor.

**Description**

The course will examine the transformations in the lives of women and men through development and incorporation into global economic and political systems from a sociological perspective, particularly from the "Third World". However, the focus is not limited to women, but rather concentrates on the structure and process of gender relations. In examining "gender politics", we will explore the politicization of gender relations at various levels of society, from domestic settings to national contexts to the international sphere.

**When Offered**

Offered annually.

**SOC 455/4055 - Seminar in African Studies (3 cr.)**

**Prerequisites**

9 hours of Social Sciences and Junior or Senior standing.

**Description**

Through the examination of a contemporary topic in African Studies, this interdisciplinary seminar examines epistemological and methodological issues in African Studies such as transformation, resistance, power, technology, and women and development. Original sources will be used to examine the theoretical assumptions, data, and methods underlying the literature. Prior course work in African Studies is recommended.

**Cross-listed**

Same as ANTH 4055 .

**When Offered**

Offered occasionally.

**SOC 400/4099 - Selected Topics in Sociology (3 cr.)**

**Prerequisites**

Prerequisites: 9 hours of social sciences, and junior or senior standing.

**Description**

Topics to be chosen according to specific interests, such as sociology of medicine, sex roles, symbolic interaction, applied sociology.

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit if content changes.

**SOC 450/4106 - Critical Approaches to Development (3 cr.)**

**Prerequisites**

Prerequisites: 9 hours of social sciences and junior or senior standing.

**Description**

Contemporary theories of development as they apply to and illuminate the problems of development in underdeveloped countries. The approach will be interdisciplinary.

**Cross-listed**

Same as ANTH 4050 .

**When Offered**

Offered in fall and spring.

**SOC 495/4107 - Senior Seminar (3 cr.)**

**Prerequisites**

Senior standing and SOC 3105 or ANTH 3105 or 12 hours of Social Sciences.

**Description**

Emphasis on current methodological trends in anthropology and sociology reflecting the research interests of the faculty and students, and drawing on the experience of the undergraduate career. Content may therefore vary from year to year.

**Cross-listed**

Same as ANTH 4107 .

**When Offered**

Offered in spring.

**Notes**

The student will be required to write a methodologically sound senior paper, preferably based on field research.

**SOC 440/4203 - Practicum in Community Development (3 cr.)**

**Prerequisites**

Six hours of social sciences or consent of the instructor.

**Description**

One semester, field experience in an approved international development agency, local NGO or other professional setting approved by faculty supervisor. Supervised by a faculty supervisor.

**Cross-listed**

Same as ANTH 4203 and PSYC 4203 .

**When Offered**

Offered in spring.

**SOC 402/4405 - Independent Study (3 cr.)**

**Prerequisites**

Prerequisites: a minimum B average, consent of the instructor, and approval by the Unit Head and the Department Chair.

**Description**

In exceptional circumstances some seniors and graduating seniors with department approval may arrange for independent study on a chosen topic in sociology that is not covered in the regular offerings for that academic year. Guided readings, research and frequent consultations held

**When Offered**

Offered in fall and spring.

**Repeatable**

May be repeated for credit if content changes

**SOC 445/4499 - Selected Topics in Coptic Studies (3 cr.)****Description**

This course allows instructors to offer a topic in Coptic Studies. The topic will be chosen from year to year in coordination with the departments concerned and the dean of the School of HUSS, and according to the individual interests and areas of expertise of the instructors. Topics chosen may include various aspects of Coptic art and history, monasticism, folklore, or other subjects. The course may be taken more than once if the topic changes.

**Cross-listed**

Same as ARIC 5132 ,EGPT 5160 ,HIST 4905 ,ANTH 4499 .

**When Offered**

Offered in fall.

**Notes**

Students in these majors may petition preferably before registration to have the course included in their major requirements.

**SOC 460/4560 - Development Studies Seminar (3 cr.)****Prerequisites**

Prerequisites: 12 hours of social science

**Description**

Interdisciplinary and comparative analysis of development as a process and as a historical phenomenon. Critical evaluation of economic, political, social, and cultural technological and managerial factors that structure developmental change.

**Cross-listed**

Same as ANTH 4560 ,POLS 4560 .

**When Offered**

Offered occasionally.

**SOC-ANTH 000/5295 - Reading Capital (3 cr.)****Description**

This course offers a reading in the genealogies of capital in order to critically engage emergent political, economic and social forms. The course examines the nexus between events, structure, agency; Marxist conceptions of the making of histories; the variety of Marxian frameworks delineating the relation between socio-economic and political rights.

**Cross-listed**

Same as GWST 5106

**SOC/ANTH 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)**

**Prerequisites**

Graduate standing or advanced undergraduate standing and permission of instructor.

**Description**

Drawing on interdisciplinary approaches in history, political science, sociology, economics and psychology, this introductory course examines the causes and consequences of population movements, and provides basic background, terminology and concepts for further studies in this field. It offers an overview of migrants' trajectories across national boundaries, analyzes migrants' integration and their transformative impact on as well as contribution to host societies. It examines the networks of relations migrants may maintain with their home countries. It also looks at the role of policies and practices of the humanitarian regime in shaping the experience and addressing the challenges faced by refugees, asylum seekers, and returnees.

**Cross-listed**

Same as MRS 5100 .

**When Offered**

Offered in fall.

**SOC/ANTH 500/5201 - Classical Social Thought (3 cr.)**

**Description**

An in-depth examination of classical sociological and anthropological theories of culture and society.

**When Offered**

Offered in fall.

**SOC/ANTH 501/5202 - Contemporary Social Thought**

**Prerequisites**

SOC/ANTH 5201

**Description**

An in-depth examination fo contemporary sociological and anthropological theories of culture and society.

**When Offered**

Offered in spring.

**SOC/ANTH 505/5203 - Ethnographic Fieldwork (3 cr.)**

**Description**



Techniques of participant observation, non-participant observation, and in-depth interviewing used in anthropology and ethnomethodology. Issues include problems of access, grounded theory and ethical issues. Students will normally carry out a fieldwork project for the course.

**When Offered**

Offered in spring.

**SOC/ANTH 506/5204 - Survey Research (3 cr.)**

**Description**

Techniques and issues in survey research. Sampling, operationalization, questionnaire design, survey application and analysis of survey data. The course is designed to give students hands-on experience in every aspect of survey research.

**When Offered**

Offered in spring.

**SOC/ANTH 508/5208 - Special Topics in Migration and Refugee Issues (3 cr.)**

**Description**

Topics discussed may vary depending on the instructor. Focus of the course will be announced prior to registration. Course may be repeated for credit if content changes.

**Cross-listed**

Same as MRS 5208 .

**SOC/ANTH 000/5209 - Migration, Integration and Citizenship (3 cr.)**

**Description**

This course will examine the challenges brought to citizenship theory by migrations and migrants integration. Diverging definitions of citizenry embody and express distinctive understandings of nationhood, be it state-centered and assimilationist, ethnocentric and 'differentialist' or multiculturalist, that are deeply rooted in the political and cultural history of different nations. The course will focus on the various conceptions of citizenship and how they influence the integration and the migrants' identity (re)constructions well as, to a certain extent, trigger a redefinition of receiving countries' cultural and political norms, including the very meaning of Nation-State.

**Cross-listed**

Same as MRS 5209.

**SOC/ANTH 510/5210 - Problems in Sociology-Anthropology (3 cr.)**

**Description**

Problems discussed may vary depending on the instructor and the needs of the students. Focus of the class will be announced prior to registration. Course may be repeated for credit if content changes.

**When Offered**

Offered occasionally.

### **SOC/ANTH 515/5215 - Kin, Friends and Neighbors (3 cr.)**

#### **Description**

Principles underlying group formation at the local level, such as kinship, residence, and friendship and the resultant web of collective and dyadic relations; special emphasis on the articulation of these groups with class, occupational and ethnic groups, and the state.

#### **When Offered**

Offered in alternate years.

### **SOC/ANTH 520/5220 - Gender and Sexuality (3 cr.)**

#### **Description**

How sex roles and gender are socially constructed in cross-cultural perspectives: special emphasis on the impact of social-cultural change on gender relations.

#### **When Offered**

Offered in alternate years.

### **SOC/ANTH 525/5225 - Religion, Ideology and Society (3 cr.)**

#### **Description**

The relation of ideology and world religions to social action; special emphasis on the integrative aspects on society as well as their potential for change and transformation.

#### **When Offered**

Offered in alternate years.

### **SOC/ANTH 530/5230 - Theorizing the State (3 cr.)**

#### **Description**

This course offers a critical reading of the concept of the state, particularly in relation to governance and power, regulation of subjects and citizens, discourses and practices of normalization of social orders, and limits to state power.

#### **When Offered**

Offered in alternate years.

### **SOC/ANTH 535/5235 - Maintaining Systems of Global Inequality (3 cr.)**

#### **Description**

Theories of the growth of the new international division of labor and its relationship to socioeconomic change in both developed and developing societies.

**When Offered**

Offered in alternate years.

**SOC/ANTH 540/5240 - Revisiting the Rural (3 cr.)**

**Description**

This course examines the remaking of rural communities in relation to historical shifts in capital and state dynamics, the organization and practice of everyday life, the politics of labor and property, and the production of desire and subjectivity.

**When Offered**

Offered in alternate years.

**SOC/ANTH 545/5245 - Cities: Structure and Dynamics (3 cr.)**

**Description**

The structure of urban forms, patterns of city life, and the relationship of cities to the wider societies of which they are part.

**Cross-listed**

Same as GREN 5244 .

**When Offered**

Offered in alternate years.

**SOC/ANTH 550/5250 - Sociology of Knowledge (3 cr.)**

**Description**

The epistemological foundations and social framework of knowledge; what is involved in "having knowledge" about society.

**When Offered**

Offered in alternate years.

**SOC/ANTH 555/5255 - Comparative Health and Healing Systems (3 cr.)**

**Description**

Cross-cultural and multidisciplinary approach to the crucial issues which link the social sciences to health and healing systems. Special emphasis on issues of health and healing under conditions of social and cultural change; development and policy in the Middle East.

**When Offered**

Offered in alternate years.

**SOC/ANTH 560/5260 - Population Dynamics (3 cr.)**

**Description**

A consideration of the causes and consequence of the growth and decline of population through the analysis of fertility, mortality, and migration. Issues and research related to rapid population growth and labor migration will be emphasized.

**When Offered**

Offered in alternate years.

**SOC/ANTH 565/5265 - Ethnicity, Identity and Nationalism (3 cr.)**

**Description**

This course examines the factors that contribute to modern nationalism or contradict it. Such factors include ethnic and other forms of identity such as those constructed around the notions of race, language, and religion. The approach to the imagined community is both cultural, dealing with identity formation and maintenance, and social, stressing processes and social groups.

**When Offered**

Offered in alternate years.

**SOC/ANTH 570/5270 - Environment and Society (3 cr.)**

**Description**

This course uses a broad interdisciplinary approach to analyze the relationship between development and environmental degradation, the ways in which development enhances protection, and the issues of sustainable development. It covers the social movements that may emerge around the environmental concerns, and the social processes that lead to environmental risks.

**Cross-listed**

Same as GREN 5205 .

**When Offered**

Offered in alternate years.

**SOC/ANTH 575/5275 - Modern Social Movements (3 cr.)**

**Description**

The emergence of modern social movements based on such issues as gender, ecology, race, ethnicity, community control, and identity. The relation between "new" social movements and earlier social movements based on class, national liberation, and revolutionary transformation, with comparison between First and Third World movements.

**When Offered**

Offered in alternate years.

**SOC/ANTH 580/5280 - History and Memory (3 cr.)**

**Description**

This course is an examination of the meanings and relationships between the past, memory and history in anthropological practices and debates. Specifically, it seeks an analysis of the conceptual and methodological boundaries between history production and collective memory paradigms.

**When Offered**

Offered in alternate years.

**SOC/ANTH 502/5285 - Social and Cultural Dynamics in Contemporary Egypt (3 cr.)**

**Description**

Emphasis on those forces which have given Egyptian society cohesion and continuity in a rapidly changing world. Crucial issues confronting social scientists and planners.

**When Offered**

Offered occasionally.

**SOC/ANTH 000/5289 - Comprehensives**

**Description**

Individual consultation for students preparing for the comprehensive exam.

**SOC/ANTH 503/5290 - Middle Eastern Societies and Cultures (3 cr.)**

**Description**

A survey of the present state of knowledge concerning Middle Eastern societies, with an emphasis on the disciplinary approaches of sociology and anthropology.

**When Offered**

Offered in spring.

**SOC/ANTH 591/5297 - Independent Study and Readings (3 cr.)**

**Prerequisites**

Department approval.

**Description**

Guided individual readings and/or research on a subject of mutual interest to student and faculty member that will not be covered in a regularly offered course.

**When Offered**

Offered in fall and spring.

**Repeatable**

May be taken only once.

**SOC/ANTH 598/5298 - Thesis Writing Seminar (3 cr.)**

**Prerequisites**

SOC/ANTH 5201 ,SOC/ANTH 5202 and either SOC/ANTH 5203 ,SOC/ANTH 5204 or the consent of the instructor.

**Description**

This course serves as an intermediary phase between the research proposal and the Master's thesis, which is designed to help students transition from fieldwork and data collection to data analysis and writing up. Students will be lead through a process of documenting, analyzing, and presenting their data in ways that emphasize faculty and peer evaluation and feedback.

**SOC/ANTH 599/5299 - Research Guidance and Thesis (no cr.)**

**Description**

Consultation for students in problems related to their theses.

**When Offered**

Offered in fall and spring.

**GREN 501/5201 - Global Changes and Sustainable Development (3 cr.)**

**Description**

The course is an introduction to the whole program. It focuses on sustainable development and global change- vital issues for humanity- with specific attention to the challenges in Egypt of the transition from unsustainable to sustainable development. Topics include rethinking established ways of production and consumption; types of green business, the interrelationship between local and global challenges, business policy and decision making affecting sustainability; finding new ways of greening economics, sustainable transportation, energy, engineering, architecture and construction; agriculture and water resources in a changing global climate; and the role of SMEs.

**GREN 502/5202 - Engineering for a Sustainable Environment (3 cr.)**

**Description**

Solid, industrial and hazardous waste generation and control, with an emphasis on sustainable engineering practices such as environmental impact assessment and performance, waste management, pollution prevention, waste minimization, cleaner production, energy recovery, recycling and reuse.

**Cross-listed**

Same as ENGR 5240 .

**GREN 503/5203 - Core Concepts & Applications for Social & Environmental Policy (3 cr.)**

**Description**

Overview of issues and analytic approaches for social and environmental policy, including programmatic and policy responses to development challenges in the environment, health and social services, and anti-poverty programming, with an emphasis on applications and case studies of experience in the Middle East and North Africa. Application of analytic methods to understand the root causes of barriers to providing social services and protecting the environment, and potential solutions to address these challenges from an interdisciplinary perspective.

**Cross-listed**

Same as PPAD 5132 .

**GREN 504/5204 - Entrepreneurship and Innovation (3 cr.)**

**Prerequisites**

MGMT 5307

**Description**

Innovation lies at the heart of economic growth in the modern world. Entrepreneurs with the ability and resourcefulness to establish their own business are critical to the process of innovation. Innovation is not just about starting a new business but it is also about creating and developing innovative ways of management. Whether you are thinking of starting a new venture or developing innovative mechanisms of management in a large organization, you will need to understand Entrepreneurship and Innovation.

This course takes students through the various aspects of starting, managing, and growing a business. Whether you want to start a new venture, a new project, or develop an innovative way of management. You will need to write a business plan? This course will teach you how to write a business plan, its benefits and how does it differ from a feasibility study.

Opportunity identification, clear business and market definition, segmentation, and entry, building a team and creating a suitable organizational form, avoiding common pitfalls, and various strategies for starting or growing a business , are among the numerous facets of entrepreneurship covered in the course.

Methods employed include individual and group case analysis, writing a business plan, interviews with, and talks by, entrepreneurs, and profiling of successes and failures.

**Cross-listed**

Same as ECNG 5274 and MGMT 5307 .

**GREN 505/5205 - Environment and Society (3 cr.)**

**Description**

This course uses a broad interdisciplinary approach to analyze the relationship between development and environmental degradation, the ways in which development enhances protection, and the issues of sustainable development. It covers the social movements that may emerge around the environmental concerns, and the social processes that lead to environmental risks.

**Cross-listed**

Same as SOC/ANTH 5270 .

**GREN 511/5211 - Water Desalination (3 cr.)**

**Description**

Description of methods of water analysis and treatment. Study of the properties of water and aqueous solutions.

Detailed discussion and analysis of design, maintenance, energy requirements and economics of the major processes of desalination, such as distillation, reverse osmosis, and electrodialysis.

**GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)**

**Description**

Solid wastes - Nature, generation and collection. Local and regional management strategies including recycling and recovery of useful products, landfilling, and incineration. . Hazardous wastes - Nature, generation and collection. Risk assessment. Management strategies including source reduction, treatment, recovery, landfilling, and incineration.

**Cross-listed**

Same as ENVE 5254 /CENG 4555 .

**GREN 514/5214 - Green Buildings (3 cr.)****Description**

Climate change and the building sector, Environmental impacts of the Construction Industry, Concept of Green Buildings, different rating systems, Sustainable Sites, Energy and Atmosphere, Indoor Environmental Quality, Materials & Resources, recycling contents & VOC, Green Building for Existing Buildings, water efficiency, life cycle cost analysis, innovation on design.

**GREN 000/5215 - Sustainability of Thermal Systems (3 cr.)****Description**

Energy systems; energy demand; energy audit; sustainable development; energy efficiency; energy management.

**Cross-listed**

MENG 6261

**GREN 000/5219 - Selected Topics in Green Technologies (3 cr.)****Description**

Selected topics of interest to green technologies. Topics will vary depending on contemporary trends in the field of green technologies and may reflect interdisciplinary content.

**When Offered**

Offered occasionally

**Notes**

Maybe taken more than once if content changes.

**GREN 521/5221 - Marketing Management (3 cr.)****Description**

Highlights the role of marketing as a process for creating value and managing customer relationships. The course addresses the marketing challenge of designing and implementing the best combination of marketing variables to carry out a firm's strategy in its target markets. Further, this course seeks to develop the student's skills in applying the analytic perspectives and concepts of marketing to such decisions as: segmentation, targeting, positioning, branding, pricing, distribution and promotion. The goal is to understand how the firm can benefit by creating and delivering value to its customers and stakeholders. The new role of marketing is emphasized including: stakeholder marketing, internal



marketing, social marketing, customer relationship management and other recent trends in the market. This course takes an analytical approach to the study of marketing problems of for-profit and not-for-profit organizations.

**Cross-listed**

Same as MKTG 5201 .

**GREN 522/5222 - Strategic Management of Innovation (3 cr.)**

**Description**

Innovation is regarded as a critical source of competitive advantage in an increasingly changing environment. Innovation is production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. This course will study the theory and practice of innovation as a process and an outcome based on a comprehensive model of innovation which consists of three determinants: innovation leadership, managerial levers and business processes. The course will examine the impact of accelerating innovation on cost, product quality and marketability; organizational changes required to couple R&D with marketing and commercialization; and the managerial skills and professional expertise needed to develop a sustainable innovation practice within an organization.

**Cross-listed**

Same as MGMT 5308 and ECNG 5273 .

**GREN 523/5223 - Managing in a Dynamic Environment (3 cr.)**

**Description**

The course aims at acquainting the student with how a leader could manage an organization in a dynamic environment. The course focuses on the main functions of a manager such as planning, organizing, controlling, motivation, team building and with special emphasis on leadership. It emphasizes contemporary and applied management in a global and dynamic environment. It also aims at developing an understanding of the tasks that managers must perform to keep the organization running both effectively and efficiently. In addition, the course emphasizes the environmental constraints imposed on the Egyptian manager and attempts to explore ways of applying the principles of management in Egyptian enterprises.

**Cross-listed**

Same as MGMT 5202 .

**GREN 524/5224 - Financial Management (3 cr.)**

**Prerequisites**

ACCT 5201 .

**Description**

It is a basic business finance course, dealing with various aspects of financial decision making. It provides an introduction to time value of money; bond and stock valuation; ratio analysis; financing decisions; capital budgeting; cost of capital; capital structure; risk and return; dividend policy; operating and financial leverage; and working capital management.

**Cross-listed**

Same as FINC 5202 .

**GREN 531/5231 - Policy for Sustainable Cities (3 cr.)**

**Description**

Explores policy choices facing urban managers, planners, and the communities they serve with regard to putting cities on a path to sustainability. Considers how allocation of, control over, and use of key land and financial resources shapes urban development from political economy, governance and space planning perspectives. Examines participatory planning and other methods to engage urban stakeholders in management of cities as well as tools to promote adoption of green technologies in the urban housing, industrial, transport, power, water, and commercial building sectors.

**Cross-listed**

Same as PPAD 5141 .

**GREN 532/5232 - Greening the Built Environment (3 cr.)**

**Description**

Examines core concepts, analytic tools, and program models needed to develop the urban built environment in ways that are socially and environmentally sustainable. Gives particular attention to retrofitting and sustainability upgrades for the existing urban core, developing new communities on a sustainable model, and providing affordable options for low-income urban residents, including upgrading of informal areas as well as new developments. Explores how the spatial distribution of work and housing choices interacts with transport/transit systems, energy use, and infrastructure to shape urban sustainability outcomes.

**Cross-listed**

Same as PPAD 5142 .

**GREN 533/5233 - Urban Infrastructure Development for Sustainability (3 cr.)**

**Description**

Considers how the development of critical infrastructure (power generation and transmission, water/wastewater, transport/transit, and waste management) can be directed toward socially and environmentally sound and economically viable models. Provides an understanding of alternative infrastructure financing, regulation, and implementation models from state provision to public-private partnerships. Explores how infrastructure network choices shape city expansion, urban quality of life, and efficiency outcomes in a dynamic urban context.

**Cross-listed**

Same as PPAD 5143 .

**GREN 534/5234 - Egyptian Environmental Law (3 cr.)**

**Description**

This course will give you a broad practical understanding of the Egyptian environmental law. The course is designed to

introduce you to the fascinating variety of important environmental challenges addressed by environmental laws, the difficult policy issues surrounding environmental problems, and the legal complexities of environmental regulatory and administrative schemes. Environmental laws can be extremely complex. This course, however, gives you the foundation by covering the "fundamentals" of Egyptian environmental law. You will also develop some critical analytical and research skills (such as analyzing problems and reading statutes) that are transferable to all areas of environmental law.

### **GREN 000/5235 - Corporate Social Responsibility and NGO Partnerships (3 cr.)**

#### **Description**

Overview of corporate social responsibility principles and applications from a developing country perspective. Issues in responsible corporate management, including addressing environmental, social, and accountability challenges. Tools for implementing and assessing corporate social responsibility programming, including mechanisms for developing effective partnerships with nonprofit organizations. Extensive use of cases from developing country experience.

#### **Cross-listed**

PPAD 5128

### **GREN 544/5244 - Cities: Structure and Dynamics (3 cr.)**

#### **Description**

The structure of urban forms, patterns of city life, and the relationship of cities to the wider societies of which they are part.

#### **Cross-listed**

Same as SOC/ANTH 5245 .

### **GREN 000/5245 - Community Assessment and Program Evaluation (3 cr.)**

#### **Description**

This course exposes students to concepts and methods of applied research in community psychology, specifically community assessment and program evaluation. Assessment techniques may focus on community needs and assets/resources assessment. Students will gain knowledge and skills in program evaluation, including evaluation theories, different types of evaluation (including process, outcome, and impact), and qualitative and quantitative evaluation methodologies. There will be an emphasis on strengths-based, participatory, and empowerment-oriented approaches, as well as professional ethics.

#### **Cross-listed**

PSYC 5233

### **GREN 000/5246 - Community Psychology and Systems Theory (3 cr.)**

#### **Description**

This course examines the core theories, values, and methodologies of community psychology and systems theory. An emphasis is placed on the ecological perspective, empowerment theory, sociocultural and cross-cultural competence, community inclusion and partnership, and ethical, reflective practice.

**Cross-listed**  
PSYC 5210

### **GREN 000/5247 - Prevention and Intervention in Communities (3 cr.)**

**Description**

This course provides students with knowledge and skills related to prevention across the lifespan, health promotion, and other types of community interventions. Students are exposed to a variety of community and preventive interventions, so as to prepare them to think about, work with, and lead community and preventive interventions in the future. The course provides training in community program development by offering opportunities for students to participate in program development, implementation, or management. Multicultural sensitivity and professional ethics are addressed.

**Cross-listed**  
PSYC 5243

### **GREN 000/5248 - Consultation to Non-Profit Organizations (3 cr.)**

**Description**

This course provides students with knowledge and skills for consultation with non-profit organizations, using a participatory and strengths-based approach. Topics include understanding the nonprofit sector, phases and theories of consultation, establishing and marketing a consultation business, and ethical and professional competence. Nonprofit consultation often focuses on strategic planning, organization development, needs assessment, capacity and resource development, program evaluation, and fundraising.

**Cross-listed**  
PSYC 5253

### **GREN 571/5251 - Graduate Thesis Seminar I (2 cr.)**

**Description**

Seminar on multi-disciplinary research topics, research methodology, thesis writing, and presentations given by invited speakers. Speakers from different backgrounds and experiences will be invited from the involved schools as well as the international partners.

### **GREN 572/5252 - Graduate Thesis Seminar II (1 cr.)**

**Description**

Seminar on research plans given by students to discuss their thesis topics and the results they obtained in their works. In the case of twinning thesis, students should organize together the seminar. However, every student should provide a presentation on his/her part of the research.

### **GREN 573/5253 - Research Guidance Thesis (3 cr. + 3 cr.)**

**Description**

Consultation on problems related to student thesis. It must be taken twice for a total of 6 credits.

**GREN 000/5281 - Sustainable Development Project Part One (3 cr.)****Prerequisites**

Advisor Approval.

**Description**

Students complete three courses that cover the three dimensions (social, environment and economic) of advisor-supported community-based project applying learning from the M.Sc. Program in Sustainable Development. Upon approval, students can take this course with the other two courses concurrently. Part one will focus on the analysis of the project needs and the fact findings through field visits.

**GREN 000/5282 - Sustainable Development Project Part Two (3 cr.)****Prerequisites**

Advisor Approval.

**Description**

Students complete three courses that cover the three dimensions (social, environment and economic) of advisor-supported community-based project applying learning from the M.Sc. Program in Sustainable Development. Upon approval, students can take this course with the other two courses concurrently. Part two will focus on the planning of the community problem which should respect the principles of sustainable development and participatory approach.

**GREN 000/5283 - Sustainable Development Project Part Three (3 cr.)****Prerequisites**

Advisor Approval.

**Description**

Students complete three courses that cover the three dimensions (social, environment and economic) of advisor-supported community-based project applying learning from the M.Sc. Program in Sustainable Development. Upon approval, students can take this course with the other two courses concurrently. Part three will focus on planning the action plan for implementing the planned solutions and validating the implementation with the identified stakeholders in the field.

**GREN 000/5910 - Independent Study in Sustainable Development (3 cr.)****Description**

This course offers for students the change to study beyond the regular course offerings. Guided reading for research and discussions based on a subject of mutual interest to the student and the responsible faculty member. The student demonstrates his/her achievement by submitting deliverables according to the agreement with the responsible faculty and in line with the course load of a graduate course.

## **TEAL 000/5201 - Fundamentals of Curriculum Design, Theory, & Practice (3 cr.)**

### **Prerequisites**

Admission to program

### **Description**

This course is designed to provide students with a comprehensive orientation to curriculum theory from both historical and contemporary contexts and as it applies to practice in design. Students will understand the foundations of the field through a global survey of curriculum theorists. Using contemporary and global understandings of curriculum as applied in governmental educational systems, students will also learn about strategies and best practices in curriculum development. Specific attention will be given to principles of curriculum design for all levels of student learning.

## **TEAL 000/5202 - Learning Theory & Educational Psychology (3 cr.)**

### **Prerequisites**

TEAL 5201

### **Description**

This course examines educational practice from cognitive, linguistic, developmental, and psychological perspectives. Students will understand various aspects of human learning with particular attention to the ways these aspects are affected by contemporary and evidence-based classroom practices.

## **TEAL 000/5203 - Social & Political Theories of Educational Practice (3 cr.)**

### **Prerequisites**

TEAL 5202

### **Description**

This course will use social and political theories of education to examine contemporary educational practice. This course is intended to provide pre-service or in-service teachers with strong foundations of advocacy for children and youth. The course also provides teachers with tools to distinguish evidence-based practices in education from politically- or socially-motivated practices.

## **TEAL 000/5204 - Assessment of Student Learning (3 cr.)**

### **Prerequisites**

TEAL 5203

### **Description**

Students will learn theories, strategies, and approaches to develop and implement formative and summative evaluations of student learning to assess student knowledge, skill, and/or disposition in multiple contexts. Particular attention will be placed on design of assessments as they relate to particular educational objectives. Assessment and evaluation theory will also be covered in depth.

## **TEAL 000/5205 - Differentiation of Instruction for Diverse Learners (3 cr.)**

**Prerequisites**

TEAL 5204

**Description**

This course provides theory, evidence, and tools for the implementation of differentiated instruction across all content areas and grade levels. In particular, it provides students with a comprehensive understanding of ability and disability, particularly in educational contexts. Both school- and classroom-based strategies will be covered.

**TEAL 000/5206 - Problem-based Instructional Models (3 cr.)****Prerequisites**

TEAL 5205

**Description**

In order to provide students with a solid foundation of instructional practices that can be implemented at any age level or content area, this course provides theory, strategy, and evidence on various instructional models that put problem-solving, creativity, and design at the center of student learning activity. Evidence-based approaches will be covered in depth to provide students with a strong working knowledge of pedagogical methodologies.

**TEAL 000/5207 - Promoting Independent & Lifelong Learners (3 cr.)****Prerequisites**

TEAL 5206

**Description**

This course provides strategies, theory, and evidence on practices and educational environments that encourage independent and lifelong learning. Rather than teaching for simplistic learning objectives, ultimately students should be engaged by their teachers such that they develop curiosity and habits of reading and investigation.

**TEAL 000/5208 - Teaching Capstone (3 cr.)****Prerequisites**

TEAL 5207

**Description**

This course is a practicum, whereby students will connect theory to practice through demonstrations of teaching skill in real-life situations, either in their own schools or in laboratory school settings.

**TEAL 000/5209 - Teaching Portfolio (3 cr.)****Prerequisites**

TEAL 5208

**Description**

This course is the culmination of the program, which puts into direct practice all program knowledge, skills, and dispositions. Students will be required to demonstrate competency in practice as teachers through multiple applied activities, documented through the e-portfolio and video illustrations.

### **THTR 199/1099 - Selected Topics for Core Curriculum (3 cr.)**

**Description**

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.

**When Offered**

Offered occasionally.

### **THTR 130/1101 - The World of the Theatre (3 cr.)**

**Description**

An initiation into the world of the theatre with the aim of developing the critical skills of an informed and perceptive audience member through the reading of plays, critical articles, and the attendance of stage performances and film versions of plays.

### **THTR 125/1200 - Acting for Non-Majors (3 cr.)**

**Description**

An introduction to the art and technique of acting for the non-major student, utilizing training games and exercises to present the student with a general overview of the acting process, while also providing experiences and techniques beneficial to basic human communication.

**When Offered**

Offered in fall and spring.

**Notes**

May not be used for departmental credit by theatre majors or minors.

### **THTR 203/1201 - Theatre in the Making (3 cr.)**

**Description**

An introduction to theatre as a collective art form by exploring all of its components and participants: from playwright to actor, from director to designers, from producing team to audience.

**When Offered**

Offered in fall and spring.

### **THTR 299/2099 - Selected Topics for Core Curriculum (3 cr.)**

**Prerequisites**

RHET 1000 .

**Description**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**

Offered occasionally.



### **THTR 225/2201 - Acting I (3 cr.)**

#### **Description**

A basic course in the fundamentals of acting, designed for majors, minors, and those with some previous experience. In-class exercises and improvisations, combined with rehearsed scenes and monologues from simple realistic texts, will help students gain proficiency in objective/obstacles, creation of a character, basic voice and breath control, and basic body alignment and awareness.

#### **Cross-listed**

Same as FILM 2201

#### **When Offered**

Offered in fall and spring, and occasionally in the summer.

### **THTR 226/2211 - Acting in Arabic I (3 cr.)**

#### **Description**

The art and craft of acting as a systematic process applied to the specific demands of Arabic Drama. Scene work and monologues from modern and contemporary Arabic plays.

#### **Cross-listed**

Same as FILM 2211

#### **When Offered**

Offered in fall or spring, and occasionally in the summer.

### **THTR 230/2301 - Play Analysis (3 cr.)**

#### **Description**

The development of the art of reading a play through detailed examination of its dramatic structure and in-depth analysis of its text. Both Western and Arabic plays will be examined.

#### **When Offered**

Offered in fall or spring.

### **THTR 204/2401 - Introduction to Technical Theatre (3 cr.)**

#### **Description**

An introduction to the theories, techniques, tools, and materials of technical theatre. Technical areas to be covered include organization, architecture, shops, stage equipment, scenery, props, lighting, sound, costumes, technical direction, and stage management.

#### **When Offered**

Offered in fall and spring.

#### **Notes**

Students will be expected to work on one of the technical crews for a major theatre department production concurrently with the course.

### **THTR 240/2601 - Production Practicum (1 cr. per production)**

**Description**

A course for any student who wishes to gain academic credit for significant contribution to departmental theatre productions in one of the following area: a. Scenery, b. Costume, c. Props, d. Lighting, e. Sound; or f. Run Crew. Minimum of 50 hours of practical work are required. Students work under direct supervision of a theatre faculty member. May be repeated twice for credit.

**THTR 242/2603 - Rehearsal and Performance Practicum (1 cr.)****Prerequisites**

Consent of instructor

**Description**

A course for any student who wishes to gain academic credit for significant contribution to departmental theatre productions in one of the following areas: a. Performance or b. Stage Management. Students work under direct supervision of a theatre faculty member. Registration by permission of the faculty member in charge of the specific activity and/or by audition.

**Repeatable**

May be repeated twice.

**THTR 370/3099 - Selected Topics in Theatre (3 cr.)****Prerequisites**

Prerequisite: consent of the instructor.

**Description**

In-depth examination of specific topics in theatre determined by the special interests and expertise of the faculty.

**When Offered**

Offered occasionally.

**Repeatable**

May be repeated for credit if content changes

**THTR 000/3103 - Drama in Context I: Greeks to English Renaissance (3 cr.)****Description**

A study of dramatic literature and theatre practice in its social context from 5th century BC Athens to the closing of the English theatres in 1642. Plays are studied for their literary value and as points of departure for exploration of performance and design practices. The course examines ways in which theatre and the societies which produce its serve to reflect one another.

**THTR 000/3104 - Drama in Context II: Italian Renaissance to Modern (3 cr.)****Description**

Renaissance Italy, 17th century France and England, and the European Enlightenment and early Industrial Age. Plays are studied for their literary value and as points of departure for exploration of performance and design practices. The course examines ways in which theatre and the societies which produce it serve to reflect one another.

### **THTR 000/3105 - Drama in Context III: Modern and Contemporary (3 cr.)**

#### **Description**

A study of 19th to 21st Century European dramatic literature and theatre practice in its social context. Plays are studied for their literary value and as points of departure for exploration of performance and design practices. The course examines ways in which theatre and the societies which produce it serve to reflect one another.

### **THTR 227/3201 - Acting II (3 cr.)**

#### **Prerequisites**

THTR 2201

#### **Description**

Students will build upon their knowledge of the acting process through focus upon a more rigorous examination of the development of a character, utilizing challenging scenes from early modern playwrights such as Chekhov, Pinter, Albee and Williams. Additionally, vocal and body work will continue through exploration of standard speech production, kinesthetic and relaxation techniques.

#### **When Offered**

Offered once a year.

### **THTR 327/3203 - Special Topics in Acting (3 cr.)**

#### **Prerequisites**

THTR 3201

#### **Description**

In-depth examination and implementation of specialized acting and performance skills and techniques. Focus of study to be determined by the special interests and expertise of the faculty.

#### **When Offered**

Offered occasionally.

#### **Repeatable**

May be repeated for credit if content changes

### **THTR 325/3205 - Acting Styles (3 cr.)**

#### **Prerequisites**

THTR 3201

#### **Description**

An advanced acting class, offering exploration and techniques in varied acting styles, including but not limited to Greek/Roman, Medieval, Restoration, Neo-Classicism, Romanticism, Farce, Expressionism and Absurdism. Vocal work will be examined through ensemble patterns, shared speech and period movement. Content of course to be determined by the interests and expertise of the faculty.

#### **When Offered**

Offered once every other year.

## **THTR 000/3207 - Movement for the Stage (3 cr.)**

### **Prerequisites**

THTR 2201 or THTR 2211

### **Description**

Movement for the Stage focuses on increasing the strength, flexibility, endurance, and movement vocabulary of the actors physical instrument, its presence in space, and the use of it as a tool for theatrical storytelling.

## **THTR 326/3211 - Acting in Arabic II (3 cr.)**

### **Prerequisites**

THTR 2211

### **Description**

A continuation on a more advanced level of the work started in Acting in Arabic I, applied to a wider range culminating in the presentation of a class term project.

### **When Offered**

Offered in fall or spring.

## **THTR 328/3301 - Directing I (3 cr.)**

### **Prerequisites**

THTR 2201 and THTR 2301

### **Description**

The fundamental directorial controls, as well as theoretical and practical training, leading to the production of single scenes.

### **When Offered**

Offered in fall.

### **Repeatable**

May be repeated once for credit as content changes.

## **THTR 324/3401 - Design for the Theatre (3 cr.)**

### **Prerequisites**

THTR 1201 and THTR 2401

### **Description**

A study of the principles of visual design and their application for the theatre. Play analysis that focuses on visual and spatial design requirements. Includes scenery, costumes, and lighting. Involves drawing, painting, model making, and research into period styles.

### **When Offered**

Offered once a year.

### **THTR 000/3403 - Make Up for the Theatre (3 cr.)**

#### **Description**

This course is an introduction to theatrical make up techniques for the actor. Students will explore the process of developing character through the manipulation and transformation of their facial characteristics with makeup. Projects will focus primarily on two dimensional techniques, but will introduce latex and other three dimensional techniques and will cover a wide range of character and special effects applications.

#### **When Offered**

Offered occasionally in winter or summer session.

### **THTR 360/3501 - Playwriting I (3 cr.)**

#### **Prerequisites**

THTR 230/2301 - Play Analysis (3 cr.)

#### **Description**

A workshop in which students develop basic technical skills of playwriting through exercises culminating in the production of a working scenario for a short one-act play.

#### **When Offered**

Offered in fall.

### **THTR 361/3503 - Playwriting II (3 cr.)**

#### **Prerequisites**

Prerequisite: .THTR 3501

#### **Description**

A workshop in which students develop the scenario they have produced in Playwriting I into a short one-act play to be performed as a staged-reading.

#### **When Offered**

Offered in spring.

### **THTR 340/3601 - Advanced Theatre Practicum (3 cr.)**

#### **Prerequisites**

THTR 2401 ,THTR 2601 and consent of instructor.

#### **Description**

Advanced, specialized, and intensive participation in theatre production activities. Assignments made in major supervisory positions in consultation with and under the supervision of a theatre faculty member. Technical production areas of scenery, costumes, props, lighting, sound, or stage management.

#### **When Offered**

Offered fall and spring.

**Repeatable**

Repeatable for credit. No maximum.

**THTR 344/3603 - Design Practicum (3 cr.)**

**Prerequisites**

Prerequisites: Selection by application and interview.

**Description**

A course for students who wish to learn about theatre design through participation in designing a departmental theatre production. Students selected through application and interview process.

**When Offered**

Offered occasionally.

**Repeatable**

Repeatable for credit.

**Notes**

Selected students will form a design team that will be responsible for designing scenery, props, costumes, lighting, and sound for a major production.

**THTR 402/4000 - Independent Study (1-3 cr.)**

**Prerequisites**

Minimum B average required.

**Description**

In exceptional circumstances, some senior majors may arrange, with departmental approval, to study beyond the regular course offerings.

**When Offered**

Offered in fall and spring.

**THTR 461/4103 - Dramatic Theory and Criticism (3 cr.)**

**Description**

An exploration of the various and conflicting perceptions of the nature and function of drama through the study of major works of dramatic theory and criticism from the Greeks to the present.

**When Offered**

Offered in alternate springs.

**THTR 471/4110 - Theatrical and Dramatic Translation (3 cr.)**

**Description**

A critical exploration of the particular challenges surrounding a number of "translations" of drama, with specific focus on the nature of dramatic language, the adaptability and contemporary value of myth, cultural and historical barriers and the means of challenging them, the shortcomings and advantages of dramaturgy, and the inevitable concrete requirements of performance.

**When Offered**

Offered occasionally.

**THTR 428/4301 - Directing II (3 cr.)**

**Prerequisites**

THTR 3301 and completion of all 200-level requirements.

**Description**

Advanced theoretical and practical, production-oriented training in play direction culminating in the presentation of a directorial project.

**When Offered**

Offered occasionally.

**THTR 000/4404 - Scene Design (3cr.)**

**Prerequisites**

THTR 2401 and THTR 3401.

**Description**

The study of the principles of design and their application for scenery for the theatre. Course work will center on play analysis that focuses on visual and spatial design requirements and the design process. Will include drawing, painting, model making, and research into period styles.

**When Offered**

Offered occasionally.

**THTR 000/4405 - Stage Lighting (3 cr.)**

**Prerequisites**

THTR 2401 or consent of instructor.

**Description**

The study of lighting theory and practice for the stage. Topics to be covered are: fundamentals of light theory, basics of electricity, lighting equipment and its use, historical overview of lighting for theatre, examination of current lighting methodology and an introduction to lighting design.

**When Offered**

Offered occasionally.

**THTR 000/4406 - Costume Design for Theatre and Film (3 cr.)**

**Prerequisites**

THTR 2401, THTR 3401 or consent of instructor.

**Description**

Students will examine the social and historical dynamics of dress and the application of those dynamics to the theatrical and film costume. Coursework will include research into the history of dress and its application to historical costume design as well as the interpretation of contemporary scripts for costume design. Will include instruction in fundamental drawing and painting skills.

**When Offered**

Offered occasionally.

**THTR 470/4701 - Senior Seminar (3 cr.)****Prerequisites**

Prerequisite: consent of the instructor.

**Description**

In-depth examination of advanced topics in theatre determined by the special interests of the faculty.

**When Offered**

Offered occasionally.

**Notes**

Designed for senior majors.

**THTR 490/4703 - Senior Thesis (3 cr.)****Prerequisites**

THTR 3401 THTR 3301 THTR 4103 (or currently enrolled). Some projects will have additional prerequisites. Course should be taken in final semester at AUC.

**Description**

Students will develop a major project, combining research and creative work that enables the student to integrate course work from the theatre curriculum with self directed application. Projects will be of a depth of study and creative engagement to warrant a capstone project on a senior level and could include work in the areas of acting, directing, design, playwriting, or dramaturgy. Students will propose projects in the semester before the course is taken and will be subject to faculty approval.

**THTR 495/4705 - Senior Honors Project (3 cr.)****Prerequisites**

Prerequisite: consent of the instructor.

**Description**

Offered to first or second semester seniors in the department who have distinguished themselves artistically and academically (minimum 3.4 GPA in the major, 3.2 cumulative). A major project, combining research and creative work in the areas of directing, design, performance, playwriting, or dramaturgy.

**When Offered**

Offered in fall and spring.

**Notes**

. Projects will be chosen by students in consultation with a faculty advisor.



### **TVDJ 507/5207 - Practicum: TV or Special Video Assignment (3 cr.)**

#### **Description**

Field experience at an approved television, video/digital section of a publication or TV production companies in Egypt or abroad to be conducted preferably as a six week long summer internship or during a semester.

#### **When Offered**

Offered occasionally

### **TVDJ 537/5237 - TV Digital News Gathering and Script Writing (3 cr.)**

#### **Prerequisites**

Must be taken concurrently with TVDJ 5241 and TVDJ 5242 .

#### **Description**

Introduces students to the theory and practice of field reporting and production. Students will learn the concepts of television journalism, the differences in reporting for print and broadcast, scriptwriting, use of pictures and related topics.

#### **When Offered**

Offered in fall.

### **TVDJ 538/5238 - Arabic TV Script Writing (3 cr.)**

#### **Prerequisites**

TVDJ 5237

#### **Description**

Introduces students to the theory of field reporting and producing. Students will learn the concepts of television journalism, the differences in reporting for print and broadcast, scriptwriting, use of pictures and related topics. The course is partially devoted to presentation skills of Arabic TV reporting.

#### **When Offered**

Offered in spring.

#### **Notes**

Non-Arabic speaking students may substitute an elective with approval of the director.

### **TVDJ 539/5239 - TV Presentation and Voice Coaching (3 cr.)**

#### **Prerequisites**

TVDJ 5237

#### **Description**

A workshop devoted to the presentation of TV news and features, particularly when "on camera". The prime focus of the course is to develop an awareness of how skeletal-muscular-respiratory organization can inhibit or promote vocal tone resonance and articulation, and to provide the physical experiences necessary to promote improvement in posture and breathing. The course provides the means whereby unconscious, inappropriate personal habits i.e. grimace, frown;

nervous gesture can be brought to consciousness and gradually eliminated. Particular attention will be given to developing unobtrusive and clear enunciation in English.

**When Offered**

Offered in fall and/or winter.

**TVDJ 541/5241 - Field and Studio Digital Camera Production (3 cr.)**

**Prerequisites**

. Must be taken concurrently with TVDJ 5237 and TVDJ 5242 .

**Description**

Intensive field training on how to use digital video cameras. Students will learn the basics of camera shooting, sequencing, framing, lighting, and also how to conduct vox pops and interviews. Students will practice shooting on different field and studio camera models and formats, indoors, outdoors and in a studio environment. Students will also learn lighting techniques for the field and studio.

**When Offered**

Offered in fall.

**TVDJ 542/5242 - Digital Video Editing (3 cr.)**

**Prerequisites**

Must be taken concurrently with TVDJ 5241 and TVDJ 5237 .

**Description**

Intensive training in editing labs to master the basic operation of video editing equipment. Students will learn how to edit their stories using machine to machine editing (linear editing) and software editing (non-linear editing). Students will also learn live video editing and production inside the studio.

**When Offered**

Offered in fall.

**TVDJ 545/5245 - TV Studio News Reporting (3 cr.)**

**Prerequisites**

TVDJ 5237 TVDJ 5241 and TVDJ 5242

**Description**

This course provides students with intensive, real-world exposure to the production of television field news reports. Students will be involved in all aspects of creating a weekly television news program, including reporting, executive producing, studio camera work, directing, writing and anchoring. Each student will produce a weekly three minute report.

**When Offered**

Offered in spring.

**TVDJ 546/5246 - TV Digital Journalism Capstone (3 cr.)**

**Prerequisites**

TVDJ 5245

**Description**

A continuation of TVDJ 5245 , this course provides more advanced training in producing television news broadcasts with an emphasis on writing, research, and execution of mini-documentaries, investigative reports and features. Students fluent in Arabic may produce reports in Arabic. Students will complete the required capstone project in this course.

**When Offered**

Offered in fall.

**TVDJ 559/5259 - TV Interviewing and Talk Show Hosting (3 cr.)**

**Description**

Introduces students to television interviewing across a variety of formats through delivery and practice. Students will learn one-on-one interviews (live, pre-taped and remote) and talk show hosting. Students will learn the skills and techniques of researching a guest, developing topics and preparing questions.

**When Offered**

Offered in Spring.

**TVDJ 000/5290 - Special Topics (3 cr.)**

**Description**

Content varies with the instructor. Can be repeated once for credit if content changes.

**When Offered**

Offered occasionally.

**TRST 501/5217 - Translation: Theory and Practice (3 cr.)**

**Description**

This course focuses on the developments in the field of Translation Studies since the 1970s when translation became increasingly conceptualized as cultural transfer rather than a linguistic operation. It introduces students to the interdisciplinary approaches in the field including the impact of deconstruction, gender studies and post-colonial theory. Students will explore the cultural and political agendas of translation through selected theoretical texts. The course will also introduce students to various translation practices (adaptation, e-writing, etc) and will look at a translator's role in society, and translation as an agent social change. Students will read a selection of texts in literary theory that will inform their practice in translation. Students will situate their own work in translation not only in relation to contemporary cultural forms and practices, but also in relation to the traditions that inform current translating practices. Selected texts and translation exercises will be in English and in Arabic.

**Cross-listed**

Same as ARIC 5217 .

**TRST 502/5218 - Translation and The Arab "Renaissance" (3 cr.)**

**Description**

Students will read pioneering works of the nineteenth and the twentieth century in the Arab region that dealt with issues of translation and its centrality to modern nation-building. What exactly is the role of the translator? What is the function of translation in society? The course situates at the act of translation within colonial/postcolonial contexts in which questions of power surround the relationship between the original text and its translation. It also explores questions of visibility and invisibility of the translator, translation vs. adaptation, original text and target cultural context. Taught in English. Readings and translation exercises in English and Arabic.

**Cross-listed**

Same as ARIC 5218 .