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The American University in Cairo

The Academy of Liberal Arts

Department of Arabic Language Instruction

Chair of the Department of Arabic Language Instruction: D. Abo El Seoud


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). Students may obtain between 12-15 credits in each of the fall and spring semesters. In the Summer Program (ALIS), students may obtain from 6-8 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: M. K. Hassan

All Arabic language credit classes at AUC are administered and taught by the Department of Arabic language Instruction. For details of university Arabic language requirements, see the "General Academic Requirements" section.

Arabic Language Undergraduate Credit Courses (ALNG): To see all ALNG courses, please go 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. Qualified undergraduate students may receive up to 15 undergraduate credits in the fall and in the spring semesters from AUC. In the Summer Program (ALIS) students can receive up to eight credit hours. (see "Non-degree Academic Regulations" for transfers of credit to other universities under "Undergraduate Academic Requirements").

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)
Director: S. Yacout

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 is 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 to 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: Iman Soliman

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-muthaqaffin (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.

Language Pledge
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 English Program Director: S. Farag
IEP Assessment Specialist: H. Garas
Intensive and Academic English for Graduates Program Director: M. Osman
Academic English for Freshmen (ENGL 0210) Program Director: A. El Shebeenie
Academic English for Freshmen (ENGL 0210) Assessment Specialist: E. Arrigoni


**ELI Program Accreditation - ELI/CEA**

The ELI is accredited by the Commission on English Language Program Accreditation (CEA) for the period of five years 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 national accrediting agency. For further information about this accreditation, please contact the Commission on English Language Program Accreditation, 801 N. Fairfax St., Suite 402A, Alexandria, VA 22314, (703) 665-3400, [www.cea-accredit.org](http://www.cea-accredit.org)

**Undergraduates**

**Intensive English Program**

The intensive program for undergraduates offers English 98/0101 (Intermediate English), and English 99/0102 (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).

Undergraduate students in the Intensive English Program (IEP) are allowed to take up to a full calendar year to reach the freshman English level (ENGL 100/0210) or RHET 1010. For example, students entering the IEP in the spring who do not reach the freshman English level by the end of that semester may attend the summer session and the following fall semester. If at the end of one calendar year a student still has not attained the required freshman level, he/she will be suspended.

**Content of Courses**

Students are placed in sections normally comprised of up to seventeen students, according to levels of proficiency. Students are given a grammar review, extensive reading and writing practice, advanced vocabulary review, instruction in study skills, and practice in speaking and listening comprehension. Integration among these skill areas is stressed at all levels. 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 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.

**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 Freshmen (ENGL 100/0210)

Academic English for Freshmen (ENGL 100) 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 10 days 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. Freshmen taking ENGL 100/0210 may enroll in no more than two academic courses with a maximum of 7 academic course credits. Any student who withdraws from ENGL 100/0210 must also withdraw from the two other academic courses.

For new students, placement in ENGL 100/0210 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 the Intensive English Program (IEP), placement in Academic English for Freshmen is determined by their score on the IEP exit test. All students who have been admitted into ENGL 100/0210 must satisfactorily complete the course work within a time period not to exceed two full semesters and a summer session. Students taking ENGL 100/0210 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 120/0301 or 121/0302, or placed in the appropriate modules of ENGL 123-125/0310, 0311 and 0312.

Graduate students in the intensive ELIN 120/0301 and 121/0302 courses are allowed a maximum of two semesters and a summer 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 three semesters to pass out of the program.

Intensive English for Graduates Courses

The intensive English for Graduates course is offered at ELIN 120/0301 (intermediate) and ELIN 121/0302 (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 120/0301 or 121/0302. Students who are asked to withdraw but fail to do so will be suspended.

**Suspension and Readmission**

Graduate students suspended from ELIN 120/0301 or 121/0302 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 120 or 121 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 120/0301 or 121/0302.

**Academic English for Graduates Modules**

Academic English for graduate students consists of three non-credit modules covering effective writing (ENGL 123/0310), academic reading (ENGL 124/0311), listening and speaking (ENGL 125/0312). 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 123/0310 meets for two hours two times a week, while the other two modules (ENGL 124/0311 and 125/0312) 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:

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<th>Required Academic English modules Students may take</th>
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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) twice. 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 three times 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 123-125/0310, 0311, 0312.

**Department of Rhetoric and Composition**

**The Academy of Liberal Arts**


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 in the Department of Rhetoric and Composition, 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 freshmen year.
- 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.

Department of Rhetoric and Composition required courses: Rhetoric and Composition.

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

Distinguished Professor: S. Peterson (Dean of Graduate School of Education)
Associate Professor: T. Purinton (Associate Dean), N. Megahed, H. El-Deghaidy
Assistant Professor: G. Osman
Professor of Practice: M. Zaalouk (Director of the Middle East Institute for Higher Education (MEIHE))
Associate Professors of Practice: R. Hozayin, S. Rissmann-Joyce
Department of Comparative and International Education
Educational Leadership (M.A.) with concentrations in School Leadership and Higher Education
Master of Arts in Educational Leadership

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 complete and defend a thesis.

**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 the 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 field.
4. 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.

A proposal must be submitted to, and approved by, a committee consisting of a faculty supervisor, a second reader, and the Department Chair. 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.

**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 - Transformational 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.

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 544/5222 - School Governance and Management (3 cr.)
- EDUC 573/5224 - Research-based Instructional Leadership (3 cr.)
- EDUC 583/5229 - Issues in Comparative Education for Educational Leaders (3 cr.)
- EDUC 556/5233 - Action Research (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)

2. Higher Education

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

- EDUC 552/5231 - The Potential of Emerging Technologies as Transformative Learning Tools (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 561/5249 - Current Issues in Higher Education (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (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 or Teaching and Learning

Master of Arts in International & Comparative Education

A total of 34 credit hours (10 courses plus the thesis) are required for MA students. Students may, with prior department approval, bring it 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 complete and defend a thesis.

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.

A proposal must be submitted to, and approved by, a committee consisting of a faculty supervisor, a second reader, and the Department Chair. 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.

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 575/5215 - Educational Policy Analysis (3 cr.)
- EDUC 534/5217 - Strategic Educational Planning and Development (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.

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 585/5219 - Current Issues in International Education Development and Policy (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (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 552/5231 - The Potential of Emerging Technologies as Transformative Learning Tools (3 cr.)
- EDUC 554/5232 - Reading and Writing in the Content Area Classroom (3 cr.)
- EDUC 556/5233 - Action Research (3 cr.)
- EDUC 557/5234 - Reaching Diverse and Underserved Learners (3 cr.)
- EDUC 581/5239 - Current Issues in Teaching & Learning (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)

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

Office of the Dean of Graduate Studies

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 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 5212, GREN 5213, GREN 5214), the Entrepreneurship Module (GREN 5221, GREN 5222, GREN 5223, GREN 5224), the Sustainable Cities Module (GREN 5231, GREN 5232, GREN 5233), or the Sustainable Communities Module (GREN 5241, GREN 5243, GREN 5242, GREN 5244). 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 5212, GREN 5213, GREN 5214), the Entrepreneurship Module (GREN 5221, GREN 5222, GREN 5223, GREN 5224), the Sustainable Cities Module (GREN 5231, GREN 5232, GREN 5233), or the Sustainable Communities Module (GREN 5241, GREN 5243, GREN 5242, GREN 5244). 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.)

Director: Hani Sewilam

Steering Committee: Amr Shaarawi (Dean of Graduate Studies), Salah El-Hagger (SSE), James Curiel (HUSS), Ayman Ismail
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, 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 modules. 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 Module M3- Electives (15 Credit Hours)
Students should take four courses from three of the four sustainable development sub-modules and at least one course from the Green Technologies Module M3-A. At least two courses should be taken from the specialization module.

Green Technologies Module (M3-A):
- GREN 511/5211 - Water Desalination (3 cr.)
- GREN 512/5212 - Design of Renewable Energy Systems (3 cr.)
- GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)
- GREN 514/5214 - Green Buildings (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.)

**Sustainable Communities Module (M3-D):**

• GREN 541/5241 - Maintaining Systems of Global Inequality (3 cr.)
• GREN 543/5243 - Revisiting the Rural (3 cr.)
• GREN 542/5242 - Modern Social Movements (3 cr.)
• GREN 544/5244 - Cities: Structure and Dynamics (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:* Hani Sewilam  
*Steering Committee:* Amr Shaarawi (Dean of Graduate Studies), Salah El-Hagger (SSE), James Curiel (HUSS), Ayman Ismail (BUS), Jennifer Bremer (GAPP), Ted Purinton (GSE), Richard Tutwiler (DDC) and the Associate Deans of Graduate Studies of the SSE, HUSS, BUS, GAPP and GSE.

**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. p.23.

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 nine credit hours of electives from three sustainable development modules. Students might be asked to take additional noncredit 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 three courses from three of the four sustainable development sub-modules at least one of them from the Green Technologies Module M3-A.

Green Technologies Module (M3-A):

• GREN 511/5211 - Water Desalination (3 cr.)
• GREN 512/5212 - Design of Renewable Energy Systems (3 cr.)
• GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)
• GREN 514/5214 - Green Buildings (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.)

Sustainable Communities Module (M3-D):

• GREN 541/5241 - Maintaining Systems of Global Inequality (3 cr.)
• GREN 542/5242 - Modern Social Movements (3 cr.)
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 Accountant (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.

1. Students who have been admitted to the Bachelor of Accounting program as incoming freshmen must complete the three courses listed below before taking any additional courses in the major.

2. Students who seek to be admitted to the Bachelor of Accounting program through the declaration process should apply in their third semester. Students seeking to declare the BAC program must have completed not less than 27 credit hours of study including the three courses listed below. Based on the available space a limited number of students who have successfully completed these courses and who meet the GPA requirements as determined by the department will be accepted in the major.

1. ACCT 201/2001 - Financial Accounting (3 cr.)
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 - Money and Banking (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)

Management Requirements (12 credits)

- MGMT 300/3101 - Business Environment and Ethics (3 cr.)
- MGMT 307/3201 - Management Fundamentals (3 cr.)
- MGMT 311/3301 - Business Law (Commercial & Fiscal) (3 cr.)
- MGMT 000/4999 - Internship and Career Development (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 (9 credits)

- MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)
• MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)
• MOIS 444/3703 - Accounting Information Systems (3 cr.)

**Accounting Requirements (33 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 401/4001 - Contemporary Issues in Auditing (3 cr.)
• ACCT 402/4002 - Special Topics in Tax Accounting (3 cr.)
• ACCT 403/4003 - Contemporary Issues in Accounting (3 cr.)

**Electives (9 credits)**

**Accounting Minor**

A limited number of students are accepted into the accounting minor. Students who have completed ACCT 2001 and ACCT 2002 and who meet requirements including the GPA as determined by the department will be permitted to declare a minor and should plan their minor with their academic advisor with the approval of the department.

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

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.)
Department of Economics  
School of Business

Professors Emeritus: G. Amin, W. Mikhail  
Professors: A. Beshai (Director of Graduate Studies), N. Rizk, T. Selim (Chair)  
Associate Professors: A. Kamaly, H. El-Ramly, M. Said, J. Saleurakis, A. Seghir (Dean of the School of Business), A. El-Shennawy  
Assistant Professors: S. Atallah, M. Bouaddi (Associate Chair), D. El Edel, M. Al-Ississ, M. El-Komi, D. Noureldin, 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 content of the curriculum for the B.A. degree in Economics offers a comprehensive coverage of subjects. The program is designed to prepare students as i) citizens with future influence by virtue of a university degree; ii) future holders of jobs which require training in economics; and iii) future postgraduate students of economics. For the first group, the curriculum offers training in rational thought and the connections between theory and main features of policy. For the second group, the curriculum offers the standard tools of economic analysis and an appreciation of the interdependence of world economies. For the third group, the curriculum, by virtue of its content of research methods and statistics, and econometrics offers entry into M.A. and Ph.D. programs. A holder of the B.A. in Economics from AUC can participate in advanced training on equal basis with undergraduates from major American and British Universities.

A STUDENT WHO SEEKS A B.A. IN ECONOMICS MUST SATISFY THE FOLLOWING REQUIREMENTS:

- Must have completed a minimum of 27 credit hours of study including ECON 2011, ECON 2021 and ECON 2061.
- Earn an average of "B" or higher in ECON 2011 and ECON 2021 with a minimum "B-" in each course.
• Earn a minimum of "B" in ECON 2061 *
• Meet the GPA requirements as determined by the department each semester.
*Alternatively, earn an average of "B" or higher in MACT 1121 and MACT 1122 with a minimum "B-" in each course.

Notwithstanding these requirements, a subcommittee of the department might in exceptional cases and on a case-by-case basis decide on admission of students after examining their overall records.

A total of 120 credits is required for the bachelor's degree in economics:

**Core Curriculum (40 credits)**

**Concentration Requirements (54 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 316/3061 - Mathematics for Economists II (3 cr.)
• ECON 318/3081 - Introduction to Econometrics (3 cr.)
• ECON 403/4031 - International Trade (3 cr.)
• MACT 210/2222 - Statistics for Business (3 cr.)

**Economics Additional I (Choose four out of the following eight courses)**

• ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)
• ECON 224/2091 - Economic History (3 cr.)
• ECON 348/3052 - Agricultural Economics (3 cr.)
• ECON 312/3053 - Economic Development (3 cr.)
• ECON 320/3055 - The Digital Economy: Information Technology, Knowledge and Intellectual Property (3 cr.)
• ECON 415/4051 - Seminar on Economic Development in the Middle East (3 cr.)
• ECON 405/4091 - History of Economic Thought (3 cr.)
• ECON 414/4094 - Economics of Egypt (3 cr.)

**Economics Additional II (Choose four out of the following eight courses)**

• ECON 303/3041 - Money and Banking (3 cr.)
• ECON 308/3071 - Labor Economics (3 cr.)
- ECON 310/3013 - Public Finance (3 cr.)
- ECON 413/4012 - Cost-Benefit Analysis (3 cr.)
- ECON 413/4012 - Cost-Benefit Analysis (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 411/4099 - Seminar: Special Topics in Economics (3 cr.)

**Notes:**

Students who plan to pursue the Master of Arts in Economics are strongly advised to take ECON 4061 and ECON 4081, since these are prerequisites for the program.

**Collateral Requirements (9 credits)**

- ACCT 201/2001 - Financial Accounting (3 cr.)
- FINC 303/2101 - Business Finance I (3 cr.)
- MGMT 000/4999 - Internship and Career Development (3 cr.)

**Electives (17 credits)**

**Economics Minor**

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

**Requirements (15 credits):**

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

**Additional Requirements**

- Three other economics courses, with a minimum of two 300-level courses or above.

**Courses not included**

- ECON 216/2061 - Mathematics for Economists I (3 cr.)
- ECON 218/2081 - Statistics for Economists (3 cr.)
- ECON 316/3061 - Mathematics for Economists II (3 cr.)
- ECON 318/3081 - Introduction to Econometrics (3 cr.)
With the approval of the instructor and the unit head, students may substitute other economics courses for credit towards the minor.

**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 four 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 590/5259 - Practicum (3 cr.)

2. **Choose five 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 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 Forced 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
• LAW 503/5203 - Law and Economic Development (3 cr.)
• LAW 512/5212 - Human Rights and the United Nations (3 cr.)
• LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.)
• LAW 522/5222 - International Economic and Trade Law (3 cr.)

Group 5
• PPAD 504/5222 - Fundamentals of Financial Planning and Management for Government and Nonprofit Organizations (3 cr.)
• PPAD 505/5121 - Institutions, Democratization, and Public Policy (3 cr.)
• PPAD 512/5114 - Management of Development Programs (3 cr.)
• PPAD 517/5126 - Non-profit Management (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.)

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 six 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 six 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 500/521 - 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 Forced 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
School of Business

Emeritus Professors: F. El Hitami, H. El Sherif
Professors: S. Akabawy, M. Badran, M. El Shinnawy, M. Hassanein, T. Hatem, S. Kamel, S. Youssef
Associate Professors: A. Badr El Din, O. Farooq, I. Hegazy, D. Rateb, P. Rostan, A. Tolba (Chair), E. Tooma, I. Azzam, H. Shamma, A. Sallam, H. Mertzanis
Assistant Professors: A. Hassanein (Associate Dean for Undergraduate Studies and Adminstation), N. Ahmed, A. Basiouny, D. Bassiouni, S. El Rakabawy, S. Formancek, A. Ismail (Abdul Latif Jameel Chair of Entrepreneurship), M. Mourad, I. Seoudi, N. Becheikh (Associate Dean for Graduate Studies and Research), C. Wishart, R. Samir
Professor of Practice: K. O'Connell (Willard W. Brown Chair of International Business Leadership)
Associate Professor of Practice: A. Awni
Participating Faculty: 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).

Vision
The vision of the Department of Management is to be a leading business learning institution in the region offering high quality academic programs comparable to those at the best universities worldwide.

Mission Statement
The mission of the Department of Management is to develop business leaders who are dedicated to the betterment of the society by providing a high quality business education to top caliber students from all segments of the Egyptian society as well as from other countries while focusing on continuous improvement and commitment to excellence in learning, intellectual contributions and services.
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 share 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 Systems and General 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.

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 two courses listed below. Based on the available space a limited number of students who have successfully completed these courses and who meet the GPA requirements as determined by the department will be accepted in the major.

1. ACCT 201/2001 - Financial Accounting (3 cr.)
2. ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
   OR
   ECON 202/2011 - Introduction to Microeconomics (3 cr.)

Students must complete a minimum of 127 credit hours for the Bachelor of Business Administration degree with no more than 63 hours of courses in the business area.

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

Core Curriculum (37 credits)

Core Curriculum (37 credits) (3 credits are out because MGMT 480 is considered as one of the Core Capstone)

Collateral Requirements (12 credits)

All students seeking a Bachelor of Business Administration degree must complete the following collateral requirements (12 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.)
- MACT 210/2222 - Statistics for Business (3 cr.)

Business Core Requirements (39 credits)

- ACCT 201/2001 - Financial Accounting (3 cr.)
- ACCT 202/2002 - Managerial Accounting (3 cr.)
- ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)
- FINC 303/2101 - Business Finance I (3 cr.)
- INTB 301/3101 - Introduction to International Business (3 cr.)
- MGMT 300/3101 - Business Environment and Ethics (3 cr.)
- MGMT 307/3201 - Management Fundamentals (3 cr.)
- MGMT 311/3301 - Business Law (Commercial & Fiscal) (3 cr.)
- MGMT 480/4401 - Business Planning and Strategy (3 cr.)
- MGMT 000/4999 - Internship and Career Development (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.)

Concentration Requirements (21 credits)

Students seeking a BBA degree must select only one of the following four options:

1. BBA with a marketing concentration
2. BBA with a finance concentration
3. BBA with a management of information technology concentration
4. BBA with a general business concentration

1. Marketing Concentration (21 credits)
Students seeking a concentration in marketing are required to take the following courses after they complete the business core:

- MKTG 405/3201 - Marketing Research (3 cr.)
- MKTG 410/3202 - Consumer-Buyer Behavior (3 cr.)
- MKTG 480/4602 - Marketing Strategy (3 cr.)
- MKTG 408/3301 - Marketing Communications Management (3 cr.)

In addition, choose three 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.)

2. Finance Concentration (21 credits)
Students intending to pursue a concentration in finance in their BBA have to achieve:

1. 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.
2. 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 in 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 404/3201 - Investment Analysis (3 cr.)
- FINC 405/3401 - Applied Banking (3 cr.)
- FINC 414/4301 - Corporate Finance (3 cr.)

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

- ECON 303/3041 - Money and Banking (3 cr.)
- 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 470/4970 - Special Topics in Financial Management (3 cr.)

3. Management of Information Technology Concentration (21 credits)

Students seeking a concentration in Management of Information Technology (MOIS) are required to take the following courses after they complete the business core:

• MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)
• MOIS 435/3301 - Entrepreneurial IT and Electronic Business (3 cr.)
• MOIS 466/3401 - Human Computer Interaction (HCI) (3 cr.)
• MOIS 499/4999 - Internship and Graduation Project (3 cr.)

One course from:

• MOIS 430/4202 - Business Information Systems Analysis and Development (3 cr.)
• MOIS 477/4704 - Systems Integration (3 cr.)

Two courses to be selected from the MOIS area:

• MOIS 423/3501 - Geographic Information Systems (GIS) (3 cr.)
• MOIS 432/3601 - Decision Support Systems and Business Intelligence (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.)

4. General Business (21 credits)

After completing the business core, students seeking a concentration in general business are required to take seven courses from at least five different functional areas, not to exceed two courses from any single area, at the 300 and 400 levels.

Areas for the General Business Concentration are accounting, finance, international business, management, marketing, management of information systems, and operations management.

Electives (18 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.

The number of students accepted in the MICT program is limited. This is done through the declaration of major process for science students only. Students seeking to declare the MICT program must have completed the three courses listed below. Based on the available space a limited number of students who have successfully completed these courses and who meet the GPA requirements as determined by the department will be accepted in the major.

1. ACCT 201/2001 - Financial Accounting (3 cr.)
2. CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
3. MACT 112/1221 - Statistical Reasoning (3 cr.) or MACT 131/1121 - Calculus I (0/3) or MACT 210/2222 - Statistics for Business (3 cr.)

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

Students must complete a minimum of 127 credit hours for the MICT degree with no more than 63 hours of courses in the business area.

Course Requirements

(Total Credit = 127 with no more than 63 hours of courses in the business area)

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<th>Course No.</th>
<th>Cr.</th>
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<tbody>
<tr>
<td>RHET 101/1000 - Approaches to Critical Writing (3 cr.) * (P)</td>
<td>3</td>
</tr>
<tr>
<td>RHET 102/1100 - Effective Argument (3 cr.) * (P)</td>
<td>3</td>
</tr>
<tr>
<td>RHET 201/2010 - Research Writing (3 cr.) * (P)</td>
<td>3</td>
</tr>
<tr>
<td>SCI 120/1020 - Scientific Thinking (3 cr.) (P)</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 220/2100 - Philosophical Thinking (core curriculum requirement) (3 cr.) (P)</td>
<td>3</td>
</tr>
<tr>
<td>LALT 101 (P)</td>
<td>0</td>
</tr>
<tr>
<td>Natural Sc + Lab (P)</td>
<td>4</td>
</tr>
<tr>
<td>Humanity (P/S)</td>
<td>3</td>
</tr>
</tbody>
</table>
Social Sc. (P/S) 3
Arab World Studies (S) 3
Arab World Studies (S) 3
International World Studies (S) 3
Core Capstone Course (C) 3
Core Capstone Course (C) 3
Total 40

General Electives / Minor

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALING 3</td>
<td>3</td>
</tr>
<tr>
<td>ALING 3</td>
<td></td>
</tr>
</tbody>
</table>

Total 9

(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.
Θ 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: ACCT 2001, CSCE 1001 and MACT 1221 or MACT 1121

Business Core Requirements

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINC 303/2101 - Business Finance I (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 300/3101 - Business Environment and Ethics (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 307/3201 - Management Fundamentals (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 311/3301 - Business Law (Commercial &amp; Fiscal) (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 302/2101 - Principles of Marketing (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>OPMG 310/3201 - Operations for Competitive Advantage (3 cr.)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 21

Collateral Requirements

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Cr.</th>
</tr>
</thead>
</table>
ACCT 201/2001 - Financial Accounting (3 cr.) 3
ACCT 202/2002 - Managerial Accounting (3 cr.) 3
ECON 201/2021 - Introduction to Macroeconomics (3 cr.) 3
ECON 202/2011 - Introduction to Microeconomics (3 cr.) 3
ECON 2061 Ψ 3
MACT 1221 ΨΨ 3
Total 18

Ψ ECON 2061 can be replaced by MACT 1121 / MACT 1122 (for BADM & ACCT majors only)
ΨΨ MACT 1111 is a pre-requisite for MACT 1221 and ECON 2061.
It can be taken with MACT 112 (same semester) but must be taken before ECON 216. It is considered as an elective course.

MOIT Requirements

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MOIS 435/3301 - Entrepreneurial IT and Electronic Business (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MOIS 466/3401 - Human Computer Interaction (HCI) (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MOIS 499/4999 - Internship and Graduation Project (3 cr.) (double counted with Core Capstone)</td>
<td>3</td>
</tr>
</tbody>
</table>

One course to be selected from the MOIT area:
MOIS 430/4202 - Business Information Systems Analysis and Development (3 cr.)
MOIS 477/4704 - Systems Integration (3 cr.)

Two courses to be selected from the MOIT area:
MOIS 423/3501 - Geographic Information Systems (GIS) (3 cr.) 3
MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.) 3
MOIS 433/3701 - Marketing Information Systems (3 cr.) 3
MOIS 434/3702 - Financial Information Systems (3 cr.) 3
MOIS 444/3703 - Accounting Information Systems (3 cr.) 3
MOIS 450/3801 - Strategic Information Systems (3 cr.) 3
MOIS 470/4970 - Special Topics in Management of Information Systems (3 cr.) 3
Total 21

Computer Science Requirements

| Course No. | Cr. |

58
CSCE 106/1001 - Fundamentals of Computer Science (3 cr.) 3
CSCE 110/1101 - Programming Fundamentals (3 cr.) 3
CSCE 210/2201 - Data Structures and Algorithms (3 cr.) 3
CSCE 346/3422 - Introduction to Information Security (3 cr.) 3
CSCE 342/3421 - Computer Systems (3 cr.) 3

**Two courses to be selected from the CSCE area:**
CSCE 315/3101 - Programming Language (1-2 cr.) 3
CSCE 316/3102 - Programming in Java (3 cr.) 3
CSCE 456/4502 - Design of Web-based Systems (3 cr.) 3
CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.) 3

**Total** 21

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**Business Administration Minor**

The minor in business administration is designed to introduce students to the basic concepts, models and techniques of the discipline. Students who have completed the minor requirements and who meet the GPA requirement should apply for the minor in their senior year. Students who minor in business administration are not permitted to have a minor in accounting.

**Requirements**

The minor requires completion of six courses (18 credit hours) as follows:

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

- **MGMT 307/3201 - Management Fundamentals (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.)**

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

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

In addition, choose one additional course from the following business areas (ACCT, FINC, INTB, MGMT, MKTG, MOIS, OPMG).
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 who have completed the minor requirements and who meet the GPA requirement should apply for the minor in their senior year. 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:

- ENTR 203/2101 - Introduction to Entrepreneurship and Small Business Management (3 cr.)
- ENTR 303/3201 - Principles of Entrepreneurial Finance (3 cr.)
- ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)
- ENTR 417/4301 - Entrepreneurship Lab: Developing and Launching a New Venture (3 cr.)
- MKTG 302/2101 - Principles of Marketing (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:

- CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
• CSCE 201/2502 - Information Technology (3 cr.)
  or
• MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)

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

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

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

**Finance, with concentrations in Corporate Finance, and Investments (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 37 credit hours of which 31 credit hours of course work and six credit hours of thesis. Students with relevant background can waive up to two core courses but must complete a minimum of 31 credit hours (courses and thesis) 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.)
• OPMG 507/5201 - Introduction to Business Statistics (3 cr.)
MSc Electives (12 credits)

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

1- Investments Concentration

Students must take four elective (12 credits)

- 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 570/5370 - Selected Topics in Financial Management (3 cr.)
- FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

2- Corporate Finance Concentration

- 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 570/5370 - Selected Topics in Financial Management (3 cr.)
- FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

Research Methodology (1 Credit hour)

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

- FINC 590/5402 - Research Methodology (1 cr.)

Thesis (six 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 (6 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 consist of 23 modules for a total of 48 credit hours to satisfy the requirements of the program at AUC. Classes are on monthly basis and are held on long weekends, alternating between three days weekend in one month (Thursday to Saturday) and five days weekend in the other month (Thursday to Monday) and so on.

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 throughout 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.
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

Master of Business Administration (MBA)

The MBA is a professional degree designed to prepare students who have completed undergraduate work in any academic discipline and intend to pursue a management career. The curriculum emphasizes the principles underlying business operations as well as advanced technical knowledge in relevant specializations. It provides tools for analysis and helps develop a managerial perspective. Advanced specialized and elective courses provide the necessary skills in a functional area of business. The MBA program is accredited by the Association to Advance Collegiate Schools of Business (AACSB), European Quality Improvement System (EQUIS), and the Association of MBAs (AMBA).

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 (3-27 credits)

The MBA Foundation courses are directed at providing the student with a basic background in the various functional areas of Business. Between one and nine courses are required for the completion of foundation courses. Once these foundation courses are completed, students may start taking the elective courses. These courses are usually chosen from the following list:

- 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 in a Dynamic Environment (3 cr.)
- MGMT 510/5307 - Entrepreneurship and Innovation (3 cr.)
- MGMT 520/5201 - Marketing Management (3 cr.)
- MOIS 508/5201 - Information Technology in Business (3 cr.)
- OPMG 507/5201 - Introduction to Business Statistics (3 cr.)
- OPMG 520/5202 - Operations Management for Competitive Advantage (3 cr.)

MBA Electives and Concentration (18-33 credits)

Advanced coursework for the MBA constitutes a diversified program aiming at providing the student with:

a. General background in the concepts, processes, and institutions of finance, marketing, personnel, and operations management
b. Decision-making tools and techniques such as accounting, quantitative methods, and management information systems
c. Organizational theory, economic analysis, and business policy and strategy
Students must take a minimum of 9-12 credit hours that covers at least three of the following business areas:

- Finance
- Leadership and Human Resources Management
- Management of Information Technology
- Marketing
- Operations Management
- Construction Industry

Students may concentrate in one of these areas (except Accounting) by taking at least three courses in that area (9 credit hours).

**Accounting**

- 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.)

**Finance**

- FINC 541/5203 - Investments and Portfolio Management (3 cr.)
- FINC 542/5311 - International Financial Management (3 cr.)
- FINC 543/5312 - Financial Institutions and Markets (3 cr.)
- FINC 512/5313 - Options and Derivatives (3 cr.)
- FINC 513/5331 - Fixed Income Securities (3 cr.)
- FINC 545/5333 - Private Equity and Venture Capital (3 cr.)
- FINC 544/5351 - Advanced Corporate Finance (3 cr.)
- FINC 517/5352 - Financial Modeling (3 cr.)
- FINC 570/5370 - Selected Topics in Financial Management (3 cr.)
- FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

**Leadership and Human Resources Management**

- MGMT 503/5301 - Leading Change in Organizations (3 cr.)
- MGMT 504/5302 - Human Capital Strategy (3 cr.)
- MGMT 506/5304 - Management of International Business Organizations (3 cr.)
- MGMT 507/5305 - Global Business Strategy (3 cr.)
- MGMT 509/5306 - Leadership (3 cr.)
• MGMT 511/5308 - Strategic Management of Innovation (3 cr.)
• MGMT 000/5310 - Business Consultancy (3 cr.)
• MGMT 570/5370 - Selected Topics in Management (3 cr.)
• MGMT 575/5375 - Independent Study in Management (1-3 cr.)

Management of Information Technology

• MOIS 549/5301 - Systems Analysis, Design, and Implementation (3 cr.)
• MOIS 550/5302 - Decision Support Systems (3 cr.)
• MOIS 551/5303 - Electronic Business: Doing Business in the Digital Economy (3 cr.)
• MOIS 555/5305 - Information Technology Strategy and Entrepreneurship (3 cr.)
• MOIS 517/5309 - Technology and Innovation Management (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.)

Marketing

• MKTG 521/5301 - Marketing Research Methods (3 cr.)
• MKTG 522/5302 - Marketing Channel Strategies (3 cr.)
• MKTG 523/5303 - Sales Force Management (3 cr.)
• MKTG 524/5304 - Global Marketing (3 cr.)
• MKTG 526/5305 - Integrated Marketing Communication (3 cr.)
• MKTG 530/5306 - Strategic 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

• OPMG 521/5301 - Managing and Coordinating Supply Chains (3 cr.)
• OPMG 528/5302 - Managing Dynamic Projects (3 cr.)
• OPMG 530/5303 - Data Analysis (3 cr.)
• OPMG 531/5304 - Stochastic Models in Managerial Decision Making (3 cr.)
• OPMG 532/5305 - Operations Strategy (3 cr.)
• OPMG 533/5306 - Business Dynamics (3 cr.)
• OPMG 570/5370 - Selected Topics in Operations Management (3 cr.)
• OPMG 575/5375 - Independent Study in Operations Management (1-3 cr.)

Construction Industry
Students may concentrate in the Construction Industry by taking at least four courses in that area (12 credit hours)

- **CENG 530/5261 - Contracts in Construction Industry (3 cr.)**
  **Mandatory for students who do not have a degree in Construction Engineering from AUC. Not open for AUC students with a degree in construction engineering.**
- **CENG 531/5262 - Construction Management (3 cr.)**
- **CENG 532/5263 - Planning, Scheduling and Control (3 cr.)**
  **Mandatory for students who do not have a degree in Construction Engineering from AUC. Not open for AUC students with a degree in construction engineering.**
- **CENG 533/5264 - Management for Multi-National Environments (3 cr.)**
  * Not open for AUC students in construction engineering students with a concentration in Construction Management.
- **CENG 534/5265 - Risk Management and Bidding Strategies (3 cr.)**
  * Not open for AUC students in construction engineering students with a concentration in Construction Management.
- **CENG 535/5266 - Claims and Disputes in the Construction Industry (3 cr.)**
- **CENG 536/5267 - Systems Analysis for Construction (3 cr.)**
- **CENG 537/5268 - Resource Management for Construction Projects (3 cr.)**
- **CENG 538/5269 - Procurement of Assets & Services for Construction Projects (3 cr.)**
- **CENG 567/5243 - Construction Leadership and Management Skills (3 cr.)**

**MBA Capstone Course (3 credits)**

 Finally, a capstone course, the following is required for all MBA candidates:

- **MGMT 508/5401 - Strategic Management (3 cr.)**

**School of Global Affairs and Public Policy**

**Department of Journalism & Mass Communication**

**School of Global Affairs and Mass Communication**

*Professor Emeritus:* A. Schleifer

*Professor:* H. Amin

*Associate Professors:* R. Abdulla, K. Keenan

*Assistant Professors:* N. Hamdy (Chair), A. Ismail, S. Peuchaud

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

*Associate Professors of Practice:* D. Ashmawi, F. Al-Atraqchi, 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 40 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 - Mass Media Writing (3 cr.)
• JRMC 202/2202 - Multimedia Writing (3 cr.)
• JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

Communication and Media Arts Major (21 credits)
• JRMC 250/2250 - Global Media Systems (3 cr.)
• JRMC 270/2270 - Online Communication (3 cr.)
• JRMC 320/3320 - Mass Communication Research (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 482/4482 - Media Convergence Capstone (3 cr.)

Choose two of the following courses : (6 credits)

• JRMC 230/2230 - Photography Foundations 1 (3 cr.)
• JRMC 305/3305 - Introduction to Visual Communication (3 cr.)
• JRMC 330/3330 - Photojournalism and Documentary Practices (3 cr.)
• JRMC 339/3339 - Studio Production: AUC TV (3 cr.)
• JRMC 403/4403 - Feature and Magazine Writing (3 cr.)
• JRMC 405/4405 - Advanced Visual Communication (3 cr.)
• JRMC 415/4415 - Public Relations Theory and Techniques (3 cr.)
• JRMC 460/4460 - Audio Production (3 cr.)
• JRMC 471/4471 - Online Journalism (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 with a grade of B or better, and 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 40 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 - Mass Media Writing (3 cr.)
- JRMC 202/2202 - Multimedia Writing (3 cr.)
- JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

Integrated Marketing Communication Major (24 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 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 Behavior (3 cr.)

Choose one of the following courses: (3 credits)

- JRMC 230/2230 - Photography Foundations 1 (3 cr.)
- JRMC 270/2270 - Online Communication (3 cr.)
- JRMC 406/4406 - Internship (3 cr.)
- JRMC 420/4420 - Media Management (3 cr.)
- JRMC 441/4441 - Camera and Editing Workshop (3 cr.)
- JRMC 444/4444 - Media Law and Policy (3 cr.)
- MKTG 408/3301 - Marketing Communications Management (3 cr.)
- MKTG 416/4302 - E-Marketing (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 40 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 - Mass Media Writing (3 cr.)
- JRMC 202/2202 - Multimedia Writing (3 cr.)
- JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

Multimedia Journalism Major (24 credits)

- JRMC 230/2230 - Photography Foundations 1 (3 cr.)
- JRMC 301/3301 - Journalism Editing and Design (3 cr.)
- JRMC 312/3312 - Multimedia Journalism Lab: The Caravan (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 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 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 412/4412 - Newsroom Editing and Management (3 cr.)
• JRMC 441/4441 - Camera and Editing Workshop (3 cr.)
• JRMC 444/4444 - Media Law and Policy (3 cr.)
• JRMC 471/4471 - Online Journalism (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.

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 JRMC 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):

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

And one of the following:

• JRMC 202/2202 - Multimedia Writing (3 cr.)
• JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)
• JRMC 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 JRMC 406/4406 - Internship (3 cr.) and JRMC 499/4499 - Directed Individual Study in Mass Communication (1-3 cr.) and Capstone Courses JRMC 4480, JRMC 4482 and JRMC 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.
- 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.)

Note
Students should complete the following courses as early after admission to the program as possible.
- JRMC 500/5200 - Seminar in Mass Communication Theory and Literature (3 cr.)
- JRMC 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.

Department of Law
School of Global Affairs and Public Policy

Professor Emeritus: E. Hill
Associate Professors: A. Lorite (on leave), A. Shalakany, T. Skouteris
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.

Interested students have the option of starting the Dual Degree in the sixth semester of the political science BA at AUC. During the fifth semester (i.e., before the semester in which s/he enrolls in 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.

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 514/5214 - Human Rights in the Middle East (3 cr.) * (2 out of 3 starred courses required)
International Human Rights Law (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 and Humanitarian Law (3 cr.)
• LAW 527/5227 - Graduate Law Seminar (3 cr.)

Two out of the following three courses:

• LAW 513/5213 - The European System of Human Rights Protection (3 cr.)
• LAW 514/5214 - Human Rights in the Middle East (3 cr.)
• LAW 519/5219 - Human Rights in Africa (3 cr.)

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., graded)

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.

Interested students have the option of starting the Dual Degree in the sixth semester of the political science BA at AUC. During the fifth semester (i.e., before the semester in which s/he enrolls in 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.
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 514/5214 - Human Rights in the Middle East (3 cr.) * (2 out of 3 starred courses required)

LAW 519/5219 - Human Rights in Africa (3 cr.) * (2 out of 3 starred courses required)

LAW 513/5213 - The European System of Human Rights Protection (3 cr.) * (2 out of 3 starred courses required)

LAW Electives**

**SEMESTER X (MA IHRL program)**

LAW Electives**

**SEMESTER XI (MA IHRL program)**

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

** 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 LLM 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., graded)

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 (Graduate Diploma)

The Graduate Diploma in International Human Rights Law 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 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 and Humanitarian Law (3 cr.)

And Two out of the following three courses:

- LAW 513/5213 - The European System of Human Rights Protection (3 cr.)
- LAW 514/5214 - Human Rights in the Middle East (3 cr.)
- LAW 519/5219 - Human Rights in Africa (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 Dean of School of Global Affairs and Public Policy), A. Hamzawy, T. Dolan, E. Shahin

*Associate Professor:* H. Ali (Chair), Sh. Bhuiyan

*Visiting Associate Professor:* Kh. Amin

*Assistant Professors:* G. Barsoum, W. Bowman, A. Hodgkins, Kh. Abdelhalim

*Professors of the Practice:* I. Awad, 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.

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 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. Those interested in this option are required to complete a summer work assignment for Fall practicum 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. 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:

**SEMESTER IX**

- CENG 424/4253 - Methods and Equipment for Construction II (2 cr.)
- Eng. Concentration 1 elective
- CENG 448/4460 - Financial Management and Accounting for Construction (3 cr.) (MPA credit)
- CENG Elective (1)
- CENG 431/4351 - Transportation Engineering (3 cr.)
- CENG 490/4980 - Senior Project I (1 cr.) (Capstone Core Level I)
- CENG 497/4951 - Practical Training (1 cr.) (Practicum)

**SEMESTER X**

- Engineering Concentration 2
- CENG 567/5243 - Construction Leadership and Management Skills (3 cr.)
- CENG 491/4981 - Senior Project II (2 cr.) (Capstone Core Level II)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.) (MPA credit)
Global Affairs, with concentrations in International Cooperation, and International Security (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, one (1) course in group 2, and one (1) course in group 3.

**Group 1: Complete all four (4) of the following:**

- PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)
- PPAD 527/5251 - International Organization in Global Governance (3 cr.)
- PPAD 528/5252 - Theory and Practice of Negotiation (3 cr.)
- PPAD 540/5161 - Diplomacy: Theory and Practice (3 cr.)

**Group 2: Complete one (1) of the following:**

- PPAD 524/5129 - Globalization and Development (3 cr.)
- PPAD 529/5151 - Issues in International Security (3 cr.)
- LAW 509/5209 - International Law (3 cr.)

**Group 3: Complete one (1) of the following:**

- PPAD 502/5231 - Economics for Public Policy Analysis (3 cr.)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
- POLS 561/5261 - Public Policy and Development (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
MGA Concentration 1: International Security – 5 courses (15 credits) required

Group 1: Required for all students in the concentration

- PPAD 530/5152 - International Intervention and Conflict Management (3 cr.)
- PPAD 539/5258 - Role of Force: Strategy and Statecraft (3 cr.)

Group 2: Complete one (1) of the following:

- PPAD 531/5153 - Armament, Arms Control and Disarmament (3 cr.)
- PPAD 532/5154 - Issues in regional security in the Middle East and Africa (3 cr.)
- POLS 554/5254 - Comparative Foreign Policy: Theories and Applications (3 cr.)
- PPAD 591/5198 - Practicum (3 cr.)
- PPAD 529/5151 - Issues in International Security (3 cr.)
  (If not taken in core group 2).
- PPAD 542/5159 - Islam and Global Affairs (3 cr.)
- PPAD 543/5160 - War, Peace and Conflict Resolution in Islam (3 cr.)

Group 3:
Complete two (2) additional relevant courses (other than PPAD 5298 and PPAD 5299; selected in consultation with departmental advisor).

MGA Concentration 2: International Cooperation -- 5 courses (15 credits) required

Group 1: Required for all students in concentration

- PPAD 533/5155 - Cooperation for Development in the Multilateral System (3 cr.)
- POLS 525/5225 - International Political Economy (3 cr.)

Group 2: Complete one (1) of the following:

- PPAD 516/5132 - Social and Environmental Policy (3 cr.)
- PPAD 534/5156 - Comparative Bilateral Cooperation Policies for Development (3 cr.)
- PPAD 535/5157 - Multilateral Cooperation for Development at the Country Level: Issues and Practice (3 cr.)
- PPAD 591/5198 - Practicum (3 cr.)
- PPAD 542/5159 - Islam and Global Affairs (3 cr.)

Group 3:
Complete two (2) additional relevant courses (other than PPAD 5298 and PPAD 5299; selected in consultation with departmental advisor).
Master's Project (6 credits)

Students are required to complete a master's project addressing a challenge relevant to their concentration from the point of view of an organization involved in the issue, which will serve as the project's client. If a member of the organization's staff is not available, the client role may be performed by an alternate designated by the department. The preparation of the master's project proposal and final report must comply with departmental guidelines with regard to client involvement, content, format, dates, and the review and supervision process. Students developing a project proposal with a client are strongly encouraged to enroll in PPAD 5198, the practicum. Once the project proposal is approved by the student's master's project supervisor, the student must enroll in PPAD 5298, the research seminar, for one semester and for the additional semesters that are needed to complete the project, in PPAD 5299, research guidance, until the project is completed. The student will pay 3 credits of tuition for the first enrollment in PPAD 5299, subsequent enrollments if needed will require payment of 1 credit per semester. The master's project may be completed as a team or as an individual project.

Public Administration, with concentrations in Management of Public Sector Reform, and Management of Nonprofit and Development Organizations (MPA)

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. 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 Management of Public Sector Reform or the concentration in Management of Nonprofits and Development Organizations. 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 thesis consistent with department and university guidelines and complete at least one enrollment in each of the mandatory thesis sequence courses (PPAD 5298 and PPAD 5299, both non-credit).

Core Requirement (18 credit hours):
Students must complete four (4) courses in group 1, one (1) course in group 2, and one (1) course in group 3.

**Group 1: Complete all four (4) of the following:**
- 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.)

**Group 2: Complete one (1) of the following:**
- PPAD 504/5222 - Fundamentals of Financial Planning and Management for Government and Nonprofit Organizations (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.)

**Group 3: 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.)
- PPAD 515/5202 - Public Policy Analysis and Program Evaluation (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 3 concentration course, if not taken as a core course (i.e., a course may be counted toward only one requirement).

**MPA Concentration 1: Management of Public Sector Reform -- 5 courses (15 credits) required**

**Group 1: Choose two from the following four courses**
- PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)
- PPAD 513/5223 - International Models of Public Management (3 cr.)
- PPAD 518/5123 - Governance, Accountability, and Stakeholder Negotiations (3 cr.)
- PPAD 523/5125 - Citizen-centered government (3 cr.)
Group 2: Complete three other courses selected in consultation with the departmental advisor, of which at least two must be PPAD courses. Students are strongly encouraged to take a course in another School of Global Affairs and Public Policy department or center if possible and in particular students in this concentration are strongly recommended to take at least one course in law as a concentration elective.

MPA Concentration 2: Management of Nonprofit and Development Organizations -- 5 courses (15 credits) required

Group 1: Choose two from the following three courses
- PPAD 512/5114 - Management of Development Programs (3 cr.)
- PPAD 517/5126 - Non-profit Management (3 cr.)
- PPAD 526/5128 - Corporate Social Responsibility and NGO Partnerships (3 cr.)

Group 2: Complete three other courses selected in consultation with the departmental advisor, of which at least two must be PPAD courses.
Students are strongly encouraged to take a course in another School of Global Affairs and Public Policy department or center if possible.

Practicum (PPAD 591): 3 credits Graded Pass-Fail
Students are strongly encouraged to undertake a practicum within their concentration, ideally in conjunction with their thesis work.

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 are required to 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 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.

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 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. Those interested in this option are required to complete a summer work assignment for Fall practicum 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. 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:

SEMESTER IX

- CENG 424/4253 - Methods and Equipment for Construction II (2 cr.)
- Eng. Concentration 1 elective
- CENG 448/4460 - Financial Management and Accounting for Construction (3 cr.) (MPA credit)
- CENG Elective (1)
- CENG 431/4351 - Transportation Engineering (3 cr.)
- CENG 490/4980 - Senior Project I (1 cr.) (Capstone Core Level I)
- CENG 497/4951 - Practical Training (1 cr.) (Practicum)

SEMESTER X

- Engineering Concentration 2
- CENG 567/5243 - Construction Leadership and Management Skills (3 cr.)
- CENG 491/4981 - Senior Project II (2 cr.) (Capstone Core Level II)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.) (MPA credit)
- PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.) (MPA credit)
- Science elective (from MDP list)
- Summer internship – public/NGO management focus preferred (MPA credit through 5198)

SEMESTER XI

- PPAD 591/5198 - Practicum (3 cr.) (Capstone Level II) (MPA Credit)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.) (MPA Credit)
- PPAD Elective selected with MPA advisor (MPA Credit)
- Science elective (selected with PPAD advisor)
- PPAD 598/5298 - Research Seminar (0 cr.) (MPA Credit)

SEMESTER XII
Public Policy, with concentrations in Social and Environmental Policy, Promotion and Regulation of Private Sector Development, and Media 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. 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

- 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 - Non-profit Management (3 cr.) (MPA Credit)
- PPAD 599/5299 - Research Guidance (0 cr.) (MPA Credit)

Summer thesis work, if needed.
Lists of MDP-relevant courses will be provided to students in the program prior to registration for each semester, based on offerings available in the appropriate departments.
the program and to identify an area of professional concentration at that time. In addition to coursework, students must complete a thesis consistent with department and university guidelines and complete at least one enrollment in each of the mandatory thesis sequence courses (PPAD 5298 and PPAD 5299, both non-credit).

Core Requirement (18 credit hours):
Students must complete four (4) courses in group 1, one (1) courses in group 2, and one (1) course in group 3.

**Group 1: Complete all four (4) 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 Analysis and Program Evaluation (3 cr.)

**Group 2: Complete one (1) of the following:**
- PPAD 505/5121 - Institutions, Democratization, and Public Policy (3 cr.)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
- PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)
- PPAD 517/5126 - Non-profit Management (3 cr.)
- PPAD 518/5123 - Governance, Accountability, and Stakeholder Negotiations (3 cr.)
- PPAD 519/5124 - Leadership and Communication for Public Affairs (3 cr.)

**Group 3: 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.)

**NOTE:** Students with limited preparation management and social science are strongly encouraged to enroll in PPAD 5111; conversely, students with a background in management and/or social science may not enroll in PPAD 5111 for credit toward the MPP. Students with strong preparation in economics may substitute any course in Group 2 or 3 to complete their Group 1 requirement.

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: Social and Environmental Policy – 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: Required for all students in concentration**
- PPAD 516/5132 - Social and Environmental Policy (3 cr.)

**Group 2: Complete one (1) of the following:**
- PPAD 520/5133 - Global Health Issues and Policies (3 cr.)
- PPAD 524/5129 - Globalization and Development (3 cr.)
- PPAD 525/5127 - Reforming Delivery of Social Services (3 cr.)
- PPAD 526/5128 - Corporate Social Responsibility and NGO Partnerships (3 cr.)

**Group 3: Complete three (3) additional courses selected in consultation with the departmental advisor, of which at least two should be PPAD courses selected in consultation with departmental advisor. Students are strongly encouraged to take at least one (1) course in another School of Global Affairs and Public Policy department or center if possible.**

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: Complete two (2) of the following:**
- PPAD 521/5134 - Government Regulation of Business and Investment (3 cr.)
- PPAD 522/5135 - Promotion of Local Economic Development (3 cr.)
- PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)

**Group 2: Complete two (2) courses from the offerings of the Law and/or Economics Departments**
Selected in consultation with departmental advisor. Students with limited backgrounds in law or economics may take one course at the 400 level in law or economics or select alternative PPAD course(s).

**Group 3: Complete one (1) additional PPAD course selected in consultation with the departmental advisor.**

MPP Concentration 3: Media Policy - 5 courses (15 credits) required

Group 1: Required for all students in the concentration:
- JRMC 444/4444 - Media Law and Policy (3 cr.)
- JRMC 550/5250 - Seminar in International Communication (3 cr.)
- JRMC 570/5270 - Seminar in Mass Communication and National Development (3 cr.)
Group 2: Complete two of the following:

- JRMC 420/4420 - Media Management (3 cr.)
- JRMC 502/5202 - Seminar: Current Issues in Mass Communication (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 and Humanitarian Law (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 are required to 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.

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: Mulki Al Sharmani (SRC), Soraya Altorki (SAPE), Ibrahim Elnur (POLS), Alejandro Lorite Escorihuela (Law), Nadia Farah (POLS), Ferial Ghazoul (ECLT), Barbara Ibrahim (Gerhart Center), Vassiliki Kotini (ECLT), Hoda Lutfi (ARIC), Samia Mehrez (ARIC), Tanya Monforte (Law), Adrienne Pine (SAPE), Helen Rizzo (SAPE), Reem Saad (SRC), Hanan Sabea (SAPE), Mona Said (ECON), Hany Sayed (Law), Amr Shalakany (Law), Hania Sholkamy (SRC), Robert Switzer (PHIL), Mariz Tadros (POLS), Richard Tutwiler (DDC).

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 one of which must be a GWST course. 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 504/5104 - Gender and Migration (3 cr.)
- GWST 506/5106 - Reading Capital (3 cr.)
- GWST 507/5107 - Critical Geographies: Reading the Global South (3 cr.)

**Electives:**
Specialization in Gender and Women's Studies in the Middle East and North Africa

There are three required courses:

- GWST 501/5101 - Approaches to Middle East/ North Africa Gender and Women's Studies (3 cr.)
- GWST 503/5103 - Histories and Theories of Gender and Development (3 cr.)
- GWST 504/5104 - Gender and Migration (3 cr.)

Electives:
The remaining three courses are 500 level electives one of which must be a GWST course. 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 semester only.

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
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: General 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. Prerequisites 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 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- MRS 518/5201 - International Refugee Law (3 cr.)
- MRS 500/5202 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)
- MRS 501/5203 - 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 - 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 Migrants (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.

Forced Migration and Refugee Studies (Graduate Diploma)

Specialized Graduate Diploma in Forced 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 500/5202 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)
- MRS 501/5203 - International Migration & Development (3 cr.)
- MRS 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- MRS 518/5201 - 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 Forced 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 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- MRS 512/5112 - Psychosocial Issues in Forced Migrants (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. Al Mirazi.

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

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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.)
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 JRMC 5200, JRMC 5202, JRMC 5204 and JRMC 5250, sit for comprehensives and enroll for a thesis.

Middle East Studies Program

Director: S. Gamblin

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 - Peoples and Cultures of the 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 Caliphat (3 cr.)
- ARIC 336/3336 - Studies in Ibn Khaldun (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 - Third World 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 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.)
- 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 - Third World 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 2011 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 2101-2102-2103.

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 eight courses:

- An approved 400 or 500 level course in modern Arabic literature.
- ARIC 451/5133 - Islamic Institutions (3 cr.)
- ARIC 542/5231 - Seminar on the Nineteenth-Century Middle East (3 cr.)
  /HIST 5222
- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- GWST 501/5290 - Middle Eastern Societies and Cultures (3 cr.)
- LAW 505/5205 - Islamic Law Reform (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 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 requirement 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 or Anthropology/Sociology.

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 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 309/3504 - History of American Political Thought (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, Ethnicity, and Class (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

School of Humanities and Social Sciences

*Professor:* El S. Badawi

*Associate Professors:* Reem Bassiouney, Raghda El Essawi, Marilyn Plumlee, Robert Williams (Chair), Zeinab Taha

*Assistant Professors:* Lori Fredricks, Atta Gebril

*Professors Emeriti:* Yehia El-Ezabi, Fred Perry, Paul 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 English Language Institute in cooperation with the Anthropology Unit and the Department of Rhetoric and Composition. It offers courses in linguistics anthropology, Teaching English to Speakers of Other Languages (TESOL), or writing in specific genres. The minor is particularly valuable as a complement to majors such as English and comparative literature, Psychology, Sociology, Anthropology, and Journalism and Mass Communication.

Requirements (9 credits):

- LING 200/2201 - Languages of the World (3 cr.)
- LING 252/2200 - Introduction to Linguistics (3 cr.)
- LING 352/3075 - Language in Culture (3 cr.)
  /ANTH 3075

And two of the following elective courses (6 credits)

- ANTH 332/3060 - Social Constructions of Difference: Race, Ethnicity, and Class (3 cr.)
- ANTH 380/3105 - Fieldwork Methods (3 cr.)
- LING 268/2210 - Principles and Practice of Teaching English (3 cr.)
- LING 299/2299 - Selected Topic for Core Curriculum (3 cr.)
- LING 400/4099 - Selected Topics in Linguistics
- LING 422/4212 - Language and Human Development (3 cr.)
RHET 322/3320 - Writing in the Social Sciences (3 cr.)
RHET 325/3340 - The Rhetoric of Argument in the Humanities and Social Sciences (3 cr.)
RHET 334/3250 - Digital Rhetoric (3 cr.)
RHET 400/4360 - Writing and Editing for Publication (3 cr.)
RHET 410/4260 - Writing for Project Funding (3 cr.)

Teaching Arabic as a Foreign Language (M.A.)

Professor: El S. Badawi
Assistant Professors: Z. Taha (Director, Arabic Language Institute), 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 with undergraduate specialization in a modern language other than Arabic must take a number of additional courses in the field of Arabic studies. Applicants who are not specialized in Arabic language will need also to take an entrance exam to be offered by ALI to show that applicant has sufficient command of Arabic to qualify for admission into an Arabic language program. 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.

Language

Non-native speakers of Arabic and holders of 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. The level of language proficiency required for admission is not less than the level 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 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.
Courses

A minimum of 30 graduate credit hours and a thesis are required except as indicated in the "Thesis" section below.

Required of all students

- 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 a Foreign Language II (3 cr.)
- APLN 553/5205 - Sociolinguistics (3 cr.)
- APLN 555/5206 - Seminar on Challenges Facing AFL Teachers (3 cr.)

Electives

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.

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 and 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.)

Professors Emeriti: S. El Araby, Y. El-Ezabi, E, F. Perry, P. Stevens
Associate Professors: R. Bassiouny, M. Plumlee, R. Williams (Chair)
Assistant Professors: L. Fredricks, A. Gebril

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
Applicants for the Master of Arts degree in TESOL must have teaching experience prior to admission into the program, or may 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 500/5303 - English Grammar (3 cr.)
- APLN 501/5301 - Principles of Linguistic Analysis (3 cr.)
- APLN 502/5305 - Assessment in Language Learning (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.)
- APLN 520/5302 - Research Methods in Applied Linguistics (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 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.)
• APLN 570/5311 - Thesis Proposal Writing (3 cr.)

2. Linguistics:
• APLN 521/5320 - English Syntax (3 cr.)
• APLN 540/5370 - Selected Topics in Applied Linguistics (1, 2, or 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.)

3. Cross-linguistic, cross-cultural studies:
• APLN 525/5330 - Language Transfer, Contrastive Analysis, and Error Analysis (3 cr.)
• APLN 540/5370 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)
• APLN 550/5322 - Language Pragmatics (3 cr.)
• APLN 553/5331 - Sociolinguistics (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 a Foreign Language 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: H. Sakkout, M. El Rabie, G. Scanlon.
Distinguished University Professor: N. Hanna.
Associate Professor Emeriti: E. Sartain, H. Lutfi
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 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 (48 credits)

All students must take 24 credit hours as follows:

Arabic literature (6 credits)

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.)

Middle Eastern history (6 credits)
• ARIC 246/2346 - Survey of Arab History (3 cr.)
• ARIC 343/3343 - Birth of Muslim Community and Rise of the Arab Caliphates (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 (6 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)

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 may, if they wish, take a specialization in Middle Eastern History or in Arabic Literature.

Specialization in Middle Eastern History
Students who wish to specialize in this field must take a minimum of 18 of these 24 credits in Middle Eastern history, medieval and modern. These must include two 400-level courses, and at least one course on modern Middle Eastern history. Students may choose from among the following courses offered by the Department of Arab and Islamic Civilizations (ARIC) and by the Department of History (HIST):
• ARIC 320/3020 - Introduction to Sufism (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 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 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 404/5113 - Sira and Hadith (3 cr.)
• ARIC 439/5142 - Islamic Law (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.)
• ARIC 463/5101 - Selected Topics in the History of Islamic Thought and Institutions (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.)
• HIST 454/4219 - Modern Movements in Islam (3 cr.)
• HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)

Specialization in Arabic Literature

Students who wish to specialize in this field must take a minimum of 18 of these 24 credits in Arabic literature, chosen from the list below. It is expected that these courses will be taken in Arabic. However, a student may take up to two Arabic literature courses taught in English, on condition that he/she reads the assigned texts in Arabic. In such cases, the course will be registered for that student under the rubric ARIC 5114, Special Studies in Arabic Texts, 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. As stated above, he/she may use up to 15 credit hours to satisfy 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 - Ceramic Arts 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):
5 courses in Arabic or English 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 - Zawiyas, Harems, Coffee shops, Everyday Life in the Pre-Modern Middle East (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 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 (3 cr.)
• ARIC 454/5134 - Modern Movements in Islam (3 cr.)
• ARIC 463/5101 - Selected Topics in the History of Islamic Thought and Institutions (3 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

A maximum of two 400-level courses may be taken as part of the M.A. program. 300 and 400 level courses may be taken at the 500 level in which case extra readings and research will be required of the graduate student. See below:

- ARIC 510-511/5213-5214 - Special Studies in Classical Arabic Literature (3 cr.)

  OR

- ARIC 512-513/5215-5216 - Special Studies in Modern Arabic Literature (3 cr.)

  OR

- ARIC 521-522/5202-5203 - Special Studies in Islamic Thought and Institutions (3 cr.)

  OR

- ARIC 560 - 561/5233-5234 - Special Studies in Middle Eastern History (3 cr.)

  OR

- 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.

Department of English & Comparative Literature

School of Humanities and Social Sciences

Professors: F. Ghazoul (Chair), J. Rodenbeck (Emeritus), D. Shoukri (Emerita)
Associate Professor: W. Melaney
Assistant Professors: I. Dworkin, V. Kotini, A. Motlagh, N. C. Mujahid

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.)
- 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.)
• 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.

**Writing Minor**

The Minor in Writing introduces and advances the knowledge, understanding and value of rhetoric and writing disciplines at the university. It provides the opportunity for students to study and practice across disciplines of writing, from narrative nonfiction and creative writing, to business and technical writing, to approaches to academic inquiry.

**Requirements (15 credits):**

Students who opt to minor in Writing must have completed RHET 2010 with a minimum grade of B-.

**To fulfill the 15 credits for the Minor in Writing, students take:**

**Required course for each emphasis area:**

- Writing in the Creative Genres: ECLT 3070 (Creative Writing)
- Business/Technical Writing: RHET 3210 (Business Communication)
- Academic Writing: RHET 3310 (Effective Rhetoric: Discourse and Power)

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

- 6-9 credits in one emphasis area (Creativity Genres, Business and Technical, or writing and Society)
- 3 credits in a second emphasis area, and
- 0-3 credits in any area of their choice

**Minor in Writing courses may be double-counted for:**

- Core Curriculum credit at the secondary level
- Core Curriculum credit at the capstone level

**Minor in Writing courses may NOT be double-counted for:**

- Primary Core requirement in Rhetoric and Composition (3-9 credits)
- Major/Concentration credit

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
Students who select this area of emphasis will practice and work toward mastery in several creative genres of writing, including the following: narrative nonfiction, autobiography, travel writing, fiction, poetry, playwriting and children's literature. They will read within 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: Reading as Writers (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. Business/Technical Writing

Students who select this area of emphasis will practice and work toward professional competency in the fields of business, science and technical communications, including the following: business writing, technical writing, proposal writing, and digital rhetoric. 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 225/2220 - Public Speaking (3 cr.)
- RHET 320/3210 - Business Communication (3 cr.)
- RHET 321/3230 - Technical Communication (3 cr.)
- RHET 332/3240 - Presentation and Persuasion in Business (3 cr.)
- RHET 334/3250 - Digital Rhetoric (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.)

C. Writing and Society

Students who select this area will focus on the social power of writing: writing as a force in academic disciplines, writing and cognitive studies, and writing for publication in the various disciplines. Students learn how writing drives thought, genres, and the development of disciplines and consider ethical concerns raised through this practice.

- RHET 310/3310 - Effective Rhetoric: Discourse and Power (3 cr.)
- RHET 322/3320 - Writing in the Social Sciences (3 cr.)
- RHET 323/3330 - Changing Words, Changing Worlds (3 cr.)
- RHET 325/3340 - The Rhetoric of Argument in the Humanities and Social Sciences (3 cr.)
- RHET 330/3350 - Writing and Cognition (3 cr.)
Selected Topics and Independent Study
(Depending on ‘topic,’ these courses may fit in any of above ‘emphasis’ areas each course may be repeated for credit as long as the content differs each time it is taken.)

- RHET 199/1099 - Selected Topics (3 cr.)
- RHET 299/2099 - Selected Topics (3 cr.)
  * Public Speaking
- RHET 399/3099 - Selected Topics (3 cr.)
  * Advanced Style
- RHET 460/4060 - Independent Study (1-3 cr.)

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 ECLT 5106 "Greek Classics and Translation", ECLT 5108 "The History of Literary Criticism", ECLT 5109 "Modern Literary Criticism", and ECLT 5255 "Research Methods in Literature", unless they have taken these courses at the undergraduate level. 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.

Comprehensive Examination
All candidates for the master’s degree will be required to sit for a qualifying examination after completing six courses in the department. The exam will be both written and oral. The exam will cover a list of 30 books, to be submitted by the student one month in advance, and will be prepared in consultation with the adviser. The list must be approved by the student’s adviser and the department chair. Selection will be made from the major periods of Western literature and should include selections from poetry, drama, and prose. If the exam is failed, it may be repeated once. The student will not be permitted to write a thesis until the exam is passed.

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 European 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 in consideration the vocational and intellectual interest of the student. Students will have a choice of four graduate courses in ECLT and two graduate courses in specified Departments/Programs of HUSS.

• 1 ECLT course in Period/Genre/Theme/Author. 3 cr.
• 1 ECLT course in Literary Criticism/Hermeneutics/Philosophical Dimension of Literature. 3 cr.
• 2 ECLT courses in Selected Topics in Comparative Literature. 6 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

School of Humanities and Social Sciences

Professor: J. Edwards, K. Fahmy, N. Gallagher
Associate Professors: D. Blanks (Chair), M. Reimer

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.

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 200 level
  2. including at least two courses in three of the four following areas:
a. The history of the Middle East
b. The history of Europe
c. The history of the United States
d. Comparative Religion courses that are cross-listed as history courses

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 000/4000 - Honors Thesis (3 cr.)
  
  *To be taken in the senior year.*

- HIST 420/4801 - Historical Theory and Methodology (3 cr.)
  
  *To be taken in the senior year in a section limited to Honors students.*

**Eleven additional history courses**

1. Of which at least eight must be above the 200 level
2. Including at least two courses in three of the four following areas:

   a. The history of the Middle East
   b. The history of Europe
   c. The history of the United States
   d. Comparative Religion courses that are cross-listed as history courses

3. Including 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 (3 cr.)
- 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 the Arts

School of Humanities and Social Sciences

Associate Professor: J. Baboukis (Chair of the Department of the Arts)

Visual Cultures Program

Visual Art

*Professor*: B. Ferguson (Dean of the School of Humanities and Social Sciences)

*Assistant Professors*: A. Deebi (Director of Visual Cultures Program), A. Lenssen

*Associate Professor of Practice*: S. El Noshokaty

Film

*Professor*: M. Khouri

*Assistant Professor*: N. Jovanovic
Graphic Design

Associate Professor of Practice: B. Shehab

Music

Music Performance

Associate Professor: J. Baboukis (Chair of the Department of the Arts)
Assistant Professor: C. Green

Music Technology

Associate Professor: W. El-Mahallawy (Director of the Institute for Music Technology)

Theatre

Professors: S. Campbell, M. El Lozy (Director of Theatre Program/ Artistic Director)
Associate Professors: J. Arnold, F. Bradley
Associate Professor of Practice: M. Mineart

Film (B.A.)

Bachelor of Arts in Film

Since its early days, cinema has been one of the most influential art forms of the twentieth century. Uniquely situated in the "film" city of Cairo, the major in film, integrates professional film production training with the study of the historical and theoretical nature of the medium. Another critical component of the degree is studying the dynamics of cinema as a complex cultural, economic, and industrial practice. In conjunction with this academic and professional framework, the degree also provides a balance consideration of international, regional and local facets of the subject. The curriculum covers the following areas: the development of cinema as an art form; the impact of cinema on culture and society; the historical, thematic and stylistic trends within Egyptian and Arab cinema; the development of the theoretical and practical background and appreciation of the art of film making; aesthetic techniques used in production; and the relationship between cinema and the increasingly mediated visual cultures of the world.

Declaration of the Film Major

Students interested in declaring a Film Major are required to take FILM 2120 (introduction to Film), and FILM 2200 (Analogue and Digital Practices). Students with a minimum of B grade average in these FILM courses can apply to declare their Film major. Final recommendation regarding the declaration is made following an interview with the applicant.

The Visual Cultures Programs

The Film major participates in the Visual Cultures Program at AUC, which provides the home for interdisciplinary study in theory and practice across the three individual majors of Visual Art, Graphic Design, and Film. Established within the
Department of the Arts in 2011 in response to the increasingly interdisciplinary character of visual creative practice in the 21st century, the Program offers courses that facilitate research-driven creative practice and the critical study and conscious use of diverse visual media in cultural context.

As a contemporary "visual culture" is a necessarily open-ended field in continual transformation, the Visual Cultures Program is a work in progress. It currently supports two introductory courses: the studio course Analogue and Digital Practices, which is cross-listed as ARTV 2200, DSGN 2200, and FILM 2200 and offers foundational study in visual research in a cross-disciplinary environment; and the lecture course Introduction to Visual Cultures, which is cross-listed as ARTV 2113, DSGN 2113, and FILM 2113 and provides students with a primer in the key terms and concepts for the analysis of visual texts past and present.

**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 (54 credits)**

- FILM 200/2200 - Analogue and Digital Practices (3 cr.)
- FILM 220/2120 - Introduction to Film (3 cr.)

1. Film Theory and Aesthetics (21 credits)

- FILM 213/2113 - Introduction to Visual Cultures (3 cr.)
- FILM 330/3130 - Film Theory and Criticism (3 cr.)
  Choose **FIVE** from among the following:
  - FILM 341/3041 - Anthropology and Film (3 cr.)
  - FILM 370/3070 - Selected Topics in Film (3 cr.)
  - FILM 310/3110 - History of World Cinema (3 cr.)
  - FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)
  - FILM 340/3140 - Documentary Film (3 cr.)
  - FILM 360/3160 - The Filmmaker (3 cr.)
  - FILM 390/3190 - Film Genres (3 cr.)
  - FILM 470/4370 - Advanced Seminar in Film Study and Research (3 cr.)
  - FILM 402/4402 - Independent Study (1-3 cr.)

2. Film Production (15 credits)

- FILM 351/3251 - Digital Editing (3 cr.)
- FILM 353/3253 - Digital Cinematography (3 cr.)
  Choose **THREE** from among the following:
  - FILM 000/2201 - Acting I (3 cr.)
• FILM 000/2211 - Acting in Arabic I (3 cr.)
• FILM 357/3257 - Screenwriting (3 cr.)
• FILM 336/3306 - Sound for Picture Production (3 cr.)
• FILM 450/4250 - Senior Film Project (3 cr.)
• ARTV 204/2204 - Introduction to Time-Based Media (3 cr.)
• ARTV 230/2230 - Introduction to Digital Photography (3 cr.)
• DSGN 335/3235 - Animation (3 cr.)
• MUSC 334/3304 - Music Production for Visual Media (3 cr.)
• MUSC 337/3307 - Music for Film (3 cr.)
• THTR 204/2401 - Introduction to Technical Theatre (3 cr.)
• THTR 324/3401 - Design for the Theatre (3 cr.)

3. Film as Cultural Industry (12 credits)
Choose FOUR from among the following:
• FILM 352/3352 - The Film Industry (3 cr.)
• FILM 354/3354 - Film Audience and Reception (3 cr.)
• FILM 370/3070 - Selected Topics in Film (3 cr.)
• FILM 452/4352 - The Arab and Egyptian Film Industries: National and Global Perspectives (3 cr.)
• FILM 456/4356 - Experiential Learning in Film (3 cr.)
• FILM 470/4370 - Advanced Seminar in Film Study and Research (3 cr.)

Collateral Requirements (9 credits)
Choose THREE from among the following:
Any of the remaining FILM courses:
• ANTH 202/2101 - Cultural Anthropology (3 cr.)
• ARIC 306/3106 - Arabic Literature and Film (3 cr.)
• ECLT 411/4011 - History of Literary Criticism (3 cr.)
• JRMC 420/4420 - Media Management (3 cr.)
• MUSC 331/2301 - Music Production Using Protools I (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.)

Electives (17 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 course work 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 four courses in the program: DSGN 2200 (Analogue and Digital Practices), DSGN 2113 (Introduction to Visual Cultures), DSGN 2201 (Design I) and DSGN 2115 (History of Graphic Design). After the completion of these four courses, students are requested to sit for a portfolio interview where their work is evaluated by a committee. 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.

The Visual Cultures Program

The Graphic Design major participates in the Visual Cultures Program at AUC, which provides the home for interdisciplinary study in theory and practice across the three individual majors of Visual Arts, Graphic Design, and Film. Established within the Department of the Arts in 2011 in response to the increasingly interdisciplinary character of visual creative practice in the 21st century, the Program offers courses that facilitate research-driven creative practice and the critical study and conscious use of diverse visual media in cultural context.

As contemporary "visual culture" is a necessary open-ended field in continual transformation, the Visual Cultures Program is a work in progress. It currently supports two introductory courses: the studio course Analogue and Digital Practices, which is cross-listed as ARTV 2200, DSGN 2200, and FILM 2200 and offers foundational study in visual research in a cross-disciplinary environment; and the lecture course Introduction to Visual Cultures, which is cross-listed as ARTV 2113, DSGN 2113, and FILM 2113 and provides students with primer in the key terms and concepts for the analysis of visual texts past and present.

Major Requirements

A total of 120 credits are required for the bachelor's degree in Graphic Design.

Core Curriculum (40 credits)

Concentration Requirements (27 Credits)

- DSGN 200/2200 - Analogue and Digital Practices (3 cr.)
- DSGN 201/2201 - Design I (3 cr.)
- DSGN 210/2210 - Typography I (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 (27 credits)

1. Professional Practice, Choose FOUR:

• DSGN 202/2202 - Design II: Logo and Corporate Identity (3 cr.)
• DSGN 303/3203 - Design III: Publication (3 cr.)
• DSGN 304/3204 - Design IV: Packaging (3 cr.)
• DSGN 305/3205 - Design V: Retail Design (3 cr.)
• DSGN 320/3220 - Typography II (3 cr.)
• DSGN 330/3230 - Typography III (3 cr.)
• DSGN 365/3265 - Advertising and Branding (3 cr.)

2) Technical Practice, Choose THREE:

• DSGN 240/2240 - Color (3 cr.)
• DSGN 245/2245 - Illustration (3 cr.)
• DSGN 313/3213 - Web Design (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 - Professional Practice (3 cr.)
• DSGN 410/4210 - Portfolio (3 cr.)
• ARTV 201/2201 - Introduction to Drawing (3 cr.)
• ARTV 230/2230 - Introduction to Digital Photography (3 cr.)

3. History and Theory, choose TWO:

• DSGN 315/3115 - History of Graphic Design in the Arab world (3 cr.)
• DSGN 317/3117 - History of Advertising in the Arab World (3 cr.)
• DSGN 318/3118 - History of Arabic Calligraphy (3 cr.)
• ARIC 368/3268 - The Art of the Book in the Islamic World (3 cr.)

Collateral Requirements (6 credits):

Choose two:
• 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 410/4110 - Contemporary issues in Arab Art (3 cr.)
• FILM 220/2120 - Introduction to Film (3 cr.)
• FILM 310/3110 - History of World Cinema (3 cr.)
• FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)
• FILM 354/3354 - Film Audience and Reception (3 cr.)
• FILM 452/4352 - The Arab and Egyptian Film Industries: National and Global Perspectives (3 cr.)
• THTR 324/3401 - Design for the Theatre (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, i.e. 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 Protools 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 Protools 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 Protools II (3 cr.)

Electives (24 credits)

Theatre (B.A.)
The Department of the Arts offers both a bachelor's degree and three minors 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 350/2101 - Survey of Dramatic Literature (3 cr.)
- THTR 351/3101 - History of the Theatre I : Greek to Renaissance (3 cr.)
- THTR 460/4101 - Modern and Contemporary Drama (3 cr.)
- THTR 461/4103 - Dramatic Theory and Criticism (3 cr.)
• THTR 490/4703 - Senior Thesis (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. per production)

Four courses in the department to be chosen among the following:

• THTR 226/2211 - Acting in Arabic I (3 cr.)
• THTR 227/3201 - Acting II (3 cr.)
• THTR 327/3203 - Special Topics in Acting (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 (Studio I, II, III, and IV) designed to foster
independent work at an advanced level, followed by a year-long Senior Studio 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 a Visual Arts major, students must have completed four courses in the program: ARTV 2200 (Analogue and Digital Practices), ARTV 2113 (Introduction to Visual Cultures), and two more Visual Arts studio courses. Final recommendation is made by the Visual Arts faculty after an interview and portfolio review.

The Visual Cultures Program

The Visual Arts major participates in the Visual Cultures Program at AUC, which provides the home for interdisciplinary study in the theory and practice across the three individual majors of Visual Arts, Graphic Design, and Film. Established within the Department of the Arts in 2011 in response to the increasingly interdisciplinary character of visual creative practice in the 21st century, the program offers courses that facilitate research-driven creative practice and the critical study and conscious use of diverse visual media in cultural context.

As contemporary "visual culture" is a necessarily open-ended field in continual transformation, the Visual Cultures Program is a work in progress. It currently supports two introductory courses: the studio course Analogue and Digital Practices, which is cross-listed as ARTV 2200, DSGN 2200, and FILM 2200 and offers foundational study in visual research in a cross-disciplinary environment; and the lecture course Introduction to Visual Cultures, which is cross listed as ARTV 2113, DSGN 2113, and FILM 2113 and provides students with a primer in the key terms and concepts for the analysis of visual texts past and present.

Major Requirements

A total of 120 credits are required for the bachelor's degree in Visual Arts:

Core Curriculum (40 credits)

Concentration requirements (27 credits)

- ARTV 200/2200 - Analogue and Digital Practices (3 cr.)
- ARTV 213/2113 - Introduction to Visual Cultures (3 cr.)
- ARTV 311/3211 - Art Studio I (3 cr.)
- ARTV 312/3212 - Art Studio II (3 cr.)
- ARTV 315/3115 - Art Theory (3 cr.)
- ARTV 411/4211 - Studio III (3 cr.)
- ARTV 412/4212 - Studio IV (3 cr.)
- ARTV 469/4269 - Senior Project (A) (3 cr.)
ARTV 470/4270 - Senior Project (B) (3 cr.)

**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 205/2205 - Introduction to Alternative Practices (3 cr.)
- ARTV 000/2206 - Experimental Animation Art (3 cr.)
- ARTV 230/2230 - Introduction to Digital Photography (3 cr.)
- ARTV 370/3270 - Selected Topics in Art (3 cr.)
- ARTV 410/4110 - Contemporary issues in Arab Art (3 cr.)
- DSGN 250/2250 - Digital Practice I (3 cr.)

**Collateral Requirements (6 credits)**

Choose TWO:

- DSGN 215/2115 - History of Graphic Design (3 cr.)
- DSGN 210/2210 - Typography I (3 cr.)
- DSGN 315/3115 - History of Graphic Design in the Arab world (3 cr.)
- DSGN 318/3118 - History of Arabic Calligraphy (3 cr.)
- FILM 220/2120 - Introduction to Film (3 cr.)
- FILM 330/3130 - Film Theory and Criticism (3 cr.)
- FILM 353/3253 - Digital Cinematography (3 cr.)
- FILM 354/3354 - Film Audience and Reception (3 cr.)
- FILM 470/4370 - Advanced Seminar in Film Study and Research (3 cr.)
- PHIL 310/3010 - Philosophy and Art (3 cr.)

**Elective (16 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 1800-1801, 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 MUSC 2850-2851-2852, 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 (55 - 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 (26 - 31 cr.)

• MUSC 280-281/1800-1801 - Applied Private Instruction (1 cr.)
• MUSC 282-283/2800-2801 - Applied Private Instruction (1 cr.)
• MUSC 480-481-482-483/4800-4801-4802-4803 - Advanced Applied Private Instruction (3 cr.)
• MUSC 492/4980 - Capstone Final Recital (3 cr.)

Eight semesters of ensemble, chosen from among the following:

• MUSC 262-362-462/2620-2621-2622 - Arab Music Ensemble (1 cr.)
• MUSC 263-363-463/2630-2631-2632 - Guitar Ensemble (1 cr.)
• MUSC 264-364-464/2640-2641-2642 - Chamber Music Ensembles (1 cr.)
• MUSC 265-365-465/2650-2651-2652 - Rehearsal/Performance Practicum (1 cr.)
All students entering the B.M.A. are required to take the music literacy placement exam. Those who do not achieve a passing grade are required to take the following:
MUSC 180/1805 - How to Read Music (3 cr.)
All students with 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 284-285-286/2850-2851-2852 - Private Instruction for Piano Proficiency (1 cr.each)

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.

Digital Media Minor

A minor in Digital media will help students understand creativity in the digital sphere. From web design to animation to different technical skills, students will be exposed to thinking and working in the digital world. Students will develop ideas and projects for TV, the Web and different digital platforms.

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 minor declaration, DSGN 2113 and DSGN 2200.

Requirements (15 credits):

Choose FIVE from the following:
• DSGN 200/2200 - Analogue and Digital Practices (3 cr.)
• DSGN 213/2113 - Introduction to Visual Cultures (3 cr.)
• DSGN 250/2250 - Digital Practice I (3 cr.)
• DSGN 313/3213 - Web Design (3 cr.)
• DSGN 335/3235 - Animation (3 cr.)
• DSGN 350/3250 - Digital Practices II (3 cr.)

Film Minor
Minor Requirements:
All Film minor students must complete 18 credit hours of course work as follows:

Complete THREE Foundation Courses (9 credits)

- FILM 200/2200 - Analogue and Digital Practices (3 cr.)
- FILM 220/2120 - Introduction to Film (3 cr.)
- FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)

Choose TWO Survey Courses (6 credits)

- FILM 310/3110 - History of World Cinema (3 cr.)
- FILM 340/3140 - Documentary Film (3 cr.)
- FILM 341/3041 - Anthropology and Film (3 cr.)
- FILM 351/3251 - Digital Editing (3 cr.)
- FILM 352/3352 - The Film Industry (3 cr.)
- FILM 353/3253 - Digital Cinematography (3 cr.)
- FILM 354/3354 - Film Audience and Reception (3 cr.)
- FILM 360/3160 - The Filmmaker (3 cr.)
- FILM 390/3190 - Film Genres (3 cr.)
- FILM 456/4356 - Experiential Learning in Film (3 cr.)

Choose ONE from the Following Senior Courses (3 credits)

- FILM 450/4250 - Senior Film Project (3 cr.)
- FILM 470/4370 - Advanced Seminar in Film Study and Research (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 1800-1801 Applied Private Instruction (1 cr. each = 2 cr.)

Two semesters of ensemble, chosen from among the following:

• MUSC 262-362-462/2620-2621-2622 - Arab Music Ensemble (1 cr.)
• MUSC 263-363-463/2630-2631-2632 - Guitar Ensemble (1 cr.)
• MUSC 264-364-464/2640-2641-2642 - Chamber Music Ensembles (1 cr.)
• MUSC 265-365-465/2650-2651-2652 - Rehearsal/Performance Practicum (1 cr.)
• MUSC 266-366-466/2660-2661-2662 - Chamber Singers (1 cr.)
• MUSC 267-367-467/2670-2671-2672 - 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 Protools 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 Protools 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 284-285-286/2850-2851-2852** - Private Instruction for Piano Proficiency (1 cr. each)

**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 Protools 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. per production)
  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 350/2101 - Survey of Dramatic Literature (3 cr.)
• THTR 351/3101 - History of the Theatre I: Greek to Renaissance (3 cr.)
• THTR 460/4101 - Modern and Contemporary Drama (3 cr.)
• THTR 461/4103 - Dramatic Theory and Criticism (3 cr.)
  One additional Theatre 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 minor declaration, DSGN 2113 DSGN 2200.

Requirements (15 credits):

Choose FIVE from the following:
• DSGN 200/2200 - Analogue and Digital Practices (3 cr.)
• DSGN 210/2210 - Typography I (3 cr.)
• DSGN 213/2113 - Introduction to Visual Cultures (3 cr.)
• DSGN 318/3118 - History of Arabic Calligraphy (3 cr.)
• DSGN 320/3220 - Typography II (3 cr.)
• DSGN 330/3230 - Typography III (3 cr.)

Department of Philosophy

School of Humanities and Social Sciences

Professors: S. Stelzer (Chair), E. Wolf-Gazo, W. Lammi (Emeritus), G. Harman (Distinguished University Professor)
Associate Professors: R. Switzer (Dean of Undergraduate Studies & Director of Core Curriculum), N. Bowditch (Dean of the School of Humanities and Social Sciences), C. Belo, R. Fincham
Assistant Professors: R. Pandya, G. Rae, S. Singh, A. Topa
Post-Doctorate Teaching Fellows: M. Crippen, R. Weiss
Visiting Assistant Professor: J. Blum

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. It is strongly recommended that students majoring in Philosophy minor in another discipline and to explore other areas of study offered by the university. Forty-two 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.

To major in Philosophy, students must have taken PHIL 2100 with not less than a "B" grade. In addition, they must have a minimum of 2.4 overall GPA.

PHIL 2100 is prerequisite for all philosophy courses except PHIL 1010, PHIL 1099 and PHIL 2010.

Core Curriculum (40 credits)

Required Courses (12 credits)

- PHIL 312/3001 - Ancient Philosophy (3 cr.)
- PHIL 313/3002 - Medieval Philosophy (3 cr.)
- PHIL 314/3003 - Modern Philosophy (3 cr.)
- PHIL 316/3004 - Twentieth Century Philosophy (3 cr.)

Area Electives (9 credits)

Two of the following:

- PHIL 230/2113 - Introduction to Ethics (3 cr.)
- PHIL 258/2117 - Political Philosophy (3 cr.)
- PHIL 310/3010 - Philosophy and Art (3 cr.)
- PHIL 318/3012 - Theory of Knowledge (3 cr.)
- PHIL 402/5111 - Metaphysics (3 cr.)

One of the following:

- PHIL 418/5114 - Philosophical Masterpieces (3 cr.)
- PHIL 420/5115 - Philosophical Figures (3 cr.)

Electives in Philosophy (21 credits)

Any seven courses in philosophy excluding 1000-level courses, PHIL 220/2100 - Philosophical Thinking (core curriculum requirement) (3 cr.), and PHIL 299/2099 - Selected Topics for Core Curriculum (3 cr.).

General Electives (38 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. PHIL 2100 is prerequisite for all philosophy courses except PHIL 1010, PHIL 1099, and PHIL 2010.

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 of 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 500/5201 - Classical Western Philosophy (3 cr.)
- PHIL 501/5202 - Advanced Seminar in Islamic Philosophy (3 cr.)
- PHIL 504/5203 - Kant and Idealism (3 cr.)
- PHIL 505/5204 - Advanced Seminar in Phenomenology (3 cr.)

**Optional Philosophy Graduate Courses:**

- PHIL 502/5111 - Metaphysics (3 cr.)
- PHIL 503/5199 - Selected Topics in Philosophy (3 cr.)
- PHIL 510/5112 - Advanced Seminar in Aesthetics (3 cr.)
- PHIL 517/5113 - Current Trends in Philosophy (3 cr.)
- PHIL 518/5114 - Philosophical Masterpieces (3 cr.)
- PHIL 520/5115 - Philosophical Figures (3 cr.)
- PHIL 530/5116 - Advanced Ethics (3 cr.)
- PHIL 458-558/5119 - Advanced Seminar in Political Philosophy (3 cr.)
Department of Political Science

School of Humanities and Social Sciences

Professor Emeriti: E. Hill, E. Sullivan, A. Lesch, S. El Musa

Professors: I. Ivekovic, W. Kazziha, B. Korany, D. Tschirgi, N. Farah, A. Ezel Arab

Associate Professors: R. El Mahdi, I. El Nur (Chair), M. Kassem, J. Maswood, E. Fishere, H. Albrecht,

Assistant Professors: S. Mc-Mahon, R. Bahi, N. Sika, M. Pinfari, N. Badawi, K. Koehler

Associate Professor of Practice: G. Soltan

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 credits in Political Science as follows:

A. Concentration requirements: 27 cr. or 30 cr.
B. Political Science Specialization 9 cr.
C. Honors Requirements 9 cr.

A. Concentration Requirements: (27 or 30 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 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.)
  /HIST 206
• POLS 301-302/3201-3202 - History of Political Theory (3 cr. per semester) (POLS 3201 or 3202)
• 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 - International Relations (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 crs.

If the student does not opt for a specific specialization the (9) 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.

• Honor Seminar POLS 4000 (3 credits)
• Methodology course POLS 4104 (3 credits)
• Senior Year Thesis POLS 4099 (3 credits)

Other Requirements:

Students must complete the general electives and the collateral courses required of all Political Science majors, depending on the number of core curriculum credits taken to make up 120 credits total. Before registering in the 400 and 500 level course students will normally have taken the concentration requirements, or its equivalent.

Political Science, with specializations in General Political Science, International Relations, Middle East Politics, and Political Economy (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 must take either POLS 1001 or POLS 2003. POLS 1001 may only be taken in the Freshman Year by students who have a minimum of 2.5 GPA and will fulfill the Social Science requirement at the primary level of the Core Curriculum and will not be counted as part of the 45 credits required for the Political Science major. POLS 2003 must be taken after the Freshman Year and for those who have not taken POLS 1001. Students wishing to transfer from another major after their sophomore year will be considered on a case by case basis. Junior-year (300-level) courses are
required in four subfields and are prerequisite to the more advanced courses and seminars (400-level). Each semester a selection of 300 and 400 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 credits) to be taken as follows:

1. if POLS 1001 has already been taken in the Freshman Year:
   27 credits (9 courses) in the concentration plus 18 credits (6 courses) as electives.
2. if POLS 1001 has not been taken in the Freshman Year:
   30 credits (10 courses) in the concentration plus 15 credits (5 courses) as electives.

Collateral requirements: (6 or 9 credits)

General Electives: (26-29 credits)

All Political Science major and minor students must abide with the following regulations:

- ENGL 0210 is a prerequisite to POLS 1001 or POLS 2003
- RHET 1000 is a prerequisite to POLS 2104 and all 300 level POLS courses
- RHET 1100 May be taken concurrently with POLS 2104 and 300 level POLS courses
- RHET 2010 is prerequisite to all 400 level POLS courses

For all Political Science students:

Political Science concentration requirements (27 or 30 credits)

- 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 204/2104 - Introduction to Research Methods in Political Science (3 cr.)
- POLS 205/2403 - Europe in the Age of Revolution and Reform (1789-1914) (3 cr.)
  or POLS 2404 Europe in International Politics in the Twentieth Century
  Students specializing in International Relations are strongly encouraged to take POLS/HIST 206)
- POLS 301-302/3201-3202 - History of Political Theory (3 cr. per semester)
- 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 - International Relations (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. Minoring is optional. Courses taken as collateral requirements may count towards the minor.

Students have the choice to use the 18 elective credits in Political Science (or 15 elective credits if they had to take POLS 2003 to fulfill their concentration requirements) to obtain 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

Three courses are required for each specialization as specified below.

Students opting for a double specialization need to be encouraged to take a combination of courses from the two specializations rather than having to stick to the History courses required for one of the specializations.

1. Requirements for the General Political Science field:

Students must take five or six Political Science courses, one of which must be a seminar.

*Collateral Requirements (6 credits)*
*General Electives (29 credits)*

Depending on the number core curriculum credits taken to make up 120 credits total.

2. Requirements for the Specialization in International Relations

To specialize in International Relations, Political Science majors must, as a minimum, take the following three courses:

**Requirements:**
- POLS 405/4605 - International Politics in the Middle East (3 cr.)
- POLS 409/4609 - Seminar: International Organization (3 cr.)
- POLS 410/4610 - International Security (3 cr.)
  or
- POLS 411/4611 - Contemporary Foreign Policies (3 cr.)

**Options:**

To further their understanding in this specialization, students have the option to take a number of recommended courses including:
- 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 (9 credits)**
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

Two additional history courses 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.)
Electives (26 credits)
Depending upon the number of core curriculum credits taken.

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 in 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 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)
- Modern Middle East History at 300 or 400 level Credits: (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

General Electives (29 credits)
Depending on the number of core curriculum credits taken.

4. Requirements for the Specialization in Political Economy
To specialize in Political Economy, Political Science majors must, as a minimum, take the following three courses:

Requirements:
- POLS 351/3551 - Theory and History of Political Economy (3 cr.)
- POLS 424/4524 - Political Economy of the Middle East and North Africa (3 cr.)
• POLS 425/4525 - Global Political Economy (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 442/4542 - Environmental Politics (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)
Depending on the number of core curriculum credits taken.

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.

Interested students have the option of starting the Dual Degree in the sixth semester of the political science BA at AUC. During the fifth semester (i.e., before the semester in which s/he enrolls in 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.

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 514/5214 - Human Rights in the Middle East (3 cr.) * (2 out of 3 starred courses required)
LAW 519/5219 - Human Rights in Africa (3 cr.) * (2 out of 3 starred courses required)
LAW 513/5213 - The European System of Human Rights Protection (3 cr.) * (2 out of 3 starred courses required)
LAW Electives**

SEMESTER X (MA IHRL program)

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

SEMESTER XI (MA IHRL program)

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

** 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 - International Relations (3 cr.)

**Additional Requirements**

Plus **three** courses (**two** courses, if POLS 2003 had to be taken) chosen from:

- POLS 405/4605 - International Politics in the Middle East (3 cr.)
- POLS 409/4609 - Seminar: International Organization (3 cr.)
- POLS 411/4611 - Contemporary Foreign Policies (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.)

**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**

and **four** courses (**three** courses if POLS 202 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 in the Middle East (3 cr.)
  See footnote one.
- 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. 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)

**Notes:**

Footnote 1: The requirement that POLS 3620 be taken as a prerequisite for POLS 4605 may be waived for minors with the consent of the instructor.

**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 I (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 351/3551 - Theory and History of 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 424/4524 - Political Economy of the Middle East and North Africa (3 cr.)

- POLS 442/4542 - Environmental Politics (3 cr.)

**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 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 535/5235 - Middle East Politics (3 cr.)
  
  *(1st semester)*

- POLS 558/5258 - Comparative Politics and the Middle East (3 cr.)
  
  *(2nd semester)*

- POLS 530/5230 - Regime Change and Democratization (3 cr.)
(or Tubingen equivalent 3rd semester)

- POLS 545/5245 - Development Politics and International Cooperation (3 cr.)

(3rd semester)

Plus- elementary German Proficiency.

Plus four 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

All specializations require the following course:

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 530/5230 - Regime Change and Democratization (3 cr.)
- POLS 558/5258 - Comparative Politics and 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 Theory (3 cr.)
- POLS 525/5225 - International Political Economy (3 cr.)

In addition, three 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 Theory (3 cr.)
- POLS 504/5204 - Advanced Political Science Methods (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 505/5205 - Identity, Culture and Norms in World Politics (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, three courses 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 584/5284 - Practicum: Internship or Research (3 cr.)
- POLS 585/5285 - Project Seminar (3 cr.)
- POLS 586/5286 - Skills in Development Practice (3 cr.)

Plus one course from the following:

- POLS 501/5201 - Comparative Theory (3 cr.)
- POLS 503/5203 - International Relations Theory (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 are strongly encouraged to take up to six hours of 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 Sociology, Anthropology, Psychology, and Egyptology

Anthropology

*Professor Emeritus:* D. Cole, N. Hopkins

*Professor:* S. Altorki

*Associate Professor:* R. Saad, H. Sabea (Chair)

*Assistant Professors:* H. Al-Rustom, M. Tabishat, M. Khayyat, M. Anawati, M. Westmoreland

Assistant Professor and Post-Doctoral fellow: R. Aly

Sociology

*Professor Emeritus:* Dr. S. Ibrahim

*Professor:* M. Abaza (Chair fall 2013)

*Associate Professors:* N. Nosseir, H. Rizzo

*Assistant Professors:* A. Holmes, I. Morrison, A. Parrs, M. Rouchdy, M. Ryan

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 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:* K. Weeks

*Professors:* F. Haikal, S. Ikram, J. Swansan (Associate Provost)

*Associate Professor:* M. Ayad

*Assistant Professors:* L. Sabbahy

*Assistant Professor & Post Doc Fellow:* E. Salgues
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.

**Psychology**

*Professor Emeritus: O. Farrag*
*Professor: C. Forden, H. Zaky*
*Associate Professors: A. Justus, M. Amer, H. Henry*
*Assistant Professors: A. Carrillo, B. Settleage*
*Assistant Professor & Post Doc Fellow: K. Ellis*

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 infancy to adulthood. This development is studied against a background of major theoretical and applied domains of psychology, concentrating on important aspects of individual, group, and cultural dynamics.

**Sociology - Anthropology**

*Professor Emeriti: A. Cole, N. Hopkins, S. Ibrahim*
*Professors: S. Altorki, M. Abaza (Chair fall 2013)*
*Associate Professors: N. Nosseir, H. Rizzo, H. Sabea, R. Saad*
*Assistant Professors: A. Holmes, I. Morrison, A. Parris, S. Perdigon, M. Rouchdy, M. Succarrie, M. Tabishat, M. Westmoreland*

**Anthropology (B.A.)**

Anthropology is the comparative study of peoples, societies, and cultures in all their variations across time and space. Anthropology spans the social and natural sciences as well as the humanities, offering interpretations of all aspects of human life. It consists of four sub-disciplines – socio-cultural, linguistics, archaeology and physical Anthropology. Anthropology at AUC focuses on cultural and social anthropology. The Unit is committed to basic and applied research as a crucial underpinning for offering critical, reflexive and empirically informed interpretations of global and historical cultural diversity. Our emphasis on research is complemented by a critical engagement with classic and more recent theoretical orientations in the field of anthropology. The research and teaching interests of the Department range from the anthropology of development, economic anthropology, gender and feminism, kinship studies, the anthropology of religion and symbolic systems, psychological anthropology, medical anthropology, to colonialism, power, identity and globalization.

**Bachelor of Arts**

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.

A student who wishes to declare a major in anthropology should be registered in or have taken ANTH 2101. Every student must obtain a "C" or higher in ANTH 2101 in order to continue as a major in anthropology.

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 - Peoples and Cultures of the Middle East and North Africa (3 cr.)
- ANTH 382/3302 - Peoples and Cultures of Sub-Saharan Africa (3 cr.)
- ANTH 384/3303 - Peoples and Cultures of Latin America (3 cr.)
- ANTH 386/3304 - Peoples and Cultures 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.

**Collateral Requirements (21 credits)**

- Two 300 or 400 level courses in the social sciences
- A minor (five courses) in any field to be selected in consultation with the advisor.

**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 who wishes to declare a major in Egyptology should be registered in or have taken an Egyptology course, and have an overall GPA of 2.7 to declare the major, and maintain a 2.7 in order to remain in the major.

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.)
- EGPT 353/5151 - Hieroglyphics III (3 cr.)
- EGPT 402/5153 - Hieroglyphics IV (3 cr.)
- EGPT 440/4040 - Ancient Egyptian Religion and Ethics (3 cr.)

From among the following (12 credits):
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)

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 aim of psychology at AUC is to provide students with a solid background in the current major areas of the discipline. It will give them insights which can be of personal as well as of practical value in many other occupations. In addition, the program will prepare students wishing to continue further studies leading to a professional career.

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 taken or be currently enrolled in PSYC 2000. Based on the availability of space, a limited number of students who have successfully completed these courses and who meet the GPA requirements as determined by the department will be accepted in the major.

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)

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 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.

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.

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.)
  See footnote one.
- SOC 381/3105 - Doing Survey Research in the Social Sciences (3 cr.)
- SOC 450/4106 - Third World 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 300 level courses in sociology

Three additional 400 level courses in sociology

**Collateral Requirements (24 credits)**

Three of the following courses:

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- ANTH 380/3105 - Fieldwork Methods (3 cr.)
- CSCE 102/1002 - Introduction to Computers and their Applications (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- JRMC 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.

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 through the Anthropology, Sociology and Psychology units. Students need to consult the academic advisor in the SAPE Department 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.)
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

Advisor: H. Sabea (Anthropology)

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, Anthropology, Psychology, and Egyptology 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 - Third World Development (3 cr.)
- ANTH 462/4065 - Culture, Economy and the Everyday (3 cr.)
- ANTH 492/4070 - Political Anthropology (3 cr.)
- ECON 224/2091 - Economic History (3 cr.)
- ECON 310/3013 - Public Finance (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 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 - Third World Development (3 cr.)

Approved Area-Studies Courses:

- ANTH 312/3301 - Peoples and Cultures of the Middle East and North Africa (3 cr.)
- ANTH 382/3302 - Peoples and Cultures of Sub-Saharan Africa (3 cr.)
- ANTH 384/3303 - Peoples and Cultures of Latin America (3 cr.)
- ANTH 386/3304 - Peoples and Cultures 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 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:
• 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):
All three of the following:
• 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.)

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 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
• EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)
• EGPT 440/4040 - Ancient Egyptian Religion and Ethics (3 cr.)

Psychology Minor

The minor in psychology provides a general introduction to the field without the depth of methodological training required of majors.
A limited number of students are accepted into the Psychology minor. To declare a minor students must have completed PSYC 1000 and have obtained a grade of "B" or higher, as well as additional requirements, including the GPA as determined by the department. Selection of classes should be approved in consultation with the psychology faculty.

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. Psychology minors are permitted to enroll in any psychology courses for which they meet the requirements.

**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.

• One 300-level sociology course
• One 400-level sociology course
• SOC 201/2101 - Introduction to Sociology (3 cr.)
• SOC 309/3102 - History of Social Theory (3 cr.)
• SOC 381/3105 - Doing Survey Research in the Social Sciences (3 cr.)

**Community Psychology (M.A.)**

**Master of Arts in Community Psychology**

The Master of Arts in Community Psychology is administrated by the graduate program in Counseling and 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.

**Admission**
The applicant should have a minimum of 3.0 GPA in undergraduates studies; if the student has an MA 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 filed, or have relevant work experience.

**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 - Community and Group Interventions (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 596/5263 - Internship in Community Psychology (3 cr.)

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 Master of Arts in Counseling Psychology is administrated by the graduate program in Counseling and Community 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 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 an MA 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 15 credits (or equivalent) in psychology or related social/behavioral sciences including: Statistics, Research Design, and Psychopathology.

Language Requirement

The applicant should demonstrate proficiency in the English language in accordance with AUC standards

Courses (42 credit hours)

Course work for the Master of Art requires the completion of 42 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 504/5291 - 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 - Community and Group Interventions (3 cr.)

2. Specialization courses:

18 credits / 6 courses

- PSYC 506/5261 - Psychopathology and Resilience across Cultures (3 cr.)
- PSYC 510/5241 - Theories of Counseling and Psychotherapy (3 cr.)
- PSYC 515/5251 - Psychological Assessment (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.
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:

1. Art, Archaeology and History
2. Language, Literature and Religion
3. 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.

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), 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. These 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.

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 filed 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 the knowledge and skills necessary to understand, critically engage with, and effect change in local, regional, and global communities. Its longstanding tradition of combining scholarship with a commitment to social, economic, and political justice, alongside the quality and diversity of its students and faculty, make the program a dynamic environment for learning and research. The program emphasizes an interdisciplinary approach to social theory and research. As such, participating faculty focus on a broad set of issues, including media and public culture, memory and social history, power and inequality, development and contentious politics, migration, and transnational studies, as well as gender, religion, and urban studies. The vibrant and cosmopolitan city of Cairo makes the program's location ideal for students interested 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, however, encourages and accepts applications from all interested and qualified applicants.

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.

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. 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.

Thesis

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.

Community Psychology (Graduate Diploma)

The Graduate Diploma in Community Psychology is administrated by the graduate program in Counseling and Community Psychology. The 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 complete students' existing knowledge 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.)
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. For students pursuing a dual degree, a maximum of two courses from their Master's degree can double count towards the diploma.

European Studies

Director: J. Edwards
Faculty: I. Ivekovic, W. Melaney

Development Studies Committee

Coordinator: H. Rizzo (Sociology)
Coordinating Committee Members: T. Abdel Malek (Economics), A. Beshai (Economics), J. Bremer (Director of Public Policy and Administration Program), J. El Nur (Political Science), S. El-Musa (Political Science), P. Fargues (Director of Forced Migration and Refugee Studies), P. Glavanis (Associate Director of the Center for Learning and Teaching), B. Ibrahim (Director of the John D. Gerhart Center for Philanthropy and Civic Engagement), H. Rashad (Director of the Social Research Center), M. Rieker (Director of the Cynthia Nelson Institute for Gender & Women’s Studies), J. Salevorakis (Economics), H. Sholkamy (Social Research Center), Richard Tutwiler (Director of the Desert Development Center)

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

School of Sciences and Engineering

Department of Biology

School of Sciences and Engineering

*Professors:* H. El Dorry, S. Zada

*Associate Professor:* R. Siam (Chair)

*Assistant Professors:* A. Amleh, A. Bos, W. Fouad, A. Moustafa

*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', 25 credits for 'Collateral Requirements', 9 credits for 'General Electives' and 16 credits for upper level courses. 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.

Core Curriculum (33 credits)

The course selected for the natural science elective may also satisfy a collateral requirement.

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 (25 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.)
• MACT 112/1221 - Statistical Reasoning (3 cr.)
• MACT 131/1121 - Calculus I (0/3)
• 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 outlined 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.) ¹
- BIOL 440/4540 - Marine Ecology (3 cr. + 1 cr. lab)
- BIOL 408/4930 - Selected Topics in Biology (1-4 cr.) ¹

¹ 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.) ¹
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.)

¹ 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 - Programming Fundamentals (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 321/3201 - Analysis and Design of Algorithms (3 cr.)
• CSCE 453/4501 - Database Systems (3 cr.)
• CSCE 465/4601 - 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.)

Notes

¹Only 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: BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab), BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab), and three additional 4-credit 200, 300, or 400 level BIOL courses.

Twenty credits are required for a minor in Biology:

Choose one of the following and three additional 4-credit 200, 300, or 400 level BIOL courses.

- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)
- BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab)

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

A grade of B or better in the following courses:

- 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.)

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: R. Siam (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 (0/3)
• 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

School of Sciences and Engineering

Professor Emeritus: F. Hassan

Professors: P. Askalani, H. Azzazy, D. Fleita, T. Madkour, J. Ragai (Director of Master of Science in Chemistry), A. Ramadan (Dean of Graduate Studies)

Associate Professor: T. Shoeib (Chair)

Assistant Professor: M. El Sayed, W. Mamdouh

Chemistry, with specializations in Clinical Chemistry, Industrial 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 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 Industrial Chemistry (9 credits)

• CHEM 207/2007 - Chemical Industries (3 cr.)
• CHEM 307/3007 - Production Basics for Chemical Industries (3 cr.)
• CHEM 407/4007 - Food Processing and Preservation (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 Computer Science (3 cr.)
• MACT 131/1121 - Calculus I (0/3)
• 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.)
- CHEM 410/4002 - Archaeological Chemistry II (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 (M.Sc.)

Master of Science in Chemistry

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 Concentration can fulfill the 12 credits of the concentration requirements with any chemistry 500 or 600 level courses. With the consent of the program director, one 500 or 600 level course in another science or engineering discipline can be taken and counted towards the concentration requirements.

**Core Courses (9 credit hours)**

To be chosen from the following courses:

- 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.)

**Food Chemistry Concentration 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 519/5219 - Food Analysis (3 cr.)

**Chemistry 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. Since various research topics are addressed in a sequence of two seminar courses, the student must register for the first (CHEM 5940) before submitting a thesis topic while the second (CHEM 5941) must be taken during the execution of the thesis research. 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 590/5940 - Graduate Seminar I (2 cr.)
- CHEM 591/5941 - Graduate Seminar II (1 cr.)
- CHEM 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)

**Department of Computer Science and Engineering**

**School of Sciences and Engineering**

*Professor of Practice:* K. El-Ayat

*Professors:* A. Abdelbar, A. El-Kadi, A. Goneid, A. Khalil (Associate Chair), A. Rafea (Chair), M. N. Mikhail, S. Aly (Associate Dean for Graduate Studies and Research), S. El-Kassas

*Associate Professors:* F. Balasa, M. Moustafa

*Assistant Professors:* M. Shalan, Y. Alkabbabi

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.

Program Objectives

The expected accomplishments of graduates of the Bachelor of Science in Computer Engineering program at the American University in Cairo are as follows.

1. Establish a career path in Industry or government to become productive and valued engineers within their institutions.
2. Obtain an advanced degree in engineering through successful admission to a reputable graduate program leading to one or more degrees.
3. Contribute ethically and professionally to humanity by becoming innovators, leaders, and lifelong learners in and through successful careers.

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

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(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 (48 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.)

Concentration Requirements (63 credits)

- CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
• CSCE 110/1101 - Programming Fundamentals (3 cr.)
• CSCE 210/2201 - Data Structures and Algorithms (3 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 232/2303 - 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 363/3611 - Digital Signal Processing (3 cr.)
• CSCE 422/4201 - Theory of Computing (3 cr.)
• CSCE 427/4602 - Introduction to Artificial Neural Networks (3 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.)

Concentration Electives (15 credits)

• 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 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 465/4601 - Artificial Intelligence (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.)
• EENG 413/4103 - Testing of Digital Circuits (3 cr.)
• EENG 494/4930 - Selected topics in Electronics Engineering (3 cr.)

General Electives (0-6 credits)

Computer Science (B.S)

Bachelor of Science in Computer Science

The undergraduate program in Computer Science at AUC is accredited by both the American Accreditation Board for Engineering and Technology (ABET) and the Supreme Council of Egyptian Universities.

Program Objectives

The expected accomplishments of graduates of the Bachelor of Science in Computer Science program at the American University in Cairo are as follows.

1. Establish a career path in industry or government to become productive and valued computing professionals within their institutions.
2. Obtain an advanced degree in computing or a related field through successful admission to a reputable graduate program leading to one or more degrees.
3. Contribute ethically and professionally to humanity by becoming innovators, leaders, and lifelong learners in and through successful careers.

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, teamwork, 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 Computer Science (3 cr.)
- CSCE 110/1101 - Programming Fundamentals (3 cr.)
- CSCE 210/2201 - Data Structures and Algorithms (3 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 321/3201 - Analysis and Design of Algorithms (3 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 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 (1-2 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 435/4311 - Wide Area Networks (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/4312 - Wide Area 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 465/4601 - Artificial Intelligence (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 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.)

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 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.)

And one of the following courses:

• MACT 233/2141 - Differential Equations (3 cr.)
• MACT 304/3143 - Numerical Methods (3 cr.)
• MACT 310/3145 - Operations Research (3 cr.)
• MACT 406/4212 - Stochastic Processes (3 cr.)
• MACT 440/4135 - Graph Theory (3 cr.)

General Electives (3-15 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 Computer Science (3 cr.)
• CSCE 110/1101 - Programming Fundamentals (3 cr.)
• CSCE 210/2201 - Data Structures and Algorithms (3 cr.)
• CSCE 321/3201 - Analysis and Design of Algorithms (3 cr.)
• CSCE 422/4201 - Theory of Computing (3 cr.)

Data Base Systems:

Recommended for Business, Economics & Engineering majors students:
• CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
• CSCE 110/1101 - Programming Fundamentals (3 cr.)
• CSCE 210/2201 - Data Structures and Algorithms (3 cr.)
• CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
• CSCE 453/4501 - Database Systems (3 cr.)

Computer Systems:

Recommended for Physics, Mechanical & Construction majors students but not permitted for Electronics Engineering major:

• CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
• CSCE 110/1101 - Programming Fundamentals (3 cr.)
• CSCE 210/2201 - Data Structures and Algorithms (3 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.)

Embedded Systems:

Recommended for Electronics Engineering major students only:

• CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
• CSCE 110/1101 - Programming Fundamentals (3 cr.)
• CSCE 210/2201 - Data Structures and Algorithms (3 cr.)
• CSCE 345/3401 - Operating Systems (3 cr.)
• CSCE 432/4301 - Embedded Systems (3 cr.)
• CSCE 438L/4302 - Embedded Systems Lab (1 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 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 529/5222 - Design and Analysis of Parallel Algorithms (3 cr.)
- CSCE 532/5242 - Parallel Computer Architecture (3 cr.)
- CSCE 535/5232 - High Speed Networks (3 cr.)
- CSCE 541/5271 - Advanced Software Engineering (3 cr.)
- CSCE 543/5272 - Advanced Software Quality (3 cr.)
- CSCE 555/5268 - Computer Graphics and Animation (3 cr.)
- CSCE 561/5263 - Knowledge Engineering (3 cr.)
- CSCE 563/5267 - Digital Image Processing (3 cr.)
- CSCE 564/5265 - Web Mining (3 cr.)
- CSCE 567/5266 - Computer Vision (3 cr.)
- CSCE 569/5264 - Natural Language Processing and Machine Translation (3 cr.)
- CSCE 585/5930 - Selected Topics in Computer Science (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: four core courses (12 credit hours), and four electives (12 credit hours).

**Core Courses (12 credit hours)**

All candidates must take the following four core 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 (12 Credit hours)**

- CSCE 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 529/5222 - Design and Analysis of Parallel Algorithms (3 cr.)
- CSCE 532/5242 - Parallel Computer Architecture (3 cr.)
- CSCE 535/5232 - High Speed Networks (3 cr.)
- CSCE 541/5271 - Advanced Software Engineering (3 cr.)
- CSCE 543/5272 - Advanced Software Quality (3 cr.)
- CSCE 555/5268 - Computer Graphics and Animation (3 cr.)
- CSCE 561/5263 - Knowledge Engineering (3 cr.)
- CSCE 563/5267 - Digital Image Processing (3 cr.)
- CSCE 564/5265 - Web Mining (3 cr.)
- CSCE 567/5266 - Computer Vision (3 cr.)
- CSCE 569/5264 - Natural Language Processing and Machine Translation (3 cr.)
- CSCE 585/5930 - Selected Topics in Computer Science (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 and Architectural Engineering**

**School of Sciences and Engineering**

*Professors:* M. Abou Zeid (CANG Chair), A. Ezeldin, E. Fahmy (Dean of Sciences & Engineering), A. Hassanein, E. Imam (CENG Graduate Program Director), S. Khedr, A. Sherif, E. Smith (ENVE Director), N. Sherif (Associate Chair), H. Sewilam

*Research Associate Professor:* O. Hosny

*Associate Professors:* M. Moustafa, K. Nassar, S. Safar

*Assistant Professors:* S. El Baradei, A. Waly

The Department of Construction and Architectural Engineering offers two undergraduate degrees: The Bachelor of Science in Construction Engineering and the Bachelor of Science in Architectural Engineering.

**Mission**

The mission of the Department of Construction and Architectural Engineering is to provide a high quality engineering education within a liberal arts context to students from Egypt as well as from other countries. The aim is to produce generations of construction engineers and 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 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 program. Undeclared and transfer students are admitted to the program upon completing criteria courses. Those students are accepted based on their GPA and on available quota in the department.
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 three courses listed below before taking any other courses in the major.

- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- AENG 273/1521 - Digital Representation Tools for Architects (2 cr.)
- AENG 250/2512 - Foundations of 3-Dimensional Design (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 Construction and Architectural Engineering.

A total of 162 credits is required for the bachelor of science degree in Architectural Engineering. Core Curriculum (33 credits), Engineering core requirements (26 credits), Concentration requirements (94 credits), concentration electives (three credits), and general electives (zero-six credits)

**Core Curriculum (33 credits)**

The remaining 7 credit hours required to satisfy the core are fulfilled by the capstone Senior Projects I and II (AENG 4980 (2 credits) and AENG 4981) (5 credits).

**Engineering Core Requirements (26 credits)**

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CSCE 106/1001 - Fundamentals of Computer Science (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 229/2112 - Strength and Testing of Materials (4 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- MACT 131/1121 - Calculus I (0/3)
- 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 (94 credits)**

**Visual Communication and Basic Design:**

- AENG 221/1511 - Free-hand Representation for Architects (3 cr.)
- AENG 273/1521 - Digital Representation Tools for Architects (2 cr.)
- AENG 250/2512 - Foundations of 3-Dimensional Design (3 cr.)
- AENG 251/2551 - Introduction to Architectural Design (3 cr.)
Architecture, Urban Planning and Interior Design:

- AENG 268/2411 - Surveying for Architects (1 cr.)
- AENG 351/2552 - Architectural Design Studio I (4 cr.)
- AENG 473/3522 - Digital Design Studio and Workshop (3 cr.)
- AENG 368/3531 - Housing Design and Geographic Information Systems (3 cr.)
- AENG 352/3553 - Architectural Design Studio II (4 cr.)
- AENG 453/3554 - Architectural Design Studio III (4 cr.)
- AENG 468/4532 - Urban Design and Landscape Architecture (3 cr.)
- AENG 420/4541 - Design of Interior Spaces (3 cr.)
- AENG 454/4555 - Architectural Design Studio IV (4 cr.)
- AENG 455/4556 - Architectural Design Studio V (4 cr.)
- AENG 456/4557 - Architectural Design Studio VI (4 cr.)
- AENG 490/4980 - Senior Project I (2 cr.)
- AENG 491/4981 - Senior Project II (5 cr.)

History and Humanities and Allied Design Courses:

- AENG 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.)
- AENG 314/2211 - History and Philosophy of Modern and Contemporary Architecture (3 cr.)
- AENG 326/2231 - Environmental Control Systems and Sustainable Design (3 cr.)
- AENG 428/3311 - Detail Design and Finishes in Buildings (3 cr.)
- AENG 429/4312 - Design Development and Construction Documents (3 cr.)
- AENG 441/4421 - Professional Practice, Design Management and Codes (2 cr.)

Construction Engineering and Management:

- AENG 426/3321 - Building Service Systems and Building Systems Integration (3 cr.)
- AENG 323/3331 - Construction Materials and Quality Control (3 cr.)
- AENG 496/3950 - Internship in Construction Projects (0 cr.)
- AENG 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 Electives (3 credits)

Students should take one course from the following:
• AENG 494/4930 - Selected Topics in Architectural Engineering (3 cr.)
• ARIC 270-271/2270-2271 - From Andalusia to Indonesia: Introduction to Islamic Art and Architecture (3 cr. per semester)
• 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.)
• CENG 428/4157 - Tall Buildings and Large Span Structures (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 447/4450 - Design, Modeling and Simulation of Construction Systems (3 cr.)
• CENG 452/4158 - Structural Systems and Advanced Design (3 cr.)
• CENG 494/4911 - Selected Topics in Construction Engineering (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.)
• PHIL 310/3010 - Philosophy and Art (3 cr.)

General Electives (0-6 credits):

Students may take elective courses of their selection to satisfy total program requirement of 162 credit hours.

Construction Engineering, with concentrations in Construction Materials and Structures, Construction Management and Technology, and Environmental Engineering (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
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) Environmental Engineering. 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 Environmental Engineering concentration better equips students for involvement in civil infrastructure projects, and enables them to contribute to consulting practice in environmental and water resources engineering. To complete a concentration, students must complete two (2) required courses and one elective course in their chosen concentration area, in addition to an elective within the field of construction engineering, and carry out the graduation thesis in their chosen concentration. The concentration shall be indicated in the students’ Diploma.

The Bachelor of Science in Construction Engineering degree is accredited by both the American Accreditation Board for Engineering and Technology (ABET) and 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 and Architectural 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 (52 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CSCE 106/1001 - Fundamentals of Computer Science (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 131/1121 - Calculus I (0/3)
• 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 (62 credits)

• AENG 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 325/3010 - Mechanical Engineering in Construction (2 cr.)
• CENG 331/3312 - Geology for Engineers (2 cr.)
• CENG 411/4313 - Soil Mechanics (3 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 comprise the following:

- Two concentration core course from the intended area of concentration (Group A) (6 cr.)
- One elective course from a set of courses relevant to the concentration (Group B) (3 cr.)
- One elective course from the elective courses offered by the Department (3cr.)

Student should also carry out the Senior Graduation Project in their selected concentration subfield.

**Construction Materials and Structural Concentrations**

**Group A:**

- CENG 453/4212 - Construction Materials and Quality Control II (3 cr.)
- CENG 454/4113 - Structural Mechanics (3 cr.)

**Group B:**

- CENG 426/4155 - Steel and Concrete Bridges (3 cr.)
- CENG 427/4156 - Prefabricated, Water and Prestressed Concrete Structures (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.)

Any Materials and Structural related graduate course open for undergraduate.

**Construction Management and Technology**

**Group A:**

- CENG 444/4430 - Risk Management and Bidding Strategies (3 cr.)
- CENG 447/4450 - Design, Modeling and Simulation of Construction Systems (3 cr.)

**Group B:**

- AENG 428/3311 - Detail Design and Finishes in Buildings (3 cr.)
- CENG 449/4470 - Contract Administration (3 cr.)
- CENG 474/4554 - Computer-aided design and construction of environmental and sanitary systems (3 cr.)
- CENG 494/4911 - Selected Topics in Construction Engineering (3 cr.)

**Environmental Engineering:**

**Group A:**

- CENG 472/4552 - Design of Water Resources Systems (3 cr.)
- CENG 473/4553 - Unit Operations in Environmental Engineering (3 cr.)
Group B:

- 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 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 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. Those interested in this option are required to complete a summer work assignment for Fall practicum 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. 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:

**SEMESTER IX**

- CENG 424/4253 - Methods and Equipment for Construction II (2 cr.)
- Eng. Concentration 1 elective
- CENG 448/4460 - Financial Management and Accounting for Construction (3 cr.) (MPA credit)
- CENG Elective (1)
- CENG 431/4351 - Transportation Engineering (3 cr.)
- CENG 490/4980 - Senior Project I (1 cr.) (Capstone Core Level I)
- CENG 497/4951 - Practical Training (1 cr.) (Practicum)

**SEMESTER X**

- Engineering Concentration 2
- CENG 567/5243 - Construction Leadership and Management Skills (3 cr.)
- CENG 491/4981 - Senior Project II (2 cr.) (Capstone Core Level II)
• PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.) (MPA credit)
• PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.) (MPA credit)
• Science elective (from MDP list)
• Summer internship – public/NGO management focus preferred (MPA credit through 5198)

**SEMESTER XI**

• PPAD 591/5198 - Practicum (3 cr.) (Capstone Level II) (MPA Credit)
• ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.) (MPA Credit)
• PPAD Elective selected with MPA advisor (MPA Credit)
• Science elective (selected with PPAD advisor)
• PPAD 598/5298 - Research Seminar (0 cr.) (MPA Credit)

**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 - Non-profit Management (3 cr.) (MPA Credit)
• PPAD 599/5299 - Research Guidance (0 cr.) (MPA Credit)

Summer thesis work, if needed.

Lists of MDP-relevant courses will be provided to students in the program prior to registration for each semester, based on offerings available in the appropriate departments

**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, AENG 2551 and AENG 1521) to continue in the minor.

The Minor requires completion of 17 credit hours. These are:

**Basic Architectural Design Requirement (7 cr. hours):**

All of the following courses:

• AENG 251/2551 - Introduction to Architectural Design (3 cr.)
• AENG 273/1521 - Digital Representation Tools for Architects (2 cr.)
• ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)

Background Humanities and Fine Arts Elective Requirement (3 cr. hours):

One of the following courses:
• AENG 222/1561 - Architecture: Art or Engineering (3 cr.)
• ARIC 270-271/2270-2271 - From Andalusia to Indonesia: Introduction to Islamic Art and Architecture (3 cr. per semester)
• EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
• EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)

Main Architectural Design Requirement (7 cr. hours)

All of the following courses:
• AENG 351/2552 - Architectural Design Studio I (4 cr.)
• AENG 420/4541 - Design of Interior Spaces (3 cr.)

Notes:
Construction Engineering students may not count the main architectural design courses (AENG 2552 & AENG 4541) for both the Construction Engineering Major and the Architectural Design Minor.

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 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 and ENGR 5941, Graduate Thesis Seminar I and II. Students must register in ENGR 5940 before submitting a thesis topic and in ENGR 5941 during execution of the thesis research to present their thesis plan. 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 (Chair), Y. Gadallah
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. EENG graduates will be prepared for a career in Egypt or abroad.

Electronics and Communications Engineering (B.S)

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.

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.

The specific objectives of the program are to prepare graduates to meet the expectations of employers and to pursue advanced study, if desired.

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.

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 EENG 4980 and EENG 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 Computer Science (3 cr.)
- CSCE 110/1101 - Programming Fundamentals (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 131/1121 - Calculus I (0/3)
- 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)

(EENG 4980 and EENG 4981 are counted within the university core)

- EENG 210/2101 - Digital Logic Design (3 cr.)
- EENG 215/2105 - Circuit Analysis I (3 cr.)
- EENG 216/2106 - Circuit Analysis II (3 cr.)
- EENG 218L/2108L - Digital Logic Design Lab (1 cr.)
• EENG 219L/2109L - Circuit Analysis Lab (1 cr.)
• EENG 315/3105 - Electronics I: Basic Electronic Devices & Circuits (3 cr.)
• EENG 316/3106 - Electronics II: Analog Circuits (3 cr.)
• EENG 318/3108 - VLSI Design (3 cr.)
• EENG 319L/3109L - Electronics Lab (1 cr.)
• EENG 320/3201 - Linear Systems Analysis (3 cr.)
• EENG 321/3202 - Automatic Control (3 cr.)
• EENG 341/3401 - Electromagnetic Theory (3 cr.)
• EENG 352/3502 - Computer Organization and Assembly Language Programming (3 cr.)
• EENG 360/3601 - Power and Machines (3 cr.)
• EENG 420/4301 - Fundamentals of Communications I (3 cr.)
• EENG 421/4302 - Fundamentals of Communications II (3 cr.)
• EENG 432/4306 - Computer Communication Networks (3 cr.)
• EENG 439L/4314L - Communications Lab (1 cr.)
• EENG 442/4402 - Electromagnetic Waves (3 cr.)
• EENG 453/4503 - Microcontroller System Design (3 cr.)
• EENG 459L/4509L - Microcontroller System Design Lab (1 cr.)
• EENG 490/4980 - Senior Project I (1 cr.)
• EENG 491/4981 - Senior Project II (2 cr.)
  The credit hours in EENG 490/491 are not counted among the concentration credit hour requirements as they are counted in the core curriculum credit hour requirements
• EENG 497/4950 - Industrial Internship (1 cr.)

Concentration Electives (12 credits)

• EENG 404L/4304L - Photonics and Optical Communication Laboratory (1 cr.)
• EENG 410/4101 - Solid-State Devices (3 cr.)
• EENG 413/4103 - Testing of Digital Circuits (3 cr.)
• EENG 414/4104 - High Level Digital ASIC Design Using CAD (3 cr.)
• EENG 415/4105 - Integrated Circuit Fabrication: Materials and Processes (3 cr.)
• EENG 416/4106 - Advanced ASIC Design (3 cr.)
• EENG 433/4308 - Telecommunications Systems (3 cr.)
• EENG 434/4310 - Optical Communication Systems (3 cr.)
• EENG 436/4312 - Mobile Communication Systems (3 cr.)
• EENG 447/4407 - Microwave Systems (3 cr.)
• EENG 455/4505 - Computer Architecture (3 cr.)
• EENG 456/4506 - Digital Control Systems (3 cr.)
• EENG 458L/4508L - Computer Architecture Lab (1 cr.)
• EENG 480/4920 - Special Problems in Electronics Engineering (1-3 cr.)
EENG 494/4930 - Selected topics in Electronics Engineering (3 cr.)

General Electives (0-9 credits)

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 EENG course list:

- EENG 510/5210 - Advanced Solid-State Devices (3 cr.)
- EENG 516/5216 - Analog Integrated Circuit Design (3 cr.)
- EENG 517/5217 - Digital Integrated Circuit Design (3 cr.)
- EENG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
- EENG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
- EENG 520/5231 - Advanced Digital Communications (3 cr.)
- EENG 521/5233 - Wireless Communication Systems (3 cr.)
- EENG 522/5230 - Stochastic Processes for Engineers (3 cr.)
- EENG 524/5234 - Enabling Technologies for High Date Rate Communications (3 cr.)
- EENG 525/5225 - Digital Signal Processing (3 cr.)
- EENG 526/5236 - Information Theory and Coding (3 cr.)
- EENG 530/5238 - Advanced Computer Networks (3 cr.)
- EENG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)
- EENG 547/5247 - RF and Microwave Systems (3 cr.)
- EENG 548/5248 - RF Integrated Circuit Design (3 cr.)
- EENG 549/5249 - Antennas Design and Applications (3 cr.)
- EENG 553/5223 - Fault-tolerant Computing and Reliability Modeling (3 cr.)
- EENG 556/5226 - Networked Control Systems Design & Applications (3 cr.)
- EENG 594/5930 - Advanced Topics in Electronics Engineering (3 cr.)

**Note:

- Up to two PHD EENG 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
  1. one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering;
  2. Graduate Independent Study course (EENG 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 EENG 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 EENG 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:

- EENG 510/5210 - Advanced Solid-State Devices (3 cr.)
- EENG 516/5216 - Analog Integrated Circuit Design (3 cr.)
- EENG 517/5217 - Digital Integrated Circuit Design (3 cr.)
- EENG 518/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
- EENG 520/5231 - Advanced Digital Communications (3 cr.)
- EENG 521/5233 - Wireless Communication Systems (3 cr.)
- EENG 522/5230 - Stochastic Processes for Engineers (3 cr.)
- EENG 524/5234 - Enabling Technologies for High Date Rate Communications (3 cr.)
• EENG 525/5225 - Digital Signal Processing (3 cr.)
• EENG 526/5236 - Information Theory and Coding (3 cr.)
• EENG 530/5238 - Advanced Computer Networks (3 cr.)
• EENG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)
• EENG 547/5247 - RF and Microwave Systems (3 cr.)
• EENG 548/5248 - RF Integrated Circuit Design (3 cr.)
• EENG 549/5249 - Antennas Design and Applications (3 cr.)
• EENG 553/5223 - Fault-tolerant Computing and Reliability Modeling (3 cr.)
• EENG 556/5226 - Networked Control Systems Design & Applications (3 cr.)
• EENG 594/5930 - Advanced Topics in Electronics 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:
1. one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering;
2. Graduate Independent Study (EENG 5910) course (1 to 3 credit hours).

MoT Courses (9 credit hours)
Candidates must select 3 courses out of the following list:
• EENG 570/5271 - New Product Design and Development (3 cr.)
• EENG 571/5272 - Technology and Innovation Management (3 cr.)
• EENG 572/5273 - Strategic Management of Innovation (3 cr.)
• EENG 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 EENG course list:

• EENG 510/5210 - Advanced Solid-State Devices (3 cr.)
• EENG 516/5216 - Analog Integrated Circuit Design (3 cr.)
• EENG 517/5217 - Digital Integrated Circuit Design (3 cr.)
• EENG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
• EENG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
• EENG 520/5231 - Advanced Digital Communications (3 cr.)
• EENG 521/5233 - Wireless Communication Systems (3 cr.)
• EENG 522/5230 - Stochastic Processes for Engineers (3 cr.)
• EENG 524/5234 - Enabling Technologies for High Date Rate Communications (3 cr.)
• EENG 525/5225 - Digital Signal Processing (3 cr.)
**Note:**

- Up to two PHD EENG 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:
  1. one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering;
  2. Graduate Independent Study course (EENG 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 EENG 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 (2 credits) and ENGR 5941 (1 credit), Graduate Thesis Seminar I and II. Students must register in ENGR 5940 before submitting a thesis topic and in ENGR 5941 during execution of the thesis research to present their thesis plan. To ensure adequate faculty consultation on the thesis, the student must register for EENG 5980, Graduate Thesis, by the completion of 18 credit hours. Students must register in EENG 5980 for at least two semesters. The first two registrations in EENG 5980 must be for three credit hours, after that EENG 5980 is taken for one credit hour each semester until completion of the program requirements.

**Department of Mathematics and Actuarial Science**

**School of Sciences and Engineering**

_Distinguished University Professor:_ A. Hadi (Chair)

_Professors:_ M. Abdel-Malek, A. Al Shaarawi, M. Hebert (Emeritus), M. Moustafa

_Associate Professors:_ Z. Amin (Director of Actuarial Science Program), G. DeYoung, W. Lotfallah

_Assistant Professors:_ N. El-Sissi, J. Johnson, K. Moutanabbir, M. Sadek, 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 Mathematics
2. A Bachelor of Science degree in Actuarial Science
3. A Minor in Mathematics
5. 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](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 (0/3) 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.

Core Curriculum (37 credits)

Actuarial Science students must take 1 credit hour of Natural Science lab.

Concentration Requirements (60 credits)

- MACT 131/1121 - Calculus I (0/3)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)
- MACT 231/1123 - 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 - Mathematics of Investment (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 407/4331 - Insurance Loss Models I (3 cr.)
- MACT 408/4332 - Insurance Loss Models II (3 cr.)
- MACT 412/4213 - Mathematical Modeling (3 cr.)
- MACT 421/4312 - Mathematics of Derivatives Pricing I (3 cr.)
- MACT 422/4313 - Mathematics of Derivatives Pricing II (3 cr.)
- MACT 423/4321 - Life Contingencies I (3 cr.)
- MACT 424/4322 - Life Contingencies 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 (27 credits)

- ACCT 201/2001 - Financial Accounting (3 cr.)
- CSCE 106/1001 - Fundamentals of Computer Science (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.)
• FINC 415/4204 - Portfolio Theory and its Applications (3 cr.)

Electives (6 credits)
Two courses to be chosen in consultation with the advisor. The following courses are recommended as electives:
• ACCT 202/2002 - Managerial Accounting (3 cr.)
• CSCE 110/1101 - Programming Fundamentals (3 cr.)
• CSCE 210/2201 - Data Structures and Algorithms (3 cr.)
• CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
• CSCE 453/4501 - Database Systems (3 cr.)
• ECON 303/3041 - Money and Banking (3 cr.)
• ECON 318/3081 - Introduction to Econometrics (3 cr.)
• ECON 403/4031 - International Trade (3 cr.)
• FINC 408/3501 - International Finance (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.)
• MGMT 307/3201 - Management Fundamentals (3 cr.)
• MGMT 404/4202 - Human Resources Management (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.)

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.

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 Computer Science (3 cr.)
- MACT 131/1121 - Calculus I (0/3)
- MACT 132/1122 - Calculus II (3 cr.)
- MACT 200/2131 - Discrete Mathematics (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.)
- MACT 307/3223 - Statistical Inference (3 cr.)
- MACT 304/3143 - Numerical Methods (3 cr.)
- MACT 306/3211 - Applied Probability (3 cr.)
- MACT 401/4125 - Complex-Function Theory (3 cr.)
- MACT 403/4134 - Modern Algebra (3 cr.)
- MACT 431/4126 - Real Analysis I (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. See the Mathematics and Actuarial Science Department for details.

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 - Programming Fundamentals (3 cr.)
- CSCE 210/2201 - Data Structures and Algorithms (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.)

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 (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 - Mathematics of Investment (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.)
and 2 courses among: 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 (0/3)
  and any 3 MACT courses (excluding MACT 1111, MACT 1112 and MACT 1930)

Department of Mechanical Engineering

School of Sciences and Engineering


Associate Professor: M. Arafa

Assistant Professors: L. El-Gabry, M. Fawzy, M. Kamel, M. El-Morsy

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

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 program is accredited by both the Accreditation Board for Engineering and Technology (ABET) and 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 Computer Science (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 131/1121 - Calculus I (0/3)
- 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 I (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 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 341/3441 - Engineering Operations Research (3 cr.)
- MENG 445/4445 - Production and Inventory Control (3 cr.)

Group B:
- MENG 344/3444 - 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:
- EENG 456/4506 - Digital Control Systems (3 cr.)
- MENG 439/4239 - Advanced Manufacturing Processes (3 cr.)
- MENG 447/4477 - Manufacturing System Automation (3 cr.)
- MENG 455/4565 - Design of Engineering Systems (3 cr.)
• MENG 477/4757 - Robotics: Design, Analysis and Control (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 455/4565 - Design of Engineering Systems (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.)

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 EENG

- EENG 321/3202 - Automatic Control (3 cr.)
- EENG 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 315/3251 - Modern Sensors (3 cr.)
- PHYS 318/3271 - Instrumentation Systems and Control (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 mechanical engineering courses.

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 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.

Mechanical Engineering, with specializations in Design, Industrial
Engineering, Materials & Manufacturing Engineering, Mechatronics, and
Power (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 573/5263 - Cogeneration and Energy Storage (3 cr.)
• MENG 575/5265 - CFD and Turbulence Modeling (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 and ENGR 5941, Graduate Thesis Seminar I and II. Students must register in ENGR 5940 before submitting a thesis topic and in ENGR 5941 during execution of the thesis research to present their thesis plan. 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

School of Sciences and Engineering

Professor: K. Beshay, M. Nasrallah
Professor of Practice: A. Adris (Chair), T. El Kewidy, S. El Sayed
Associate Professor: A. Noah
Assistant Professors: A. Salem

Petroleum and Energy Engineering department offers a B.Sc. in Petroleum Engineering and a concentration in Energy Resources. 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, with concentrations in Energy Resources and Petrochemicals (B.S.)

Bachelor of Science

The program provides high quality education for regional and international students with the capability of managing diversified operations in the petroleum, gas and energy related professions. Graduates are expected to satisfy the demanding market needs and will be able to compete for positions worldwide in one of the highest paying engineering professions. In addition to fostering creative thinking and providing motivation for an ongoing learning experience, the program is intended to develop the capabilities of students to work independently, adapt in multinational environment and acquire leadership qualities.

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.

In addition to the B.Sc. degree in Petroleum Engineering, students will be granted a concentration in Energy Resources after completion of 9 credits from the courses listed under concentration electives.

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 (3 crs).

Engineering core requirements (45 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CSCE 106/1001 - Fundamentals of Computer Science (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 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 131/1121 - Calculus I (0/3)
• 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 (78 credits)

• PENG 200/2011 - Introduction to Petroleum Geology (2 cr.)
• PENG 218/2411 - Electrical Engineering (2 cr.)
• PENG 219/2413 - Fundamentals of Surveying (1 cr.)
• PENG 227/2415 - Materials Engineering (3cr.)
• PENG 301/3011 - Petroleum Geology and Exploration (3cr.)
• PENG 302/3021 - Reservoir Rock Properties (3 cr.)
• PENG 303/3022 - Core Lab (1 cr.)
• PENG 305/3211 - Reservoir Fluids (2 cr. + 1 cr.)
• PENG 311/3111 - Drilling Engineering I (3 cr.)
• PENG 313/3112 - Drilling Engineering I Lab (1 cr.)
• PENG 320/3223 - Well Logging (2cr. + 1cr.)
• PENG 322/3311 - Oil and Gas Production-I (2cr. + 1cr. lab)
• PENG 331/3213 - Reservoir Engineering (3 cr.)
• PENG 321/3310 - Well Completion and Workover (3 cr.)
• PENG 333/3221 - Well Testing (3 cr.)
• PENG 334/3222 - Well Testing Lab (1 cr.)
• PENG 351/3225 - Natural Gas Engineering (3 cr.)
• PENG 361/3411 - Thermodynamics (3cr.)
• PENG 323/3412 - Production-II: Surface Facilities (2 cr.)
• PENG 363/3413 - Heat Transfer (3cr.)
• PENG 373/3415 - Principles of Energy Engineering (3 cr.)
• PENG 374/3420 - Corrosion and Oxidation Protection (3cr.)
• PENG 375/3421 - Hydrogen and Fuel cells (3 cr.)
• PENG 411/4121 - Drilling Engineering II (3 cr.)
• PENG 412/4311 - Enhanced Oil Recovery (3 cr.)
• PENG 461/4221 - Reservoir Economics, Management, & Risk Analysis (3 cr.)
• PENG 462/4421 - Renewable and Alternative Energy (3 cr.)
• PENG 471/4223 - Reservoir Simulation and Modeling (2 cr. + 1 cr.)
• PENG 490/4980 - Senior Project I (1cr.)
• PENG 491/4981 - Senior Project II (2cr.)
• PENG 497/4950 - Industrial Training (1cr.)

Concentration Electives (6 credits)

Students must take six credits from the following courses to satisfy the concentration elective requirements.

• PENG 422/4321 - Petrochemicals (3 cr.)
• PENG 423/4323 - Petroleum Refining (3 cr.)
• PENG 451/4313 - Petroleum and Gas Transmission and Storage (3 cr.)
• PENG 463/4422 - Energy conversion and materials (3 cr.)
• PENG 470/4425 - Environmental Protection & Chemical Pollution (3 cr.)
• PENG 472/4427 - Ground Water Hydrology and Contamination (3cr.)
• PENG 474/4423 - Energy and the Environment (3 cr.)
• PENG 475/4428 - Greenhouse Technology and Emission Reduction (3cr.)
• PENG 476/4429 - Principles of Nuclear Engineering (3 cr.)
• PENG 477/4123 - Drilling Fluids Engineering (3 cr.)
• PENG 494/4930 - Selected Topics in Petroleum and Energy Engineering (3cr.)

Concentration in Energy Resources (6 credits)

To complete the requirements, students must take six credits from the following courses listed under concentration electives:

• PENG 463/4422 - Energy conversion and materials (3 cr.)
• PENG 470/4425 - Environmental Protection & Chemical Pollution (3 cr.)
• PENG 474/4423 - Energy and the Environment (3 cr.)
• PENG 476/4429 - Principles of Nuclear Engineering (3 cr.)

Prerequisites:
Completion of PENG courses PENG 2411, PENG 2415, PENG 3420, PENG 3411, PENG 3413, PENG 3421, PENG 4421, and PENG 4422.

Concentration in Petrochemicals (6 credits)

To complete the requirements, students must take the following two courses listed under concentration electives:

• PENG 422/4321 - Petrochemicals (3 cr.)
• PENG 423/4323 - Petroleum Refining (3 cr.)
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 and 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 an option in Instrumentation (B.S.)

Bachelor of Science

The undergraduate program in physics is designed to give students a thorough but flexible training in the fundamental aspects of classical and modern physics. Lecture material is reinforced and complemented by closely integrated laboratory work. The varied course offerings provide several options from which students may choose according to their interests and abilities.

A student who intends to major in physics must complete successfully PHYS 1011, PHYS 1012, PHYS 1021, PHYS 1022, MACT 1121 and MACT 1122 with a minimum GPA of 2.5 in these courses. To change from any other major to physics the student should have completed the above courses, in addition to an overall and concentration GPA's not less than 2.5.

A total of 132 credit hours is 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 crs) and the capstone projects PHYS 4980 (3 crs).

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 214/2221 - Waves and Optics (3 cr.)
• PHYS 215/2211 - Introduction to Electronics (3 cr.)
• PHYS 221L/2212 - Electronics Laboratory I (2 cr.)
• PHYS 279/2241 - 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 323L/4234 - Semiconductor Technology Lab (2 cr.)
• PHYS 325/3231 - Introduction to Solid-State Physics (3 cr.)
• PHYS 421/4042 - Quantum Mechanics (3 cr.)

Concentration electives (18 credits):
To be taken from the 300 or 400 level courses in physics and mathematics. 500-level courses may be used towards the B.Sc. degree, upon the approval of the academic advisor.

General Electives (9 credits)

Collateral Requirements (26 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.)
• CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
• MACT 131/1121 - Calculus I (0/3)
• 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 305/3142 - Introduction to PDE and Boundary-Value Problems (3 cr.)

Thesis Requirement (3 credits)

• PHYS 401/4980 - Senior Thesis and Seminar (3 cr.)

Notes:
In special cases, and with advisor's approval, another 400-level course may be substituted for the Senior Thesis and Seminar.
Instrumentation option (21 - 27 credits)

Students may choose the instrumentation option within the bachelor's degree program by following the required sequence of courses listed below. While retaining the fundamentals of the conventional degree in physics, this option prepares students to meet the needs of an expanding and increasingly vital area of sciences and engineering.

The required courses for the Instrumentation option are:

- PHYS 305L/3252 - Modern Sensors Laboratory (1 cr.)
- PHYS 307L/3217 - Electronics Laboratory II (1 cr.)
- PHYS 309L/3215 - Digital Logic Design Laboratory (1 cr.)
- PHYS 315/3251 - Modern Sensors (3 cr.)
- PHYS 319/3214 - Digital Logic Design (3 cr.)
- PHYS 327/3216 - Operational Amplifiers and Applications (3 cr.)
- PHYS 407L/4272 - Process Instrumentation and Digital Control Laboratory (1 cr.)
- PHYS 417/4274 - Process Instrumentation (3 cr.)

And 5-11 credits selected from the following:

- CSCE 231/2303 - Computer Organization and Assembly Language Programming (3 cr.)
- PHYS 314/3223 - Advanced Optics (3 cr.)
- PHYS 318/3271 - Instrumentation Systems and Control (3 cr.)
- PHYS 333/3261 - Introduction to Applied Geophysics (3 cr.)
- PHYS 404/4225 - Photonics and Optical Communication Laboratory (1 cr.)
- PHYS 409L/4273 - Computerized Instrumentation Laboratory (1 cr.)
- PHYS 413/4051 - Nuclear and Particle Physics (3 cr.)
- PHYS 414/4224 - Photonics (3 cr.)
- PHYS 415/4930 - Selected Topics in Physics (3 cr.)
- PHYS 416/4281 - Experimental Methods in Undergraduate Research (3 cr.)
- PHYS 425/4291 - Industrial Physics (3 cr.)
- PHYS 427/4275 - Analytical Techniques in Instrumentation (3 cr: 2 cr. lecture, 1 cr. lab)
- PHYS 429/4276 - Computerized Instrumentation (3 cr.)

Concentration Electives (0-6 credits)

Electronics Minor

Professors: A. Shaarawi (Dean of Graduate Studies), F. Assabghy, S. Sedky (Associate Dean of Graduate Studies and Director of Science & Technology Research Center)

Associate Professor: E. Soliman

The aim of the minor in electronics is to provide students majoring in chemistry, mechanical engineering, computer science, and mathematics 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.
Requirements 17 credit hours of electronics minor should cover:

- PHYS 215/2211 - Introduction to Electronics (3 cr.)
- PHYS 221L/2212 - Electronics Laboratory I (2 cr.)
- PHYS 309L/3215 - Digital Logic Design Laboratory (1 cr.)
- PHYS 319/3214 - 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.)
- EENG 321/3202 - Automatic Control (3 cr.)
- EENG 413/4103 - Testing of Digital Circuits (3 cr.)
- PHYS 305L/3252 - Modern Sensors Laboratory (1 cr.)
- PHYS 307L/3217 - Electronics Laboratory II (1 cr.)
- PHYS 315/3251 - Modern Sensors (3 cr.)
- PHYS 318/3271 - Instrumentation Systems and Control (3 cr.)
- PHYS 323L/4234 - Semiconductor Technology Lab (2 cr.)
- PHYS 327/3216 - Operational Amplifiers and Applications (3 cr.)
- PHYS 404L/4225 - Photonics and Optical Communication Laboratory (1 cr.)
- PHYS 407L/4272 - Process Instrumentation and Digital Control Laboratory (1 cr.)
- PHYS 409L/4273 - Computerized Instrumentation Laboratory (1 cr.)
- PHYS 414/4224 - Photonics (3 cr.)
- PHYS 415/4930 - Selected Topics in Physics (3 cr.)
- PENG 476/4429 - Principles of Nuclear Engineering (3 cr.)
- PHYS 429/4276 - Computerized Instrumentation (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)

- PHYS 204L/2222 - Optics Laboratory (1 cr.)
- PHYS 211/2041 - Foundations of Modern Physics (3 cr.)
- PHYS 214/2221 - Waves and Optics (3 cr.)

And a minimum of 10 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.)
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 32 credit hours is required for the Master of Science degree. This consists of 24 credit hours of courses and 8 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 12 credit hours of core courses, 3-6 credit hours of core elective courses, and 6-9 credit hours of Physics electives.

Core Courses (12 credit hours)

- PHYS 501/5061 - Mathematical Physics (3 cr.)
- PHYS 502/5023 - Classical Electrodynamics (3 cr.)
- PHYS 504/5013 - Classical Mechanics (3 cr.)
- PHYS 506/5043 - Advanced Quantum Mechanics (3 cr.)

Core Elective Courses (3-6 credit hours)

Choice of courses with consultation of advisor.

- PHYS 507/5242 - Computational Physics (3 cr.)
- PHYS 508/5282 - Advanced Experimental Techniques (3 cr.)
- PHYS 509/5032 - Advanced Thermodynamics and Statistical Mechanics (3 cr.)

Physics Electives (6-9 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 510/5235 - Introduction To Solids (3 cr.)
• PHYS 512/5236 - Electronic Transport in Semiconductor (3 cr.)
• PHYS 513/5237 - Theory of Solids (3 cr.)
• PHYS 549/5024 - Passive Microwave Circuits (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.)

Thesis (8 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. Since various research topics are addressed in a sequence of two seminar courses, the student must register for the first before submitting a thesis topic while the second must be taken during the execution of the thesis research. To ensure adequate faculty consultation, two semesters of the graduate thesis course are required.

• PHYS 590/5940 - Graduate Seminar I (1 cr.)
• PHYS 591/5941 - Graduate Seminar II (1 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

Professors: H. Azzazy (CHEM), H. El-Dorry (BIOL), A. Shaarawi (PHYS and Dean of Graduate Studies), S. Zada (BIOL)
Associate professors: H. Salem (MENG), R. Siam (BIOL and Program Director)
Assistant professors: A. Amleh (BIOL), W. Fouad (BIOL), J. Grubich (BIOL), A. Moustafa (BIOL), A. Rafea (CSCE), E. Cruz-Rivera (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 electives.

**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.)

**Biotechnology Electives (12 credit hours)**

Student may select from the following list of courses:

- BIOT 511/5211 - Bioengineering (3 cr.)
- BIOT 521/5206 - Fundamentals of Bioinformatics (3 cr.)
- BIOT 531/5207 - Molecular Diagnosis (3 cr.)
- BIOT 533/5209 - Pharmacogenomics and Pharmacogenetics (3 cr.)
- BIOT 541/5208 - Molecular Genetics (3 cr.)
- BIOT 543/5210 - Microbial Biotechnology (3 cr.)
• BIOT 551/5930 - Selected 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. Since various research topics are addressed in a sequence of two seminar courses, the student must register for the first (BIOT 5940) before submitting a thesis topic while the second (BIOT 5941) must be taken during the execution of the thesis research. 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 590/5940 - Graduate Seminar I (2 cr.)
• BIOT 591/5941 - Graduate Seminar II (1 cr.)
• 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 and Nanotechnology (Ph.D.)

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 administrated by the Doctoral Program Steering Committee which has a representation of one faculty from the various departments in the School of Sciences and Engineering. This program offers a Ph.D. degree in Applied Sciences with specializations in:

• Nanotechnology,
• Biotechnology,
• Chemistry,
• or Computer Science.

Admission Requirements

• M.Sc. in Engineering or Sciences 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 caliber 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:

Doctoral qualifications decisions are made by the Doctoral Program Steering Committee. 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.

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**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, doctoral students must include in the program of study at least one graduate course for a minimum of 3 hours of credit 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 Advising 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 to be identified by the Doctoral Program Steering Committee (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 Advisor) and two other members. This committee will play 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 a faculty member willing to serve as the Chair of the Research Advisory Committee and to choose in consultation with her/him the other members. In most cases the Chair of the Committee will eventually become the dissertation advisor.

**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 Candidacy.

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 to be approved by the Doctoral Program Steering Committee.

**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 administrated by an Examining Committee in each specialization. Following the examination, the Examining Committee will submit an evaluation of the student's performance to the Doctoral Program Steering Committee.
Committee. 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.

**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 Advisor 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 Doctoral Program Steering Committee. 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 advisor. The Proposal Presentation requirement is completed when the Research Advisory Committee chair reports a successful proposal presentation to the Office of the Registrar.

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 student should submit a written request to the Doctoral Program Steering Committee to approve the proposed Dissertation Defense Committee. The membership of this Committee is communicated to the SSE Dean and the Dean of Graduate Studies for approval.

**The Dissertation and Its Defense --- Final Oral Defense:**

Upon completion, the dissertation must receive a written evaluation from each other member of the Dissertation Defense Committee and must be defended orally in an open examination before the committee. Following the successful Final Oral Defense, the student must consult with the dissertation advisor(s) about any changes required by the committee, and must take these changes before final submission of the dissertation to the Dean of Graduate Studies.

**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 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. 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 2:** M.Sc. in a different Applied discipline, or 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:

**I. Core Courses**

Core courses are selected from an area outside of the specialization of the student.
Admission Case 1: at least 3 credit hours.

Admission Case 2: 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.)
- EENG 510/5210 - Advanced Solid-State Devices (3 cr.)
- EENG 520/5231 - Advanced Digital Communications (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 (3 cr.)
- RCSS 504/5204 - Applied Estimation (3 cr.)
- RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)
- PHDS/PHDE 601/6201 - 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: at least 6 credit hours.
- Admission Case 2: 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.)
- EENG 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 I, 2 cr. (According to discipline student)
- Graduate Advanced Research Seminar (PHDS 6291), 1 cr.

Research Dissertation Guidance, a minimum of 33 cr. (BIOT 6980, CHEM 6980, CSCE 6980, or NANO 6980)

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.)

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 administrated by the Doctoral Program Steering Committee which has a representation of one faculty from the various departments 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, (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.)
- 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 caliber 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:

Doctoral qualification decisions are made by the Doctoral Program Steering Committee. 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 course 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, doctoral students must include in the program of study at least one graduate course for a minimum of 3 hours of credit 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 Advising 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 to be identified by the Doctoral Program Steering Committee (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 Advisor) and two other members. This committee will play 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 a faculty member willing to serve as the Chair of the Research Advisory Committee and to choose in consultation with her/him the other members. In most cases the Chair of the Committee will eventually become the dissertation advisor.

**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 for Candidacy.

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 to be approved by the Doctoral Program Steering Committee.

**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 administrated by an Examining Committee in each specialization. Following the examination, the Examining Committee will submit an evaluation of the student's performance to the Doctoral Program Steering Committee. 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.

**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 Advisor 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 Doctoral Program Steering Committee. 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 advisor. The Proposal Presentation requirements is completed when the Research Advisory Committee chair reports a successful proposal presentation to the Office of the Registrar.

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 student should submit a written request to the Doctoral Program Steering Committee to approve the proposed Dissertation Defense Committee. The membership of this Committee is communicated to the SSE Dean and the Dean of Graduate Studies for approval.

**The Dissertation and Its Defense - Final Oral Defense:**

Upon completion, the dissertation must receive a written evaluation from each member of the Dissertation Defense Committee and must be defended orally in an open examination before the committee. Following the successful Final Oral Defense, the student must consult with the dissertation advisor(s) about any changes required by the committee, and must make these changes before final submission of the dissertation to the Dean of Graduate Studies.

**Course and Research Requirements**

Minimum number of credit hours beyond the B.Sc. degree: 72

Dissertation hours 33 (CENG 6290, EENG 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 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. 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 2:** M.Sc. in a different Engineering discipline, or 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:

**I - Core Courses**

Core courses are selected from an area outside of the specialization of the student.

Admission Case 1: at least 3 credit hours.

Admission Case 2: at least 6 credit hours.

- BIOT 521/5206 - Fundamentals of Bioinformatics (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:** at least 6 credit hours.

**Admission Case 2:** at least 12 credit hours.

5000-level masters courses offered by the graduate programs of Construction Engineering (CENG), Environmental Engineering (ENVE), Electronics Engineering (EENG), 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:

- EENG 619/6219 - Design and Analysis of High-Performance Integrated Circuits (3 cr.)
- EENG 694/6930 - Advanced Selected Topics in Electronics Engineering (3 cr.)
- EENG 625/6235 - Detection, Classification, and Estimation Theory (3 cr.)
- EENG 661/6211 - Nanoscale CMOS (3 cr.)
- EENG 694/6930 - Advanced Selected Topics in Electronics 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.)
• 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. 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 I, 2cr. (According to discipline student)
• Graduate Advanced Research Seminar (PHDE 6291), 1 cr.

Research Dissertation Guidance, a minimum of 33 cr. (CENG 6290, EENG 6980, ENVE 6980, MENG 6980 or RCSS 6980)

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: E. Imam

Steering Committee: S. El-Baradei, S. El-Haggag, E. Imam, A. Shaarawi (Associate Dean for Graduate Studies & Research)

Environmental Systems Design (M.Eng.)

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.)**

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 well-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 the following Graduate Thesis Seminar courses. Students must register in ENGR 5940 before submitting a thesis topic and in ENGR 5941 during execution of the thesis research to present their thesis plan. To ensure adequate faculty consultation on the thesis, the student must register for the following ENVE course, by the completion of 18 credit hours. Students must register in the following ENVE course continuously and for at least two semesters. 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.

**Nanotechnology Program**

*Director:* Hanadi Salem (MENG)

*Steering Committee:* Adham Ramadan (CHEM and Dean of Graduate Studies), Amr Shaarawi (PHYS), Edward Smith (ENVE program director), Hassan Azzazy (CHEM), Rania Siam (BIO Chair and BIOT program director), Magdi Nasrallah (PENG), Mohab Anis (EENG), Osman Hosny (CENG), Wael Mamdouh (NANO/CHEM), Sherif Sedky (PHYS)

**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 501/5201 - Advanced Quantum Mechanics (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.)

II. Nanotechnology Elective courses (at least 9 credit hours)

A minimum of 9 credit hours are required from this list of courses.

- NANO 521/5221 - MEMS/NEMS Technology and Devices (3 cr.)
• NANO 522/5222 - Electronic Transport in Semiconductors (3 cr.)
• NANO 531/5231 - Nanomaterials, Synthesis, Processing and Applications (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. Elective Courses (6 credit hours)
A minimum of two courses are selected as electives. The courses are selected from the NT Core (I) or Elective courses (II) or from other 5000 or 6000 level courses from graduate programs in the Sciences and Engineering, subject to the advisor's approval. No more than one 4000-level course (3 cr.) may be taken from graduate credit in Sciences and Engineering, or other related areas, subject to the advisor'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 NANO 5940 and NANO 5941, Graduate Thesis Seminar I and II, respectively. Students must register for Graduate Thesis Seminar I (NANO 5940) before submitting a thesis topic while Graduate Thesis Seminar II (NANO 5941) should be taken during the execution of the thesis research work. 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.

Robotics, Control and Smart Systems Program

Director: M. Habib (MENG)
Steering Committee: Sh. Sedky (Associate Dean for Graduate Studies and Research and Director of YJSTRC), M. Nasrallah (PENG), A. Elezabi (EENG), A. Rafea (CSCE).

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.)
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 RCSS 5940 and RCSS 5941, Graduate Thesis Seminar I and II. Students must register in RCSS 5940 before submitting a thesis topic and in RCSS 5941 during execution of the thesis research to present their thesis plan. 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 590/5940 - Graduate Thesis Seminar I (2 cr.)
- RCSS 591/5941 - Graduate Thesis Seminar II (1 cr.)
- RCSS 599/5989 - Research Guidance Thesis (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 (EENG Chair), A. Elezabi (Director of Graduate Program), T. El-Kwedy, M. Mostafa, K. Nassar, S. Safar, A. Zanon.


*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, EENG, ENVE & MENG) are required to select from those ENGR core courses which provide students with research
fundamentals and methodology. The seminar courses (ENGR 590 & 591) are 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: 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. 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 (EENG Chair), A. Elezabi (Director of Graduate Program), T. El-Kweidy, M. Mostafa, K. Nassar, S. Safar, A. Zanon.


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 Engineering, Mechanical Engineering and Petroleum and Energy Engineering.

Refer to the respective department for the required ENGR courses.

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 Accountant (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.

1. Students who have been admitted to the Bachelor of Accounting program as incoming freshmen must complete the three courses listed below before taking any additional courses in the major.
2. Students who seek to be admitted to the Bachelor of Accounting program through the declaration process should apply in their third semester. Students seeking to declare the BAC program must have completed not less than 27 credit hours of study including the three courses listed below. Based on the available space a limited number of students who have successfully completed these courses and who meet the GPA requirements as determined by the department will be accepted in the major.

1. ACCT 201/2001 - Financial Accounting (3 cr.)
2. ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

OR

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

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

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

Management Requirements (12 credits)

- MGMT 300/3101 - Business Environment and Ethics (3 cr.)
- MGMT 307/3201 - Management Fundamentals (3 cr.)
- MGMT 311/3301 - Business Law (Commercial & Fiscal) (3 cr.)
- MGMT 000/4999 - Internship and Career Development (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 (9 credits)

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

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• MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)
• MOIS 444/3703 - Accounting Information Systems (3 cr.)

Accounting Requirements (33 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 401/4001 - Contemporary Issues in Auditing (3 cr.)
• ACCT 402/4002 - Special Topics in Tax Accounting (3 cr.)
• ACCT 403/4003 - Contemporary Issues in Accounting (3 cr.)

Electives (9 credits)

Anthropology (B.A.)

Anthropology is the comparative study of peoples, societies, and cultures in all their variations across time and space. Anthropology spans the social and natural sciences as well as the humanities, offering interpretations of all aspects of human life. It consists of four sub-disciplines – socio-cultural, linguistics, archaeology and physical Anthropology. Anthropology at AUC focuses on cultural and social anthropology. The Unit is committed to basic and applied research as a crucial underpinning for offering critical, reflexive and empirically informed interpretations of global and historical cultural diversity. Our emphasis on research is complemented by a critical engagement with classic and more recent theoretical orientations in the field of anthropology. The research and teaching interests of the Department range from the anthropology of development, economic anthropology, gender and feminism, kinship studies, the anthropology of religion and symbolic systems, psychological anthropology, medical anthropology, to colonialism, power, identity and globalization.

Bachelor of Arts

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.

A student who wishes to declare a major in anthropology should be registered in or have taken ANTH 2101. Every student must obtain a "C" or higher in ANTH 2101 in order to continue as a major in anthropology.
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 - Peoples and Cultures of the Middle East and North Africa (3 cr.)
- ANTH 382/3302 - Peoples and Cultures of Sub-Saharan Africa (3 cr.)
- ANTH 384/3303 - Peoples and Cultures of Latin America (3 cr.)
- ANTH 386/3304 - Peoples and Cultures 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.

**Collateral Requirements (21 credits)**

- Two 300 or 400 level courses in the social sciences
- A minor (five courses) in any field to be selected in consultation with the advisor.

**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 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 (48 credits)

All students must take 24 credit hours as follows:

Arabic literature (6 credits)

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.)
Middle Eastern history (6 credits)

- ARIC 246/2346 - Survey of Arab History (3 cr.)
- ARIC 343/3343 - Birth of Muslim Community and Rise of the Arab Caliphates (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 (6 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)

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 may, if they wish, take a specialization in Middle Eastern History or in Arabic Literature.

Specialization in Middle Eastern History

Students who wish to specialize in this field must take a minimum of 18 of these 24 credits in Middle Eastern history, medieval and modern. These must include two 400-level courses, and at least one course on modern Middle Eastern history. Students may choose from among the following courses offered by the Department of Arab and Islamic Civilizations (ARIC) and by the Department of History (HIST):

- ARIC 320/3020 - Introduction to Sufism (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 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 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 404/5113 - Sira and Hadith (3 cr.)
- ARIC 439/5142 - Islamic Law (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.)
- ARIC 463/5101 - Selected Topics in the History of Islamic Thought and Institutions (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.)
• HIST 454/4219 - Modern Movements in Islam (3 cr.)
• HIST 462/4288 - Selected Topics in the History of the Modern Middle East (3 cr.)

Specialization in Arabic Literature

Students who wish to specialize in this field must take a minimum of 18 of these 24 credits in Arabic literature, chosen from the list below. It is expected that these courses will be taken in Arabic. However, a student may take up to two Arabic literature courses taught in English, on condition that he/she reads the assigned texts in Arabic. In such cases, the course will be registered for that student under the rubric ARIC 5114, Special Studies in Arabic Texts, 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. As stated above, he/she may use up to 15 credit hours to satisfy 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 - Ceramic Arts 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 40 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 - Mass Media Writing (3 cr.)
• JRMC 202/2202 - Multimedia Writing (3 cr.)
• JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

Communication and Media Arts Major (21 credits)

• JRMC 250/2250 - Global Media Systems (3 cr.)
• JRMC 270/2270 - Online Communication (3 cr.)
• JRMC 320/3320 - Mass Communication Research (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 482/4482 - Media Convergence Capstone (3 cr.)
Choose two of the following courses: (6 credits)

- JRMC 230/2230 - Photography Foundations 1 (3 cr.)
- JRMC 305/3305 - Introduction to Visual Communication (3 cr.)
- JRMC 330/3330 - Photojournalism and Documentary Practices (3 cr.)
- JRMC 339/3339 - Studio Production: AUC TV (3 cr.)
- JRMC 403/4403 - Feature and Magazine Writing (3 cr.)
- JRMC 405/4405 - Advanced Visual Communication (3 cr.)
- JRMC 415/4415 - Public Relations Theory and Techniques (3 cr.)
- JRMC 460/4460 - Audio Production (3 cr.)
- JRMC 471/4471 - Online Journalism (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 content of the curriculum for the B.A. degree in Economics offers a comprehensive coverage of subjects. The program is designed to prepare students as i) citizens with future influence by virtue of a university degree; ii) future holders of jobs which require training in economics; and iii) future postgraduate students of economics. For the first group, the curriculum offers training in rational thought and the connections between theory and main features of policy. For the second group, the curriculum offers the standard tools of economic analysis and an appreciation of the interdependence of world economies. For the third group, the curriculum, by virtue of its content of research methods and statistics, and econometrics offers entry into M.A. and Ph.D. programs. A holder of the B.A. in Economics from AUC can participate in advanced training on equal basis with undergraduates from major American and British Universities.

**A STUDENT WHO SEeks A B.A. IN ECONOMICS MUST SATISFY THE FOLLOWING REQUIREMENTS:***

- Must have completed a minimum of 27 credit hours of study including ECON 2011, ECON 2021 and ECON 2061.
- Earn an average of "B" or higher in ECON 2011 and ECON 2021 with a minimum "B-" in each course.
- Earn a minimum of "B" in ECON 2061 *
- Meet the GPA requirements as determined by the department each semester.

*Alternatively, earn an average of "B" or higher in MACT 1121 and MACT 1122 with a minimum "B-" in each course.

Notwithstanding these requirements, a subcommittee of the department might in exceptional cases and on a case-by-case basis decide on admission of students after examining their overall records.
A total of 120 credits is required for the bachelor's degree in economics:

Core Curriculum (40 credits)

Concentration Requirements (54 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 316/3061 - Mathematics for Economists II (3 cr.)
- ECON 318/3081 - Introduction to Econometrics (3 cr.)
- ECON 403/4031 - International Trade (3 cr.)
- MACT 210/2222 - Statistics for Business (3 cr.)

Economics Additional I (Choose four out of the following eight courses)

- ECON 215/2051 - Economic History of the Modern Middle East (3 cr.)
- ECON 224/2091 - Economic History (3 cr.)
- ECON 348/3052 - Agricultural Economics (3 cr.)
- ECON 312/3053 - Economic Development (3 cr.)
- ECON 320/3055 - The Digital Economy: Information Technology, Knowledge and Intellectual Property (3 cr.)
- ECON 415/4051 - Seminar on Economic Development in the Middle East (3 cr.)
- ECON 405/4091 - History of Economic Thought (3 cr.)
- ECON 414/4094 - Economics of Egypt (3 cr.)

Economics Additional II (Choose four out of the following eight courses)

- ECON 303/3041 - Money and Banking (3 cr.)
- ECON 308/3071 - Labor Economics (3 cr.)
- ECON 310/3013 - Public Finance (3 cr.)
- ECON 413/4012 - Cost-Benefit Analysis (3 cr.)
- ECON 413/4012 - Cost-Benefit Analysis (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 411/4099 - Seminar: Special Topics in Economics (3 cr.)
Notes:
Students who plan to pursue the Master of Arts in Economics are strongly advised to take ECON 4061 and ECON 4081, since these are prerequisites for the program.

Collateral Requirements (9 credits)

- ACCT 201/2001 - Financial Accounting (3 cr.)
- FINC 303/2101 - Business Finance I (3 cr.)
- MGMT 000/4999 - Internship and Career Development (3 cr.)

Electives (17 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 who wishes to declare a major in Egyptology should be registered in or have taken an Egyptology course, and have an overall GPA of 2.7 to declare the major, and maintain a 2.7 in order to remain in the major.

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.)
• EGPT 353/5151 - Hieroglyphics III (3 cr.)
• EGPT 402/5153 - Hieroglyphics IV (3 cr.)
• 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 in Egyptological Method and Theory (3 cr.)
• EGPT 499/5199 - Selected Topics in Egyptology (3 cr.)

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.)
• 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

Since its early days, cinema has been one of the most influential art forms of the twentieth century. Uniquely situated in the "film" city of Cairo, the major in film, integrates professional film production training with the study of the historical and theoretical nature of the medium. Another critical component of the degree is studying the dynamics of cinema as a complex cultural, economic, and industrial practice. In conjunction with this academic and professional framework, the degree also provides a balance consideration of international, regional and local facets of the subject. The curriculum covers the following areas: the development of cinema as an art form; the impact of cinema on culture and society; the historical, thematic and stylistic trends within Egyptian and Arab cinema; the development of the theoretical and practical background and appreciation of the art of film making; aesthetic techniques used in production; and the relationship between cinema and the increasingly mediated visual cultures of the world.

Declaration of the Film Major

Students interested in declaring a Film Major are required to take FILM 2120 (introduction to Film), and FILM 2200 (Analogue and Digital Practices). Students with a minimum of B grade average in these FILM courses can apply to declare their Film major. Final recommendation regarding the declaration is made following an interview with the applicant.

The Visual Cultures Programs

The Film major participates in the Visual Cultures Program at AUC, which provides the home for interdisciplinary study in
theory and practice across the three individual majors of Visual Art, Graphic Design, and Film. Established within the Department of the Arts in 2011 in response to the increasingly interdisciplinary character of visual creative practice in the 21st century, the Program offers courses that facilitate research-driven creative practice and the critical study and conscious use of diverse visual media in cultural context.

As a contemporary "visual culture" is a necessarily open-ended field in continual transformation, the Visual Cultures Program is a work in progress. It currently supports two introductory courses: the studio course Analogue and Digital Practices, which is cross-listed as ARTV 2200, DSGN 2200, and FILM 2200 and offers foundational study in visual research in a cross-disciplinary environment; and the lecture course Introduction to Visual Cultures, which is cross-listed as ARTV 2113, DSGN 2113, and FILM 2113 and provides students with a primer in the key terms and concepts for the analysis of visual texts past and present.

**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 (54 credits)**

- FILM 200/2200 - Analogue and Digital Practices (3 cr.)
- FILM 220/2120 - Introduction to Film (3 cr.)

1. **Film Theory and Aesthetics (21 credits)**

- FILM 213/2113 - Introduction to Visual Cultures (3 cr.)
- FILM 330/3130 - Film Theory and Criticism (3 cr.)
  
  Choose **FIVE** from among the following:

  - FILM 341/3041 - Anthropology and Film (3 cr.)
  - FILM 370/3070 - Selected Topics in Film (3 cr.)
  - FILM 310/3110 - History of World Cinema (3 cr.)
  - FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)
  - FILM 340/3140 - Documentary Film (3 cr.)
  - FILM 360/3160 - The Filmmaker (3 cr.)
  - FILM 390/3190 - Film Genres (3 cr.)
  - FILM 470/4370 - Advanced Seminar in Film Study and Research (3 cr.)
  - FILM 402/4402 - Independent Study (1-3 cr.)

2. **Film Production (15 credits)**

- FILM 351/3251 - Digital Editing (3 cr.)
- FILM 353/3253 - Digital Cinematography (3 cr.)
  
  Choose **THREE** from among the following:
• FILM 000/2201 - Acting I (3 cr.)
• FILM 000/2211 - Acting in Arabic I (3 cr.)
• FILM 357/3257 - Screenwriting (3 cr.)
• FILM 336/3306 - Sound for Picture Production (3 cr.)
• FILM 450/4250 - Senior Film Project (3 cr.)
• ARTV 204/2204 - Introduction to Time-Based Media (3 cr.)
• ARTV 230/2230 - Introduction to Digital Photography (3 cr.)
• DSGN 335/3235 - Animation (3 cr.)
• MUSC 334/3304 - Music Production for Visual Media (3 cr.)
• MUSC 337/3307 - Music for Film (3 cr.)
• THTR 204/2401 - Introduction to Technical Theatre (3 cr.)
• THTR 324/3401 - Design for the Theatre (3 cr.)

3. Film as Cultural Industry (12 credits)
Choose FOUR from among the following:
• FILM 352/3352 - The Film Industry (3 cr.)
• FILM 354/3354 - Film Audience and Reception (3 cr.)
• FILM 370/3070 - Selected Topics in Film (3 cr.)
• FILM 452/4352 - The Arab and Egyptian Film Industries: National and Global Perspectives (3 cr.)
• FILM 456/4356 - Experiential Learning in Film (3 cr.)
• FILM 470/4370 - Advanced Seminar in Film Study and Research (3 cr.)

Collateral Requirements (9 credits)
Choose THREE from among the following:
Any of the remaining FILM courses:
• ANTH 202/2101 - Cultural Anthropology (3 cr.)
• ARIC 306/3106 - Arabic Literature and Film (3 cr.)
• ECLT 411/4011 - History of Literary Criticism (3 cr.)
• JRMC 420/4420 - Media Management (3 cr.)
• MUSC 331/2301 - Music Production Using Protools I (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.)

Electives (17 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 course work 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 four courses in the program: DSGN 2200 (Analogue and Digital Practices), DSGN 2113 (Introduction to Visual Cultures), DSGN 2201 (Design I) and DSGN 2115 (History of Graphic Design). After the completion of these four courses, students are requested to sit for a portfolio interview where their work is evaluated by a committee. 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.

The Visual Cultures Program

The Graphic Design major participates in the Visual Cultures Program at AUC, which provides the home for interdisciplinary study in theory and practice across the three individual majors of Visual Arts, Graphic Design, and Film. Established within the Department of the Arts in 2011 in response to the increasingly interdisciplinary character of visual creative practice in the 21st century, the Program offers courses that facilitate research-driven creative practice and the critical study and conscious use of diverse visual media in cultural context.

As contemporary "visual culture" is a necessary open-ended field in continual transformation, the Visual Cultures Program is a work in progress. It currently supports two introductory courses: the studio course Analogue and Digital Practices, which is cross-listed as ARTV 2200, DSGN 2200, and FILM 2200 and offers foundational study in visual research in a cross-disciplinary environment; and the lecture course Introduction to Visual Cultures, which is cross-listed as ARTV 2113, DSGN 2113, and FILM 2113 and provides students with primer in the key terms and concepts for the analysis of visual texts past and present.

Major Requirements

A total of 120 credits are required for the bachelor's degree in Graphic Design.

Core Curriculum (40 credits)

Concentration Requirements (27 Credits)
• DSGN 200/2200 - Analogue and Digital Practices (3 cr.)
• DSGN 201/2201 - Design I (3 cr.)
• DSGN 210/2210 - Typography I (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 (27 credits)

1. Professional Practice, Choose FOUR:

• DSGN 202/2202 - Design II: Logo and Corporate Identity (3 cr.)
• DSGN 303/3203 - Design III: Publication (3 cr.)
• DSGN 304/3204 - Design IV: Packaging (3 cr.)
• DSGN 305/3205 - Design V: Retail Design (3 cr.)
• DSGN 320/3220 - Typography II (3 cr.)
• DSGN 330/3230 - Typography III (3 cr.)
• DSGN 365/3265 - Advertising and Branding (3 cr.)

2) Technical Practice, Choose THREE:

• DSGN 240/2240 - Color (3 cr.)
• DSGN 245/2245 - Illustration (3 cr.)
• DSGN 313/3213 - Web Design (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 - Professional Practice (3 cr.)
• DSGN 410/4210 - Portfolio (3 cr.)
• ARTV 201/2201 - Introduction to Drawing (3 cr.)
• ARTV 230/2230 - Introduction to Digital Photography (3 cr.)

3. History and Theory, choose TWO:

• DSGN 315/3115 - History of Graphic Design in the Arab world (3 cr.)
• DSGN 317/3117 - History of Advertising in the Arab World (3 cr.)
• DSGN 318/3118 - History of Arabic Calligraphy (3 cr.)
Collateral Requirements (6 credits):

Choose two:

- 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 410/4110 - Contemporary issues in Arab Art (3 cr.)
- FILM 220/2120 - Introduction to Film (3 cr.)
- FILM 310/3110 - History of World Cinema (3 cr.)
- FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)
- FILM 354/3354 - Film Audience and Reception (3 cr.)
- FILM 452/4352 - The Arab and Egyptian Film Industries: National and Global Perspectives (3 cr.)
- THTR 324/3401 - Design for the Theatre (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.

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 200 level
2. including at least two courses in three of the four following areas:
   a. The history of the Middle East
   b. The history of Europe
   c. The history of the United States
d. Comparative Religion courses that are cross-listed as history courses

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 000/4000 - Honors Thesis (3 cr.)
  
  To be taken in the senior year.

- HIST 420/4801 - Historical Theory and Methodology (3 cr.)
  
  To be taken in the senior year in a section limited to Honors students.

Eleven additional history courses

1. Of which at least eight must be above the 200 level
2. Including at least two courses in three of the four following areas:

   a. The history of the Middle East
   b. The history of Europe
   c. The history of the United States
   d. Comparative Religion courses that are cross-listed as history courses

3. Including 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 credits in Political Science as follows:

A. Concentration requirements: 27 cr. or 30 cr.
B. Political Science Specialization 9 cr.
C. Honors Requirements  9 cr.

A. Concentration Requirements: (27 or 30 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 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.)
  /HIST 206
- POLS 301-302/3201-3202 - History of Political Theory (3 cr. per semester)
  (POLS 3201 or 3202)
- 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 - International Relations (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 crs.

If the student does not opt for a specific specialization the (9) 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.

- Honor Seminar POLS 4000  (3 credits)
- Methodology course POLS 4104  (3 credits)
- Senior Year Thesis POLS 4099  (3 credits)

Other Requirements:

Students must complete the general electives and the collateral courses required of all Political Science majors, depending on the number of core curriculum credits taken to make up 120 credits total. Before registering in the 400 and 500 level course students will normally have taken the concentration requirements, or its equivalent.

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 with a grade of B or better, and 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 40 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 - Mass Media Writing (3 cr.)
- JRMC 202/2202 - Multimedia Writing (3 cr.)
- JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

**Integrated Marketing Communication Major (24 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 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 Behavior (3 cr.)

**Choose one of the following courses: (3 credits)**

- JRMC 230/2230 - Photography Foundations 1 (3 cr.)
- JRMC 270/2270 - Online Communication (3 cr.)
- JRMC 406/4406 - Internship (3 cr.)
- JRMC 420/4420 - Media Management (3 cr.)
- JRMC 441/4441 - Camera and Editing Workshop (3 cr.)
- JRMC 444/4444 - Media Law and Policy (3 cr.)
- MKTG 408/3301 - Marketing Communications Management (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 - Peoples and Cultures of the 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 336/3336 - Studies in Ibn Khaldun (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 - Third World 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 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.)
• 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 - Third World 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 40 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 - Mass Media Writing (3 cr.)
- JRMC 202/2202 - Multimedia Writing (3 cr.)
- JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)

**Multimedia Journalism Major (24 credits)**

- JRMC 230/2230 - Photography Foundations 1 (3 cr.)
- JRMC 301/3301 - Journalism Editing and Design (3 cr.)
- JRMC 312/3312 - Multimedia Journalism Lab: The Caravan (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 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 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 412/4412 - Newsroom Editing and Management (3 cr.)
- JRMC 441/4441 - Camera and Editing Workshop (3 cr.)
- JRMC 444/4444 - Media Law and Policy (3 cr.)
- JRMC 471/4471 - Online Journalism (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 Protools 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 Protools 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 Protools 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. It is strongly recommended that students majoring in Philosophy minor in another discipline and to explore other areas of study offered by the university.

Forty-two 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.

To major in Philosophy, students must have taken PHIL 2100 course with not less than a "B" grade. In addition, they must have a minimum of 2.4 overall GPA.

PHIL 2100 is prerequisite for all philosophy courses except PHIL 1010, PHIL 1099 and PHIL 2010.

Core Curriculum (40 credits)
Required Courses (12 credits)

- PHIL 312/3001 - Ancient Philosophy (3 cr.)
- PHIL 313/3002 - Medieval Philosophy (3 cr.)
- PHIL 314/3003 - Modern Philosophy (3 cr.)
- PHIL 316/3004 - Twentieth Century Philosophy (3 cr.)

Area Electives (9 credits)

Two of the following:

- PHIL 230/2113 - Introduction to Ethics (3 cr.)
- PHIL 258/2117 - Political Philosophy (3 cr.)
- PHIL 310/3010 - Philosophy and Art (3 cr.)
- PHIL 318/3012 - Theory of Knowledge (3 cr.)
- PHIL 402/5111 - Metaphysics (3 cr.)

One of the following:

- PHIL 418/5114 - Philosophical Masterpieces (3 cr.)
- PHIL 420/5115 - Philosophical Figures (3 cr.)

Electives in Philosophy (21 credits)

Any seven courses in philosophy excluding 1000-level courses, PHIL 220/2100 - Philosophical Thinking (core curriculum requirement) (3 cr.), and PHIL 299/2099 - Selected Topics for Core Curriculum (3 cr.).

General Electives (38 credits)

Political Science, with specializations in General Political Science, International Relations, Middle East Politics, and Political Economy (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 must take either POLS 1001 or POLS 2003. POLS 1001 may only be taken in the Freshman Year by students who have a minimum of 2.5 GPA and will fulfill the Social Science requirement at the primary level of the Core Curriculum and will not be counted as part of the 45 credits required for the Political Science major.
POLS 2003 must be taken after the Freshman Year and for those who have not taken POLS 1001. Students wishing to transfer from another major after their sophomore year will be considered on a case by case basis. Junior-year (300-level) courses are required in four subfields and are prerequisite to the more advanced courses and seminars (400-level). Each semester a selection of 300 and 400 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 credits) to be taken as follows:
1. if POLS 1001 has already been taken in the Freshman Year:
   27 credits (9 courses) in the concentration plus 18 credits (6 courses) as electives.
2. if POLS 1001 has not been taken in the Freshman Year:
   30 credits (10 courses) in the concentration plus 15 credits (5 courses) as electives.

Collateral requirements: (6 or 9 credits)

General Electives: (26-29 credits)

All Political Science major and minor students must abide with the following regulations:

- ENGL 0210 is a prerequisite to POLS 1001 or POLS 2003
- RHET 1000 is a prerequisite to POLS 2104 and all 300 level POLS courses
- RHET 1100 May be taken concurrently with POLS 2104 and 300 level POLS courses
- RHET 2010 is prerequisite to all 400 level POLS courses

For all Political Science students:

Political Science concentration requirements (27 or 30 credits)

- 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 204/2104 - Introduction to Research Methods in Political Science (3 cr.)
- POLS 205/2403 - Europe in the Age of Revolution and Reform (1789-1914) (3 cr.)
  or  POLS 2404 Europe in International Politics in the Twentieth Century Students specializing in International Relations are strongly encouraged to take POLS/HIST 206)
- POLS 301-302/3201-3202 - History of Political Theory (3 cr. per semester)
- 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 - International Relations (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. Minoring is optional. Courses taken as collateral requirements may count towards the minor.

Students have the choice to use the 18 elective credits in Political Science (or 15 elective credits if they had to take POLS 2003 to fulfill their concentration requirements) to obtain 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

Three courses are required for each specialization as specified below.

Students opting for a double specialization need to be encouraged to take a combination of courses from the two specializations rather than having to stick to the History courses required for one of the specializations.

1. Requirements for the General Political Science field:

Students must take five or six Political Science courses, one of which must be a seminar.

Collateral Requirements (6 credits)

General Electives (29 credits)

Depending on the number core curriculum credits taken to make up 120 credits total.

2. Requirements for the Specialization in International Relations

To specialize in International Relations, Political Science majors must, as a minimum, take the following three courses:

Requirements:

- POLS 405/4605 - International Politics in the Middle East (3 cr.)
- POLS 409/4609 - Seminar: International Organization (3 cr.)
- POLS 410/4610 - International Security (3 cr.)
  or
- POLS 411/4611 - Contemporary Foreign Policies (3 cr.)

Options:

To further their understanding in this specialization, students have the option to take a number of recommended courses including:

- 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 (9 credits)

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

Two additional history courses chosen from among the following:

- HIST 202/2502 - History of Modern American Civilization (3 cr.)
Electives (26 credits)
Depending upon the number of core curriculum credits taken.

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 in 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 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)

- Modern Middle East History at 300 or 400 level Credits: (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)

General Electives (29 credits)
Depending on the number of core curriculum credits taken.

4. Requirements for the Specialization in Political Economy
To specialize in Political Economy, Political Science majors must, as a minimum, take the following three courses:
Requirements:
• POLS 351/3551 - Theory and History of Political Economy (3 cr.)
• POLS 424/4524 - Political Economy of the Middle East and North Africa (3 cr.)
• POLS 425/4525 - Global Political Economy (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 442/4542 - Environmental Politics (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)
Depending on the number of core curriculum credits taken.

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.

Interested students have the option of starting the Dual Degree in the sixth semester of the political science BA at AUC. During the fifth semester (i.e., before the semester in which s/he enrolls in 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.

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 514/5214 - Human Rights in the Middle East (3 cr.) * (2 out of 3 starred courses required)
LAW 519/5219 - Human Rights in Africa (3 cr.) * (2 out of 3 starred courses required)
LAW 513/5213 - The European System of Human Rights Protection (3 cr.) * (2 out of 3 starred courses required)
LAW Electives**

**SEMESTER X (MA IHRL program)**

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

**SEMESTER XI (MA IHRL program)**

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

** 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 aim of psychology at AUC is to provide students with a solid background in the current major areas of the discipline. It will give them insights which can be of personal as well as of practical value in many other occupations. In addition, the program will prepare students wishing to continue further studies leading to a professional career. 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 taken or be currently enrolled in PSYC 2000. Based on the availability of space, a limited number of students who have successfully completed these courses and who meet the GPA requirements as determined by the department will be accepted in the major.

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)**

**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 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.

**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.

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.)
  See footnote one.
- SOC 381/3105 - Doing Survey Research in the Social Sciences (3 cr.)
- SOC 450/4106 - Third World 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 300 level courses in sociology

Three additional 400 level courses in sociology

Collateral Requirements (24 credits)

Three of the following courses:

- ANTH 202/2101 - Cultural Anthropology (3 cr.)
- ANTH 380/3105 - Fieldwork Methods (3 cr.)
- CSCE 102/1002 - Introduction to Computers and their Applications (3 cr.)
- ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
- JRMC 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 three minors 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 350/2101 - Survey of Dramatic Literature (3 cr.)
- THTR 351/3101 - History of the Theatre I: Greek to Renaissance (3 cr.)
- THTR 460/4101 - Modern and Contemporary Drama (3 cr.)
- THTR 461/4103 - Dramatic Theory and Criticism (3 cr.)
- THTR 490/4703 - Senior Thesis (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. per production)

Four courses in the department to be chosen among the following:

- THTR 226/2211 - Acting in Arabic I (3 cr.)
- THTR 227/3201 - Acting II (3 cr.)
- THTR 327/3203 - Special Topics in Acting (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 (Studio I, II, III, and IV) designed to foster independent work at an advanced level, followed by a year-long Senior Studio 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 a Visual Arts major, students must have completed four courses in the program: ARTV 2200 (Analogue and Digital Practices), ARTV 2113 (Introduction to Visual Cultures), and two more Visual Arts studio courses. Final recommendation is made by the Visual Arts faculty after an interview and portfolio review.

The Visual Cultures Program
The Visual Arts major participates in the Visual Cultures Program at AUC, which provides the home for interdisciplinary study in the theory and practice across the three individual majors of Visual Arts, Graphic Design, and Film. Established within the Department of the Arts in 2011 in response to the increasingly interdisciplinary character of visual creative practice in the 21st
century, the program offers courses that facilitate research-driven creative practice and the critical study and conscious use of diverse visual media in cultural context.

As contemporary "visual culture" is a necessarily open-ended field in continual transformation, the Visual Cultures Program is a work in progress. It currently supports two introductory courses: the studio course Analogue and Digital Practices, which is cross-listed as ARTV 2200, DSGN 2200, and FILM 2200 and offers foundational study in visual research in a cross-disciplinary environment; and the lecture course Introduction to Visual Cultures, which is cross listed as ARTV 2113, DSGN 2113, and FILM 2113 and provides students with a primer in the key terms and concepts for the analysis of visual texts past and present.

**Major Requirements**

A total of 120 credits are required for the bachelor's degree in Visual Arts:

**Core Curriculum (40 credits)**

**Concentration requirements (27 credits)**

- ARTV 200/2200 - Analogue and Digital Practices (3 cr.)
- ARTV 213/2113 - Introduction to Visual Cultures (3 cr.)
- ARTV 311/3211 - Art Studio I (3 cr.)
- ARTV 312/3212 - Art Studio II (3 cr.)
- ARTV 315/3115 - Art Theory (3 cr.)
- ARTV 411/4211 - Studio III (3 cr.)
- ARTV 412/4212 - Studio IV (3 cr.)
- ARTV 469/4269 - Senior Project (A) (3 cr.)
- ARTV 470/4270 - Senior Project (B) (3 cr.)

**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 205/2205 - Introduction to Alternative Practices (3 cr.)
- ARTV 000/2206 - Experimental Animation Art (3 cr.)
- ARTV 230/2230 - Introduction to Digital Photography (3 cr.)
- ARTV 370/3270 - Selected Topics in Art (3 cr.)
- ARTV 410/4110 - Contemporary issues in Arab Art (3 cr.)
- DSGN 250/2250 - Digital Practice I (3 cr.)

**Collateral Requirements (6 credits)**
Choose TWO:

- DSGN 215/2115 - History of Graphic Design (3 cr.)
- DSGN 210/2210 - Typography I (3 cr.)
- DSGN 315/3115 - History of Graphic Design in the Arab world (3 cr.)
- DSGN 318/3118 - History of Arabic Calligraphy (3 cr.)
- FILM 220/2120 - Introduction to Film (3 cr.)
- FILM 330/3130 - Film Theory and Criticism (3 cr.)
- FILM 353/3253 - Digital Cinematography (3 cr.)
- FILM 354/3354 - Film Audience and Reception (3 cr.)
- FILM 470/4370 - Advanced Seminar in Film Study and Research (3 cr.)
- PHIL 310/3010 - Philosophy and Art (3 cr.)

Elective (16 credits)

Business Administration, with concentrations in Marketing, Finance, Management of Information Systems and General 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.

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 two courses listed below. Based on the available space a limited number of students who have successfully completed these courses and who meet the GPA requirements as determined by the department will be accepted in the major.

1. ACCT 201/2001 - Financial Accounting (3 cr.)
2. ECON 201/2021 - Introduction to Macroeconomics (3 cr.)
   OR
   ECON 202/2011 - Introduction to Microeconomics (3 cr.)

Students must complete a minimum of 127 credit hours for the Bachelor of Business Administration degree with no more than 63 hours of courses in the business area.

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

Core Curriculum (37 credits)

Core Curriculum (37 credits) (3 credits are out because MGMT 480 is considered as one of the Core Capstone)
Collateral Requirements (12 credits)

All students seeking a Bachelor of Business Administration degree must complete the following collateral requirements (12 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.)
- MACT 210/2222 - Statistics for Business (3 cr.)

Business Core Requirements (39 credits)

- ACCT 201/2001 - Financial Accounting (3 cr.)
- ACCT 202/2002 - Managerial Accounting (3 cr.)
- ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)
- FINC 303/2101 - Business Finance I (3 cr.)
- INTB 301/3101 - Introduction to International Business (3 cr.)
- MGMT 300/3101 - Business Environment and Ethics (3 cr.)
- MGMT 307/3201 - Management Fundamentals (3 cr.)
- MGMT 311/3301 - Business Law (Commercial & Fiscal) (3 cr.)
- MGMT 480/4401 - Business Planning and Strategy (3 cr.)
- MGMT 000/4999 - Internship and Career Development (3 cr.)
- MKTG 302/3201 - Principles of Marketing (3 cr.)
- MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)
- OPMG 310/3201 - Operations for Competitive Advantage (3 cr.)

Concentration Requirements (21 credits)

Students seeking a BBA degree must select only one of the following four options:

1. BBA with a marketing concentration
2. BBA with a finance concentration
3. BBA with a management of information technology concentration
4. BBA with a general business concentration

1. Marketing Concentration (21 credits)

Students seeking a concentration in marketing are required to take the following courses after they complete the business core:

- MKTG 405/3201 - Marketing Research (3 cr.)
- MKTG 410/3202 - Consumer-Buyer Behavior (3 cr.)
- MKTG 480/4602 - Marketing Strategy (3 cr.)
- MKTG 408/3301 - Marketing Communications Management (3 cr.)

In addition, choose three 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.)

2. Finance Concentration (21 credits)

Students intending to pursue a concentration in finance in their BBA have to achieve:

1. 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.

2. 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 404/3201 - Investment Analysis (3 cr.)
- FINC 405/3401 - Applied Banking (3 cr.)
- FINC 414/4301 - Corporate Finance (3 cr.)

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

- ECON 303/3041 - Money and Banking (3 cr.)
- 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 470/4970 - Special Topics in Financial Management (3 cr.)

3. Management of Information Technology Concentration (21 credits)

Students seeking a concentration in Management of Information Technology (MOIS) are required to take the following courses after they complete the business core:

- MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)
- MOIS 435/3301 - Entrepreneurial IT and Electronic Business (3 cr.)
- MOIS 466/3401 - Human Computer Interaction (HCI) (3 cr.)
- MOIS 499/4999 - Internship and Graduation Project (3 cr.)

One course from:

- MOIS 430/4202 - Business Information Systems Analysis and Development (3 cr.)
• MOIS 477/4704 - Systems Integration (3 cr.)

Two courses to be selected from the MOIS area:

• MOIS 423/3501 - Geographic Information Systems (GIS) (3 cr.)
• MOIS 432/3601 - Decision Support Systems and Business Intelligence (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.)

4. General Business (21 credits)

After completing the business core, students seeking a concentration in general business are required to take seven courses from at least five different functional areas, not to exceed two courses from any single area, at the 300 and 400 levels.

Areas for the General Business Concentration are accounting, finance, international business, management, marketing, management of information systems, and operations management.

Electives (18 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.

The number of students accepted in the MICT program is limited. This is done through the declaration of major process for science students only. Students seeking to declare the MICT program must have completed the three courses listed below. Based on the available space a limited number of students who have successfully completed these courses and who meet the GPA requirements as determined by the department will be accepted in the major.

1. ACCT 201/2001 - Financial Accounting (3 cr.)
2. CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
Students who seek the MICT degree are not permitted to have a major or a minor in accounting.

Students must complete a minimum of 127 credit hours for the MICT degree with no more than 63 hours of courses in the business area.

**Course Requirements**

(Total Credit = 127 with no more than 63 hours of courses in the business area)

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

**Total 40**

**General Electives / Minor**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALING √</td>
<td>3</td>
</tr>
<tr>
<td>ALING √</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total 9**

(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: ACCT 2001, CSCE 1001 and MACT 1221 or MACT 1121

**Business Core Requirements**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINC 303/2101 - Business Finance I (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 300/3101 - Business Environment and Ethics (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 307/3201 - Management Fundamentals (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 311/3301 - Business Law (Commercial &amp; Fiscal) (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 302/2101 - Principles of Marketing (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MOIS 305/2101 - Introduction to Information Systems/Technology (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>OPMG 310/3201 - Operations for Competitive Advantage (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

**Collateral Requirements**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 201/2001 - Financial Accounting (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 202/2002 - Managerial Accounting (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201/2021 - Introduction to Macroeconomics (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202/2011 - Introduction to Microeconomics (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 2061 Ψ</td>
<td>3</td>
</tr>
<tr>
<td>MACT 1221 ΨΨ</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

Ψ ECON 2061 can be replaced by MACT 1121 / MACT 1122 (for BADM & ACCT majors only)
ΨΨ MACT 1111 is a pre-requisite for MACT 1221 and ECON 2061.
It can be taken with MACT 112 (same semester) but must be taken before ECON 216. It is considered as an elective course.

**MOIT Requirements**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOIS 406/3201 - Management Information Systems and Database Management (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MOIS 435/3301 - Entrepreneurial IT and Electronic Business (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MOIS 466/3401 - Human Computer Interaction (HCI) (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>MOIS 499/4999 - Internship and Graduation Project (3 cr.) (double counted with Core Capstone)</td>
<td>3</td>
</tr>
</tbody>
</table>
One course to be selected from the MOIT area:
MOIS 430/4202 - Business Information Systems Analysis and Development
(3 cr.)
MOIS 477/4704 - Systems Integration (3 cr.)

Two courses to be selected from the MOIT area:
MOIS 423/3501 - Geographic Information Systems (GIS) (3 cr.) 3
MOIS 432/3601 - Decision Support Systems and Business Intelligence (3 cr.) 3
MOIS 433/3701 - Marketing Information Systems (3 cr.) 3
MOIS 434/3702 - Financial Information Systems (3 cr.) 3
MOIS 444/3703 - Accounting Information Systems (3 cr.) 3
MOIS 450/3801 - Strategic Information Systems (3 cr.) 3
MOIS 470/4970 - Special Topics in Management of Information Systems (3 cr.) 3
Total 21

Computer Science Requirements

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Name</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE 106/1001</td>
<td>Fundamentals of Computer Science (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>CSCE 110/1101</td>
<td>Programming Fundamentals (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>CSCE 210/2201</td>
<td>Data Structures and Algorithms (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>CSCE 346/3422</td>
<td>Introduction to Information Security (3 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>CSCE 342/3421</td>
<td>Computer Systems (3 cr.)</td>
<td>3</td>
</tr>
</tbody>
</table>

Two courses to be selected from the CSCE area:
CSCE 315/3101 - Programming Language (1-2 cr.) 3
CSCE 316/3102 - Programming in Java (3 cr.) 3
CSCE 456/4502 - Design of Web-based Systems (3 cr.) 3
CSCE 485/4930 - Selected Topics in Computer Science and Engineering (1-3 cr.) 3
Total 21

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 1800-1801, 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 MUSC 2850-2851-2852, 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 (55 - 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 (26 - 31 cr.)

- MUSC 280-281/1800-1801 - Applied Private Instruction (1 cr.)
- MUSC 282-283/2800-2801 - Applied Private Instruction (1 cr.)
- MUSC 480-481-482-483/4800-4801-4802-4803 - Advanced Applied Private Instruction (3 cr.)
- MUSC 492/4980 - Capstone Final Recital (3 cr.)

Eight semesters of ensemble, chosen from among the following:

- MUSC 262-362-462/2620-2621-2622 - Arab Music Ensemble (1 cr.)
- MUSC 263-363-463/2630-2631-2632 - Guitar Ensemble (1 cr.)
• MUSC 264-364-464/2640-2641-2642 - Chamber Music Ensembles (1 cr.)
• MUSC 265-365-465/2650-2651-2652 - Rehearsal/Performance Practicum (1 cr.)
• MUSC 266-366-466/2660-2661-2662 - Chamber Singers (1 cr.)
• MUSC 267-367-467/2670-2671-2672 - Cairo Choral Society (1 cr.)

* All students entering the B.M.A. are required to take the music literacy placement exam. Those who do not achieve a passing grade are required to take the following:
MUSC 180/1805 - How to Read Music (3 cr.)

All students with 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 284-285-286/2850-2851-2852 - Private Instruction for Piano Proficiency (1 cr.each)

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 (0/3) 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.

**Core Curriculum (37 credits)**

Actuarial Science students must take 1 credit hour of Natural Science lab.

**Concentration Requirements (60 credits)**

- MACT 131/1121 - Calculus I (0/3)
- 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 - Mathematics of Investment (3 cr.)
- MACT 406/4212 - Stochastic Processes (3 cr.)
- MACT 407/4331 - Insurance Loss Models I (3cr.)
- MACT 408/4332 - Insurance Loss Models II (3 cr.)
- MACT 412/4213 - Mathematical Modeling (3 cr.)
- MACT 421/4312 - Mathematics of Derivatives Pricing I (3 cr.)
- MACT 422/4313 - Mathematics of Derivatives Pricing II (3 cr.)
- MACT 423/4321 - Life Contingencies I (3 cr.)
- MACT 424/4322 - Life Contingencies 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 (27 credits)

• ACCT 201/2001 - Financial Accounting (3 cr.)
• CSCE 106/1001 - Fundamentals of Computer Science (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.)
• FINC 415/4204 - Portfolio Theory and its Applications (3 cr.)

Electives (6 credits)

Two courses to be chosen in consultation with the advisor. The following courses are recommended as electives:

• ACCT 202/2002 - Managerial Accounting (3 cr.)
• CSCE 110/1101 - Programming Fundamentals (3 cr.)
• CSCE 210/2201 - Data Structures and Algorithms (3 cr.)
• CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
• CSCE 453/4501 - Database Systems (3 cr.)
• ECON 303/3041 - Money and Banking (3 cr.)
• ECON 318/3081 - Introduction to Econometrics (3 cr.)
• ECON 403/4031 - International Trade (3 cr.)
• FINC 408/3501 - International Finance (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 - Human Resources Management (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.)
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 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 program. Undeclared and transfer students are admitted to the program upon completing criteria courses. Those students are accepted based on their GPA and on available quota in the department.
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 three courses listed below before taking any other courses in the major.

- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)
- AENG 273/1521 - Digital Representation Tools for Architects (2 cr.)
- AENG 250/2512 - Foundations of 3-Dimensional Design (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 Construction and Architectural Engineering.

A total of 162 credits is required for the bachelor of science degree in Architectural Engineering. Core Curriculum (33 credits), Engineering core requirements (26 credits), Concentration requirements (94 credits), concentration electives (three credits), and general electives (zero-six credits)

**Core Curriculum (33 credits)**

The remaining 7 credit hours required to satisfy the core are fulfilled by the capstone Senior Projects I and II (AENG 4980 (2 credits) and AENG 4981 ) (5 credits).

**Engineering Core Requirements (26 credits)**

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CSCE 106/1001 - Fundamentals of Computer Science (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 229/2112 - Strength and Testing of Materials (4 cr.)
- ENGR 345/3222 - Engineering Economy (3 cr.)
- MACT 131/1121 - Calculus I (0/3)
- 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 (94 credits)**

**Visual Communication and Basic Design:**

- AENG 221/1511 - Free-hand Representation for Architects (3 cr.)
- AENG 273/1521 - Digital Representation Tools for Architects (2 cr.)
- AENG 250/2512 - Foundations of 3-Dimensional Design (3 cr.)
- AENG 251/2551 - Introduction to Architectural Design (3 cr.)
Architecture, Urban Planning and Interior Design:

- AENG 268/2411 - Surveying for Architects (1 cr.)
- AENG 351/2552 - Architectural Design Studio I (4 cr.)
- AENG 473/3522 - Digital Design Studio and Workshop (3 cr.)
- AENG 368/3531 - Housing Design and Geographic Information Systems (3 cr.)
- AENG 352/3553 - Architectural Design Studio II (4 cr.)
- AENG 453/3554 - Architectural Design Studio III (4 cr.)
- AENG 468/4532 - Urban Design and Landscape Architecture (3 cr.)
- AENG 420/4541 - Design of Interior Spaces (3 cr.)
- AENG 454/4555 - Architectural Design Studio IV (4 cr.)
- AENG 455/4556 - Architectural Design Studio V (4 cr.)
- AENG 456/4557 - Architectural Design Studio VI (4 cr.)
- AENG 490/4980 - Senior Project I (2 cr.)
- AENG 491/4981 - Senior Project II (5 cr.)

History and Humanities and Allied Design Courses:

- AENG 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.)
- AENG 314/2211 - History and Philosophy of Modern and Contemporary Architecture (3 cr.)
- AENG 326/2231 - Environmental Control Systems and Sustainable Design (3 cr.)
- AENG 428/3311 - Detail Design and Finishes in Buildings (3 cr.)
- AENG 429/4312 - Design Development and Construction Documents (3 cr.)
- AENG 441/4421 - Professional Practice, Design Management and Codes (2 cr.)

Construction Engineering and Management:

- AENG 426/3321 - Building Service Systems and Building Systems Integration (3 cr.)
- AENG 323/3331 - Construction Materials and Quality Control (3 cr.)
- AENG 496/3950 - Internship in Construction Projects (0 cr.)
- AENG 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 Electives (3 credits)

Students should take one course from the following:
• AENG 494/4930 - Selected Topics in Architectural Engineering (3 cr.)
• ARIC 270-271/2270-2271 - From Andalusia to Indonesia: Introduction to Islamic Art and Architecture (3 cr. per semester)
• 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.)
• CENG 428/4157 - Tall Buildings and Large Span Structures (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 447/4450 - Design, Modeling and Simulation of Construction Systems (3 cr.)
• CENG 452/4158 - Structural Systems and Advanced Design (3 cr.)
• CENG 494/4911 - Selected Topics in Construction Engineering (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.)
• PHIL 310/3010 - Philosophy and Art (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', 25 credits for 'Collateral Requirements', 9 credits for 'General Electives' and 16 credits for upper level courses. 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.

Core Curriculum (33 credits)
The course selected for the natural science elective may also satisfy a collateral requirement.

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 221/2150 - Genetics (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 (25 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.)
• MACT 112/1221 - Statistical Reasoning (3 cr.)
• MACT 131/1121 - Calculus I (0/3)
• 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 outlined 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.) ¹
• BIOL 440/4540 - Marine Ecology (3 cr. + 1 cr. lab)
• BIOL 408/4930 - Selected Topics in Biology (1-4 cr.) ¹

¹ 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 choose 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.) ¹
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.)

¹Only 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 Clinical Chemistry, Industrial 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 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 Industrial Chemistry (9 credits)
• CHEM 207/2007 - Chemical Industries (3 cr.)
• CHEM 307/3007 - Production Basics for Chemical Industries (3 cr.)
• CHEM 407/4007 - Food Processing and Preservation (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 Computer Science (3 cr.)
- MACT 131/1121 - Calculus I (0/3)
- 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.

Program Objectives

The expected accomplishments of graduates of the Bachelor of Science in Computer Engineering program at the American University in Cairo are as follows.

1. Establish a career path in Industry or government to become productive and valued engineers within their institutions.
2. Obtain an advanced degree in engineering through successful admission to a reputable graduate program leading to one or more degrees.
3. Contribute ethically and professionally to humanity by becoming innovators, leaders, and lifelong learners in and through successful careers.

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 (48 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.)

Concentration Requirements (63 credits)

• CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
• CSCE 110/1101 - Programming Fundamentals (3 cr.)
• CSCE 210/2201 - Data Structures and Algorithms (3 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 321/3201 - Analysis and Design of Algorithms (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 363/3611 - Digital Signal Processing (3 cr.)
• CSCE 432/4301 - Embedded Systems (3 cr.)
• CSCE 435/4311 - Wide Area Networks (3 cr.)
• CSCE 438L/4302 - Embedded Systems Lab (1 cr.)
• CSCE 439L/4312 - Wide Area 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.)
• PHYS 215/2211 - Introduction to Electronics (3 cr.)
• PHYS 222L/2213 - Electronics lab for Computer Scientists & Computer Engineers (1 cr.)
• MGMT 307/3201 - Management Fundamentals (3 cr.)

Concentration Electives (15 credits)

• 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 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 465/4601 - Artificial Intelligence (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.)
• EENG 413/4103 - Testing of Digital Circuits (3 cr.)
• EENG 494/4930 - Selected topics in Electronics Engineering (3 cr.)

General Electives (0-6 credits)

Computer Science (B.S)

Bachelor of Science in Computer Science

The undergraduate program in Computer Science at AUC is accredited by both the American Accreditation Board for Engineering and Technology (ABET) and the Supreme Council of Egyptian Universities.

Program Objectives

The expected accomplishments of graduates of the Bachelor of Science in Computer Science program at the American University in Cairo are as follows.
1. Establish a career path in industry or government to become productive and valued computing professionals within their institutions.

2. Obtain an advanced degree in computing or a related field through successful admission to a reputable graduate program leading to one or more degrees.

3. Contribute ethically and professionally to humanity by becoming innovators, leaders, and lifelong learners in and through successful careers.

**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, teamwork, 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 Computer Science (3 cr.)
• CSCE 110/1101 - Programming Fundamentals (3 cr.)
• CSCE 210/2201 - Data Structures and Algorithms (3 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 321/3201 - Analysis and Design of Algorithms (3 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 422/4201 - Theory of Computing (3 cr.)
• CSCE 447/4602 - Introduction to Artificial Neural Networks (3 cr.)
• CSCE 432/4301 - Embedded Systems (3 cr.)
• CSCE 435/4311 - Wide Area Networks (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/4312 - Wide Area 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.)

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 (1-2 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 435/4311 - Wide Area Networks (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/4312 - Wide Area 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 465/4601 - Artificial Intelligence (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 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.)

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 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.)

And one of the following courses:

• MACT 233/2141 - Differential Equations (3 cr.)
• MACT 304/3143 - Numerical Methods (3 cr.)
• MACT 310/3145 - Operations Research (3 cr.)
• MACT 406/4212 - Stochastic Processes (3 cr.)
• MACT 440/4135 - Graph Theory (3 cr.)

General Electives (3-15 credits)

Construction Engineering, with concentrations in Construction Materials and Structures, Construction Management and Technology, and Environmental Engineering (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) Environmental Engineering. 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 Environmental Engineering concentration better equips students for involvement in civil infrastructure projects, and enables them to contribute to consulting practice in environmental and water resources engineering. To complete a concentration, students must complete two (2) required courses and one elective course in their chosen concentration area, in addition to an elective within the field of construction engineering, and carry out the graduation thesis in their chosen concentration. The concentration shall be indicated in the students’ Diploma.

The Bachelor of Science in Construction Engineering degree is accredited by both the American Accreditation Board for Engineering and Technology (ABET) and 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 and Architectural 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 (52 credits)**

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CSCE 106/1001 - Fundamentals of Computer Science (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 131/1121 - Calculus I (0/3)
- 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 (62 credits)**

- AENG 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 325/3010 - Mechanical Engineering in Construction (2 cr.)
• CENG 331/3312 - Geology for Engineers (2 cr.)
• CENG 411/4313 - Soil Mechanics (3 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 comprise the following:

• Two concentration core course from the intended area of concentration (Group A) (6 cr.)
• One elective course from a set of courses relevant to the concentration (Group B) (3 cr.)
• One elective course from the elective courses offered by the Department (3cr.)

Student should also carry out the Senior Graduation Project in their selected concentration subfield.

Construction Materials and Structural Concentrations

Group A:

• CENG 453/4212 - Construction Materials and Quality Control II (3 cr.)
• CENG 454/4113 - Structural Mechanics (3 cr.)

Group B:

• CENG 426/4155 - Steel and Concrete Bridges (3 cr.)
• CENG 427/4156 - Prefabricated, Water and Prestressed Concrete Structures (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.)
  Any Materials and Structural related graduate course open for undergraduate.

Construction Management and Technology

Group A:

• CENG 444/4430 - Risk Management and Bidding Strategies (3 cr.)
• CENG 447/4450 - Design, Modeling and Simulation of Construction Systems (3 cr.)

Group B:

• AENG 428/3311 - Detail Design and Finishes in Buildings (3 cr.)
• CENG 449/4470 - Contract Administration (3 cr.)
• CENG 474/4554 - Computer-aided design and construction of environmental and sanitary systems (3 cr.)
• CENG 494/4911 - Selected Topics in Construction Engineering (3 cr.)

Environmental Engineering:

Group A:

• CENG 472/4552 - Design of Water Resources Systems (3 cr.)
• CENG 473/4553 - Unit Operations in Environmental Engineering (3 cr.)

Group B:

• 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 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 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. Those interested in this option are required to complete a summer work assignment for Fall practicum 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. 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:

SEMMESTER IX

• CENG 424/4253 - Methods and Equipment for Construction II (2 cr.)
• Eng. Concentration 1 elective
• CENG 448/4460 - Financial Management and Accounting for Construction (3 cr.) (MPA credit)
• CENG Elective (1)
• CENG 431/4351 - Transportation Engineering (3 cr.)
• CENG 490/4980 - Senior Project I (1 cr.) (Capstone Core Level I)
• CENG 497/4951 - Practical Training (1 cr.) (Practicum)

SEMMESTER X

• Engineering Concentration 2
• CENG 567/5243 - Construction Leadership and Management Skills (3 cr.)
• CENG 491/4981 - Senior Project II (2 cr.) (Capstone Core Level II)
• PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.) (MPA credit)
• PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.) (MPA credit)
• Science elective (from MDP list)
• Summer internship – public/NGO management focus preferred (MPA credit through 5198)

SEMMESTER XI

• PPAD 591/5198 - Practicum (3 cr.) (Capstone Level II) (MPA Credit)
• ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.) (MPA Credit)
• PPAD Elective selected with MPA advisor (MPA Credit)
• Science elective (selected with PPAD advisor)
• PPAD 598/5298 - Research Seminar (0 cr.) (MPA Credit)

SEMMESTER 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 - Non-profit Management (3 cr.) (MPA Credit)
• PPAD 599/5299 - Research Guidance (0 cr.) (MPA Credit)

Summer thesis work, if needed.

Lists of MDP-relevant courses will be provided to students in the program prior to registration for each semester, based on offerings available in the appropriate departments.
Electronics and Communications Engineering (B.S)

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.

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.

The specific objectives of the program are to prepare graduates to meet the expectations of employers and to pursue advanced study, if desired.

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.

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 EENG 4980 and EENG 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 Computer Science (3 cr.)
- CSCE 110/1101 - Programming Fundamentals (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 131/1121 - Calculus I (0/3)

• MACT 132/1122 - Calculus II (3 cr.)
• MACT 231/2123 - Calculus III (3 cr.)
• MACT 232/2124 - Calculus IV (3 cr.)
• MACT 233/2124 - 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)
(EENG 4980 and EENG 4981 are counted within the university core)
• EENG 210/2101 - Digital Logic Design (3 cr.)
• EENG 215/2105 - Circuit Analysis I (3 cr.)
• EENG 216/2106 - Circuit Analysis II (3 cr.)
• EENG 218L/2108L - Digital Logic Design Lab (1 cr.)
• EENG 219L/2109L - Circuit Analysis Lab (1 cr.)
• EENG 315/3105 - Electronics I: Basic Electronic Devices & Circuits (3 cr.)
• EENG 316/3106 - Electronics II: Analog Circuits (3 cr.)
• EENG 318/3108 - VLSI Design (3 cr.)
• EENG 319L/3109L - Electronics Lab (1 cr.)
• EENG 320/3201 - Linear Systems Analysis (3 cr.)
• EENG 321/3202 - Automatic Control (3 cr.)
• EENG 341/3401 - Electromagnetic Theory (3 cr.)
• EENG 352/3502 - Computer Organization and Assembly Language Programming (3 cr.)
• EENG 360/3601 - Power and Machines (3 cr.)
• EENG 420/4301 - Fundamentals of Communications I (3 cr.)
• EENG 421/4302 - Fundamentals of Communications II (3 cr.)
• EENG 432/4306 - Computer Communication Networks (3 cr.)
• EENG 439L/4314L - Communications Lab (1 cr.)
• EENG 441/4402 - Electromagnetic Waves (3 cr.)
• EENG 453/4503 - Microcontroller System Design (3 cr.)
• EENG 459L/4509L - Microcontroller System Design Lab (1 cr.)
• EENG 490/4980 - Senior Project I (1 cr.)
• EENG 491/4981 - Senior Project II (2 cr.)
The credit hours in EENG 490/491 are not counted among the concentration credit hour requirements as they are counted in the core curriculum credit hour requirements
• EENG 497/4950 - Industrial Internship (1 cr.)

Concentration Electives (12 credits)
• EENG 404L/4304L - Photonics and Optical Communication Laboratory (1 cr.)
• EENG 410/4101 - Solid-State Devices (3 cr.)
• EENG 413/4103 - Testing of Digital Circuits (3 cr.)
• EENG 414/4104 - High Level Digital ASIC Design Using CAD (3 cr.)
• EENG 415/4105 - Integrated Circuit Fabrication: Materials and Processes (3 cr.)
• EENG 416/4106 - Advanced ASIC Design (3 cr.)
• EENG 433/4308 - Telecommunications Systems (3 cr.)
• EENG 434/4310 - Optical Communication Systems (3 cr.)
• EENG 436/4312 - Mobile Communication Systems (3 cr.)
• EENG 447/4407 - Microwave Systems (3 cr.)
• EENG 455/4505 - Computer Architecture (3 cr.)
• EENG 456/4506 - Digital Control Systems (3 cr.)
• EENG 458L/4508L - Computer Architecture Lab (1 cr.)
• EENG 480/4920 - Special Problems in Electronics Engineering (1-3 cr.)
• EENG 494/4930 - Selected topics in Electronics 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

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 Computer Science (3 cr.)
• MACT 131/1121 - Calculus I (0/3)
• MACT 132/1122 - Calculus II (3 cr.)
• MACT 200/2131 - Discrete Mathematics (3 cr.)
• MACT 231/2123 - Calculus III (3 cr.)
• MACT 232/2124 - Calculus IV (3 cr.)
• MACT 233/2123 - Differential Equations (3 cr.)
• MACT 240/2132 - Linear Algebra (3 cr.)
• MACT 307/3223 - Statistical Inference (3 cr.)
• MACT 304/3143 - Numerical Methods (3 cr.)
• MACT 306/3211 - Applied Probability (3 cr.)
• MACT 401/4125 - Complex-Function Theory (3 cr.)
• MACT 403/4134 - Modern Algebra (3 cr.)
• MACT 431/4126 - Real Analysis I (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. See the Mathematics and Actuarial Science Department for details.

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 - Programming Fundamentals (3 cr.)
• CSCE 210/2201 - Data Structures and Algorithms (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.)

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 (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 program is accredited by both the Accreditation Board for Engineering and Technology (ABET) and 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 Computer Science (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 131/1121 - Calculus I (0/3)
- 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 I (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 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 341/3441 - Engineering Operations Research (3 cr.)
• MENG 445/4445 - Production and Inventory Control (3 cr.)

Group B:

• MENG 344/3444 - 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:
- EENG 456/4506 - Digital Control Systems (3 cr.)
- MENG 439/4239 - Advanced Manufacturing Processes (3 cr.)
- MENG 447/4477 - Manufacturing System Automation (3 cr.)
- MENG 455/4565 - Design of Engineering Systems (3 cr.)
- MENG 477/4757 - Robotics: Design, Analysis and Control (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 455/4565 - Design of Engineering Systems (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, with concentrations in Energy Resources and Petrochemicals (B.S.)

Bachelor of Science

The program provides high quality education for regional and international students with the capability of managing diversified operations in the petroleum, gas and energy related professions. Graduates are expected to satisfy the demanding market needs and will be able to compete for positions worldwide in one of the highest paying engineering professions. In addition to fostering creative thinking and providing motivation for an ongoing learning experience, the program is intended to develop the capabilities of students to work independently, adapt in multinational environment and acquire leadership qualities.

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.

In addition to the B.Sc. degree in Petroleum Engineering, students will be granted a concentration in Energy Resources after completion of 9 credits from the courses listed under concentration electives.

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 (3 crs).

Engineering core requirements (45 credits)

- CHEM 105/1005 - General Chemistry I (3 cr.)
- CHEM 115L/1015 - General Chemistry Laboratory (1 cr.)
- CSCE 106/1001 - Fundamentals of Computer Science (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 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 131/1121 - Calculus I (0/3)
- 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 (78 credits)

- PENG 200/2011 - Introduction to Petroleum Geology (2 cr.)
- PENG 218/2411 - Electrical Engineering (2 cr.)
- PENG 219/2413 - Fundamentals of Surveying (1 cr.)
- PENG 227/2415 - Materials Engineering (3 cr.)
- PENG 301/3011 - Petroleum Geology and Exploration (3 cr.)
- PENG 302/3021 - Reservoir Rock Properties (3 cr.)
- PENG 303/3022 - Core Lab (1 cr.)
- PENG 305/3211 - Reservoir Flows (2 cr. + 1 cr.)
- PENG 311/3111 - Drilling Engineering I (3 cr.)
- PENG 313/3112 - Drilling Engineering I Lab (1 cr.)
- PENG 320/3223 - Well Logging (2 cr. + 1 cr.)
- PENG 322/3311 - Oil and Gas Production I (2 cr. + 1 cr. lab)
• PENG 331/3213 - Reservoir Engineering (3 cr.)
• PENG 321/3310 - Well Completion and Workover (3 cr.)
• PENG 333/3221 - Well Testing (3 cr.)
• PENG 334/3222 - Well Testing Lab (1 cr.)
• PENG 351/3225 - Natural Gas Engineering (3 cr.)
• PENG 361/3411 - Thermodynamics (3cr.)
• PENG 323/3412 - Production-II: Surface Facilities (2 cr.)
• PENG 363/3413 - Heat Transfer (3cr.)
• PENG 373/3415 - Principles of Energy Engineering (3 cr.)
• PENG 374/3420 - Corrosion and Oxidation Protection (3cr.)
• PENG 375/3421 - Hydrogen and Fuel cells (3 cr.)
• PENG 411/4121 - Drilling Engineering II (3 cr.)
• PENG 412/4311 - Enhanced Oil Recovery (3 cr.)
• PENG 461/4221 - Reservoir Economics, Management, & Risk Analysis (3 cr.)
• PENG 462/4421 - Renewable and Alternative Energy (3 cr.)
• PENG 471/4223 - Reservoir Simulation and Modeling (2 cr. + 1 cr.)
• PENG 490/4980 - Senior Project I (1cr.)
• PENG 491/4981 - Senior Project II (2cr.)
• PENG 497/4950 - Industrial Training (1cr.)

Concentration Electives (6 credits)

Students must take six credits from the following courses to satisfy the concentration elective requirements.

• PENG 422/4321 - Petrochemicals (3 cr.)
• PENG 423/4323 - Petroleum Refining (3 cr.)
• PENG 451/4313 - Petroleum and Gas Transmission and Storage (3 cr.)
• PENG 463/4422 - Energy conversion and materials (3 cr.)
• PENG 470/4425 - Environmental Protection & Chemical Pollution (3 cr.)
• PENG 472/4427 - Ground Water Hydrology and Contamination (3cr.)
• PENG 474/4423 - Energy and the Environment (3 cr.)
• PENG 475/4428 - Greenhouse Technology and Emission Reduction (3cr.)
• PENG 476/4429 - Principles of Nuclear Engineering (3 cr.)
• PENG 477/4123 - Drilling Fluids Engineering (3 cr.)
• PENG 494/4930 - Selected Topics in Petroleum and Energy Engineering (3cr.)

Concentration in Energy Resources (6 credits)

To complete the requirements, students must take six credits from the following courses listed under concentration electives:

• PENG 463/4422 - Energy conversion and materials (3 cr.)
• PENG 470/4425 - Environmental Protection & Chemical Pollution (3 cr.)
• PENG 474/4423 - Energy and the Environment (3 cr.)
• PENG 476/4429 - Principles of Nuclear Engineering (3 cr.)

Prerequisites:
Completion of PENG courses PENG 2411, PENG 2415, PENG 3420, PENG 3411, PENG 3413, PENG 3421, PENG 4421, and PENG 4422.

Concentration in Petrochemicals (6 credits)
To complete the requirements, students must take the following two courses listed under concentration electives:
• PENG 422/4321 - Petrochemicals (3 cr.)
• PENG 423/4323 - Petroleum Refining (3 cr.)

Physics, with an option in Instrumentation (B.S.)

Bachelor of Science

The undergraduate program in physics is designed to give students a thorough but flexible training in the fundamental aspects of classical and modern physics. Lecture material is reinforced and complemented by closely integrated laboratory work. The varied course offerings provide several options from which students may choose according to their interests and abilities.

A student who intends to major in physics must complete successfully PHYS 1011, PHYS 1012, PHYS 1021, PHYS 1022, MACT 1121, and MACT 1122 with a minimum GPA of 2.5 in these courses. To change from any other major to physics the student should have completed the above courses, in addition to an overall and concentration GPA's not less than 2.5.

A total of 132 credit hours is 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 crs) and the capstone projects PHYS 4980 (3 crs).

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 214/2221 - Waves and Optics (3 cr.)
• PHYS 215/2211 - Introduction to Electronics (3 cr.)
• PHYS 221L/2212 - Electronics Laboratory I (2 cr.)
• PHYS 279/2241 - 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 323L/4234 - Semiconductor Technology Lab (2 cr.)
• PHYS 325/3231 - Introduction to Solid-State Physics (3 cr.)
• PHYS 421/4042 - Quantum Mechanics (3 cr.)

Concentration electives (18 credits):
To be taken from the 300 or 400 level courses in physics and mathematics. 500-level courses may be used towards the B.Sc. degree, upon the approval of the academic advisor.

General Electives (9 credits)

Collateral Requirements (26 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.)
• CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
• MACT 131/1121 - Calculus I (0/3)
• 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 305/3142 - Introduction to PDE and Boundary-Value Problems (3 cr.)

Thesis Requirement (3 credits)

• PHYS 401/4980 - Senior Thesis and Seminar (3 cr.)

Notes:
In special cases, and with advisor's approval, another 400-level course may be substituted for the Senior Thesis and Seminar.

Instrumentation option (21 - 27 credits)

Students may choose the instrumentation option within the bachelor's degree program by following the required sequence of courses listed below. While retaining the fundamentals of the conventional degree in physics, this option prepares students to meet the needs of an expanding and increasingly vital area of sciences and engineering.

The required courses for the Instrumentation option are:

• PHYS 305L/3252 - Modern Sensors Laboratory (1 cr.)
• PHYS 307L/3217 - Electronics Laboratory II (1 cr.)
• PHYS 309L/3215 - Digital Logic Design Laboratory (1 cr.)
• PHYS 315/3251 - Modern Sensors (3 cr.)
• PHYS 319/3214 - Digital Logic Design (3 cr.)
• PHYS 327/3216 - Operational Amplifiers and Applications (3 cr.)
• PHYS 407L/4272 - Process Instrumentation and Digital Control Laboratory (1 cr.)
• PHYS 417/4274 - Process Instrumentation (3 cr.)

And 5-11 credits selected from the following:

• CSCE 231/2303 - Computer Organization and Assembly Language Programming (3 cr.)
• PHYS 314/3223 - Advanced Optics (3 cr.)
• PHYS 318/3271 - Instrumentation Systems and Control (3 cr.)
• PHYS 333/3261 - Introduction to Applied Geophysics (3 cr.)
• PHYS 404L/4225 - Photonics and Optical Communication Laboratory (1 cr.)
• PHYS 409L/4273 - Computerized Instrumentation Laboratory (1 cr.)
• PHYS 413/4051 - Nuclear and Particle Physics (3 cr.)
• PHYS 414/4224 - Photonics (3 cr.)
• PHYS 415/4930 - Selected Topics in Physics (3 cr.)
• PHYS 416/4281 - Experimental Methods in Undergraduate Research (3 cr.)
• PHYS 426/4291 - Industrial Physics (3 cr.)
• PHYS 427/4275 - Analytical Techniques in Instrumentation (3 cr: 2 cr. lecture, 1 cr. lab)
• PHYS 429/4276 - Computerized Instrumentation (3 cr.)

Concentration Electives (0-6 credits)

Accounting Minor

A limited number of students are accepted into the accounting minor. Students who have completed ACCT 2001 and ACCT 2002 and who meet requirements including the GPA as determined by the department will be permitted to declare a minor and should plan their minor with their academic advisor with the approval of the department.

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

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 209/2019 /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 309/3504 - History of American Political Thought (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, Ethnicity, and Class (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.

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):
5 courses in Arabic or English 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 310/3108 - 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.)

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.)
- CHEM 410/4002 - Archaeological Chemistry II (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, AENG 2551, and AENG 1521) to continue in the minor.

The Minor requires completion of 17 credit hours. These are:

**Basic Architectural Design Requirement (7 cr. hours):**

All of the following courses:

- AENG 251/2551 - Introduction to Architectural Design (3 cr.)
- AENG 273/1521 - Digital Representation Tools for Architects (2 cr.)
- ENGR 115/1005 - Descriptive Geometry and Engineering Drawing (2 cr.)

**Background Humanities and Fine Arts Elective Requirement (3 cr. hours):**

One of the following courses:

- AENG 222/1561 - Architecture: Art or Engineering (3 cr.)
- ARIC 270-271/2270-2271 - From Andalusia to Indonesia: Introduction to Islamic Art and Architecture (3 cr. per semester)
- EGPT 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
- EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)

**Main Architectural Design Requirement (7 cr. hours)**

All of the following courses:

- AENG 351/2552 - Architectural Design Studio I (4 cr.)
- AENG 420/4541 - Design of Interior Spaces (3 cr.)

**Notes:**

Construction Engineering students may not count the main architectural design courses (AENG 2552 & AENG 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 - Programming Fundamentals (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 321/3201 - Analysis and Design of Algorithms (3 cr.)
• CSCE 453/4501 - Database Systems (3 cr.)
• CSCE 465/4601 - 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.)

Notes
¹Only 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: BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab), BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab), and three additional 4-credit 200, 300, or 400 level BIOL courses.

Twenty credits are required for a minor in Biology:

Choose one of the following and three additional 4-credit 200, 300, or 400 level BIOL courses.

- BIOL 104/1011 - Introductory Biology I (3 cr. + 1 cr. lab)
- BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab)

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

A grade of B or better in the following courses:

- 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.)

Business Administration Minor

The minor in business administration is designed to introduce students to the basic concepts, models and techniques of the discipline. Students who have completed the minor requirements and who meet the GPA requirement should apply for the minor in their senior year. Students who minor in business administration are not permitted to have a minor in accounting.

Requirements

The minor requires completion of six courses (18 credit hours) as follows:

• ACCT 201/2001 - Financial Accounting (3 cr.)
• MGMT 307/3201 - Management Fundamentals (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.)
• MKTG 302/2101 - Principles of Marketing (3 cr.)
• FINC 303/2101 - Business Finance I (3 cr.)

In addition, choose one additional course from the following business areas (ACCT, FINC, INTB, MGMT, MKTG, MOIS, OPMG).

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 - 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 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 through the Anthropology, Sociology and Psychology units. Students need to consult the academic advisor in the SAPE Department 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 - Third World 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.)

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 (3 cr.)
• 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 Computer Science (3 cr.)
- CSCE 110/1101 - Programming Fundamentals (3 cr.)
- CSCE 210/2201 - Data Structures and Algorithms (3 cr.)
- CSCE 321/3201 - Analysis and Design of Algorithms (3 cr.)
- CSCE 422/4201 - Theory of Computing (3 cr.)

**Data Base Systems**: Recommended for Business, Economics & Engineering majors students:
- CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
- CSCE 110/1101 - Programming Fundamentals (3 cr.)
- CSCE 210/2201 - Data Structures and Algorithms (3 cr.)
- CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)
- CSCE 453/4501 - Database Systems (3 cr.)

**Computer Systems**: Recommended for Physics, Mechanical & Construction majors students but not permitted for Electronics Engineering major:
- CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
- CSCE 110/1101 - Programming Fundamentals (3 cr.)
- CSCE 210/2201 - Data Structures and Algorithms (3 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.)

**Embedded Systems**: Recommended for Electronics Engineering major students only:
- CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)
- CSCE 110/1101 - Programming Fundamentals (3 cr.)
- CSCE 210/2201 - Data Structures and Algorithms (3 cr.)
- CSCE 345/3401 - Operating Systems (3 cr.)
- CSCE 432/4301 - Embedded Systems (3 cr.)
- CSCE 438L/4302 - Embedded Systems Lab (1 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

Advisor: H. Sabea (Anthropology)

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, Anthropology, Psychology, and Egyptology 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 - Third World Development (3 cr.)
• ANTH 462/4065 - Culture, Economy and the Everyday (3 cr.)
• ANTH 492/4070 - Political Anthropology (3 cr.)
• ECON 224/2091 - Economic History (3 cr.)
• ECON 310/3013 - Public Finance (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 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 - Third World Development (3 cr.)

Approved Area-Studies Courses:
• ANTH 312/3301 - Peoples and Cultures of the Middle East and North Africa (3 cr.)
• ANTH 382/3302 - Peoples and Cultures of Sub-Saharan Africa (3 cr.)
• ANTH 384/3303 - Peoples and Cultures of Latin America (3 cr.)
• ANTH 386/3304 - Peoples and Cultures 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 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:
• SOC 400/4099 - Selected Topics in Sociology (3 cr.)
Digital Media Minor

A minor in Digital media will help students understand creativity in the digital sphere. From web design to animation to different technical skills, students will be exposed to thinking and working in the digital world. Students will develop ideas and projects for TV, the Web and different digital platforms.

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 minor declaration, DSGN 2113 and DSGN 2200.

Requirements (15 credits):

Choose FIVE from the following:

- DSGN 200/2200 - Analogue and Digital Practices (3 cr.)
- DSGN 213/2113 - Introduction to Visual Cultures (3 cr.)
- DSGN 250/2250 - Digital Practice I (3 cr.)
- DSGN 313/3213 - Web Design (3 cr.)
- DSGN 335/3235 - Animation (3 cr.)
- DSGN 350/3250 - Digital Practices II (3 cr.)

Economics Minor

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

Requirements (15 credits):

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

Additional Requirements

- Three other economics courses, with a minimum of two 300-level courses or above.

Courses not included

- ECON 216/2061 - Mathematics for Economists I (3 cr.)
- ECON 218/2081 - Statistics for Economists (3 cr.)
- ECON 316/3061 - Mathematics for Economists II (3 cr.)
- ECON 318/3081 - Introduction to Econometrics (3 cr.)

With the approval of the instructor and the unit head, students may substitute other economics courses for credit towards the minor.

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):

All three of the following:

• 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.)

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 361/3201 - Art and Architecture of Ancient Egypt I (3 cr.)
• EGPT 362/3202 - Art and Architecture of Ancient Egypt II (3 cr.)
• EGPT 440/4040 - Ancient Egyptian Religion and Ethics (3 cr.)

Electronics Minor

Professors: A. Shaarawi (Dean of Graduate Studies), F. Assabghy, S. Sedky (Associate Dean of Graduate Studies and Director of Science & Technology Research Center)

Associate Professor: E. Soliman

The aim of the minor in electronics is to provide students majoring in chemistry, mechanical engineering, computer science, and mathematics 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.

Requirements 17 credit hours of electronics minor should cover:

• PHYS 215/2211 - Introduction to Electronics (3 cr.)
• PHYS 221L/2212 - Electronics Laboratory I (2 cr.)
• PHYS 309L/3215 - Digital Logic Design Laboratory (1 cr.)
• PHYS 319/3214 - 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.)
• EENG 321/3202 - Automatic Control (3 cr.)
• EENG 413/4103 - Testing of Digital Circuits (3 cr.)
• PHYS 305L/3252 - Modern Sensors Laboratory (1 cr.)
• PHYS 307L/3217 - Electronics Laboratory II (1 cr.)
• PHYS 315/3251 - Modern Sensors (3 cr.)
• PHYS 318/3271 - Instrumentation Systems and Control (3 cr.)
• PHYS 323L/4234 - Semiconductor Technology Lab (2 cr.)
• PHYS 327/3216 - Operational Amplifiers and Applications (3 cr.)
• PHYS 404L/4225 - Photonics and Optical Communication Laboratory (1 cr.)
• PHYS 407L/4272 - Process Instrumentation and Digital Control Laboratory (1 cr.)
• PHYS 409L/4273 - Computerized Instrumentation Laboratory (1 cr.)
• PHYS 414/4224 - Photonics (3 cr.)
• PHYS 415/4930 - Selected Topics in Physics (3 cr.)
• PENG 476/4429 - Principles of Nuclear Engineering (3 cr.)
• PHYS 429/4276 - Computerized Instrumentation (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 who have completed the minor requirements and who meet the GPA requirement should apply for the minor in their senior year. 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:

• ENTR 203/2101 - Introduction to Entrepreneurship and Small Business Management (3 cr.)
• ENTR 303/3201 - Principles of Entrepreneurial Finance (3 cr.)
• ENTR 413/4102 - Entrepreneurship and Innovation (3 cr.)
• ENTR 417/4301 - Entrepreneurship Lab: Developing and Launching a New Venture (3 cr.)
• MKTG 302/2101 - Principles of Marketing (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 THREE Foundation Courses (9 credits)

- FILM 200/2200 - Analogue and Digital Practices (3 cr.)
- FILM 220/2120 - Introduction to Film (3 cr.)
- FILM 320/3120 - Cinema in Egypt and the Arab World (3 cr.)

Choose TWO Survey Courses (6 credits)

- FILM 310/3110 - History of World Cinema (3 cr.)
- FILM 340/3140 - Documentary Film (3 cr.)
- FILM 341/3041 - Anthropology and Film (3 cr.)
- FILM 351/3251 - Digital Editing (3 cr.)
- FILM 352/3352 - The Film Industry (3 cr.)
- FILM 353/3253 - Digital Cinematography (3 cr.)
- FILM 354/3354 - Film Audience and Reception (3 cr.)
- FILM 360/3160 - The Filmmaker (3 cr.)
- FILM 390/3190 - Film Genres (3 cr.)
- FILM 456/4356 - Experiential Learning in Film (3 cr.)

Choose ONE from the Following Senior Courses (3 credits)

- FILM 450/4250 - Senior Film Project (3 cr.)
- FILM 470/4370 - Advanced Seminar in Film Study and Research (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 - Mathematics of Investment (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.

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:

• CSCE 106/1001 - Fundamentals of Computer Science (3 cr.)

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

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

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

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

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

**Additional Requirements**

Plus three courses (two courses, if POLS 2003 had to be taken) chosen from:

- POLS 405/4605 - International Politics in the Middle East (3 cr.)
- POLS 409/4609 - Seminar: International Organization (3 cr.)
- POLS 411/4611 - Contemporary Foreign Policies (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.)

**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 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 (3 cr.)
- ARIC 454/5134 - Modern Movements in Islam (3 cr.)
- ARIC 463/5101 - Selected Topics in the History of Islamic Thought and Institutions (3 cr.)

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 JRMC 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):

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

And one of the following:

- JRMC 202/2202 - Multimedia Writing (3 cr.)
- JRMC 203/2203 - Mass Media Ethics and Responsibility (3 cr.)
- JRMC 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 JRMC 406/4406 - Internship (3 cr.) and JRMC 499/4499 - Directed Individual Study in Mass Communication (1-3 cr.) and Capstone Courses JRMC 4480, JRMC 4482 and JRMC 4425 and MTKG courses.

Linguistics Minor

The linguistics minor is administered by the English Language Institute in cooperation with the Anthropology Unit and the Department of Rhetoric and Composition. It offers courses in linguistics anthropology, Teaching English to Speakers of Other Languages (TESOL), or writing in specific genres. The minor is particularly valuable as a complement to majors such as English and comparative literature, Psychology, Sociology, Anthropology, and Journalism and Mass Communication.

Requirements (9 credits):

- LING 200/2201 - Languages of the World (3 cr.)
LING 252/2200 - Introduction to Linguistics (3 cr.)
LING 352/3075 - Language in Culture (3 cr.)

And two of the following elective courses (6 credits)

• ANTH 332/3060 - Social Constructions of Difference: Race, Ethnicity, and Class (3 cr.)
• ANTH 380/3105 - Fieldwork Methods (3 cr.)
• LING 268/2210 - Principles and Practice of Teaching English (3 cr.)
• LING 299/2299 - Selected Topic for Core Curriculum (3 cr.)
• LING 400/4099 - Selected Topics in Linguistics
• LING 268/2210 - Principles and Practice of Teaching English (3 cr.)
• RHET 322/3320 - Writing in the Social Sciences (3 cr.)
• RHET 325/3340 - The Rhetoric of Argument in the Humanities and Social Sciences (3 cr.)
• RHET 334/3250 - Digital Rhetoric (3 cr.)
• RHET 400/4360 - Writing and Editing for Publication (3 cr.)
• RHET 410/4260 - Writing for Project Funding (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.)
  and 2 courses among: 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 (0/3)
  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.)

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 EENG

• EENG 321/3202 - Automatic Control (3 cr.)
• EENG 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 315/3251 - Modern Sensors (3 cr.)
- PHYS 318/3271 - Instrumentation Systems and Control (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**

and **four courses (three courses if POLS 202 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 in the Middle East (3 cr.)
  
  See footnote one.

- 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. 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)

**Notes:**

Footnote 1: The requirement that POLS 3620 be taken as a prerequisite for POLS 4605 may be waived for minors with the consent of the instructor.

**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 1800-1801 Applied Private Instruction (1 cr. each = 2 cr.)

Two semesters of ensemble, chosen from among the following:
• MUSC 262-362-462/2620-2621-2622 - Arab Music Ensemble (1 cr.)
• MUSC 263-363-463/2630-2631-2632 - Guitar Ensemble (1 cr.)
• MUSC 264-364-464/2640-2641-2642 - Chamber Music Ensembles (1 cr.)
• MUSC 265-365-465/2650-2651-2652 - Rehearsal/Performance Practicum (1 cr.)
• MUSC 266-366-466/2660-2661-2662 - Chamber Singers (1 cr.)
• MUSC 267-367-467/2670-2671-2672 - 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 Protools 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 Protools 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 284-285-286/2850-2851-2852 - Private Instruction for Piano Proficiency (1 cr. each)

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 Protools I (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.

PHIL 2100 is prerequisite for all philosophy courses except PHIL 1010, PHIL 1099, and PHIL 2010.
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)

- PHYS 204L/2222 - Optics Laboratory (1 cr.)
- PHYS 211/2041 - Foundations of Modern Physics (3 cr.)
- PHYS 214/2221 - Waves and Optics (3 cr.)

And a minimum of 10 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 325/3231 - Introduction to Solid-State Physics (3 cr.)
- PHYS 413/4051 - Nuclear and Particle Physics (3 cr.)
- PHYS 421/4042 - Quantum Mechanics (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 351/3551 - Theory and History of 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 424/4524 - Political Economy of the Middle East and North Africa (3 cr.)
- POLS 442/4542 - Environmental Politics (3 cr.)

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.

A limited number of students are accepted into the Psychology minor. To declare a minor students must have completed PSYC 1000 and have obtained a grade of "B" or higher, as well as additional requirements, including the GPA as determined by the department. Selection of classes should be approved in consultation with the psychology faculty.

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. Psychology minors are permitted to enroll in any psychology courses for which they meet the requirements.

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.

- One 300-level sociology course
- One 400-level sociology course
- SOC 201/2101 - Introduction to Sociology (3 cr.)
- SOC 309/3102 - History of Social Theory (3 cr.)
• SOC 381/3105 - Doing Survey Research in the Social Sciences (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. per production)

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 350/2101 - Survey of Dramatic Literature (3 cr.)
- THTR 351/3101 - History of the Theatre I : Greek to Renaissance (3 cr.)
- THTR 460/4101 - Modern and Contemporary Drama (3 cr.)
- THTR 461/4103 - Dramatic Theory and Criticism (3 cr.)

**One additional Theatre 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 minor declaration, DSGN 2113 DSGN 2200.

Requirements (15 credits):

Choose FIVE from the following:

- DSGN 200/2200 - Analogue and Digital Practices (3 cr.)
- DSGN 210/2210 - Typography I (3 cr.)
• DSGN 213/2113 - Introduction to Visual Cultures (3 cr.)
• DSGN 318/3118 - History of Arabic Calligraphy (3 cr.)
• DSGN 320/3220 - Typography II (3 cr.)
• DSGN 330/3230 - Typography III (3 cr.)

Writing Minor

The Minor in Writing introduces and advances the knowledge, understanding and value of rhetoric and writing disciplines at the university. It provides the opportunity for students to study and practice across disciplines of writing, from narrative nonfiction and creative writing, to business and technical writing, to approaches to academic inquiry.

Requirements (15 credits):

Students who opt to minor in Writing must have completed RHET 2010 with a minimum grade of B-.

To fulfill the 15 credits for the Minor in Writing, students take:

Required course for each emphasis area:

• Writing in the Creative Genres: ECLT 3070 (Creative Writing)
• Business/Tehnical Writing: RHET 3210 (Business Communication)
• Academic Writing: RHET 3310 (Effective Rhetoric: Discourse and Power)

Additional Requirements (12 credits total):

• 6-9 credits in one emphasis area (Creativity Genres, Business and Technical, or writing and Society)
• 3 credits in a second emphasis area, and
• 0-3 credits in any area of their choice

Minor in Writing courses may be double-counted for:

• Core Curriculum credit at the secondary level
• Core Curriculum credit at the capstone level

Minor in Writing courses may NOT be double-counted for:

• Primary Core requirement in Rhetoric and Composition (3-9 credits)
• Major/Concentration credit

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

Students who select this area of emphasis will practice and work toward mastery in several creative genres of writing, including the following: narrative nonfiction, autobiography, travel writing, fiction, poetry, playwriting and children's literature. They will read within 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: Reading as Writers (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. Business/Technical Writing

Students who select this area of emphasis will practice and work toward professional competency in the fields of business, science and technical communications, including the following: business writing, technical writing, proposal writing, and digital rhetoric. 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 225/2220 - Public Speaking (3 cr.)
• RHET 320/3210 - Business Communication (3 cr.)
• RHET 321/3230 - Technical Communication (3 cr.)
• RHET 332/3240 - Presentation and Persuasion in Business (3 cr.)
• RHET 334/3250 - Digital Rhetoric (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.)

C. Writing and Society

Students who select this area will focus on the social power of writing: writing as a force in academic disciplines, writing and cognitive studies, and writing for publication in the various disciplines. Students learn how writing drives thought, genres, and the development of disciplines and consider ethical concerns raised through this practice.

• RHET 310/3310 - Effective Rhetoric: Discourse and Power (3 cr.)
• RHET 322/3320 - Writing in the Social Sciences (3 cr.)
• RHET 323/3330 - Changing Words, Changing Worlds (3 cr.)
• RHET 325/3340 - The Rhetoric of Argument in the Humanities and Social Sciences (3 cr.)
• RHET 330/3350 - Writing and Cognition (3 cr.)
• RHET 400/4360 - Writing and Editing for Publication (3 cr.)

Selected Topics and Independent Study

(Depending on ‘topic,’ these courses may fit in any of above ‘emphasis’ areas each course may be repeated for credit as long as the content differs each time it is taken.)

• RHET 199/1099 - Selected Topics (3 cr.)
• RHET 299/2099 - Selected Topics (3 cr.)

Public Speaking
• RHET 399/3099 - Selected Topics (3 cr.)  
  *Advanced Style*
• 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 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. Those interested in this option are required to complete a summer work assignment for Fall practicum 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. 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:

**SEMESTER IX**

- CENG 424/4253 - Methods and Equipment for Construction II (2 cr.)
- Eng. Concentration 1 elective
- CENG 448/4460 - Financial Management and Accounting for Construction (3 cr.) (MPA credit)
- CENG Elective (1)
- CENG 431/4351 - Transportation Engineering (3 cr.)
- CENG 490/4980 - Senior Project I (1 cr.) (Capstone Core Level I)
- CENG 497/4951 - Practical Training (1 cr.) (Practicum)

**SEMESTER X**

- Engineering Concentration 2
- CENG 567/5243 - Construction Leadership and Management Skills (3 cr.)
- CENG 491/4981 - Senior Project II (2 cr.) (Capstone Core Level II)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.) (MPA credit)
- PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.) (MPA credit)
- Science elective (from MDP list)
- Summer internship – public/NGO management focus preferred (MPA credit through 5198)
**SEMESTER XI**

- PPAD 591/5198 - Practicum (3 cr.) (Capstone Level II) (MPA Credit)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.) (MPA Credit)
- PPAD Elective selected with MPA advisor (MPA Credit)
- Science elective (selected with PPAD advisor)
- PPAD 598/5298 - Research Seminar (0 cr.) (MPA Credit)

**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 - Non-profit Management (3 cr.) (MPA Credit)
- PPAD 599/5299 - Research Guidance (0 cr.) (MPA Credit)

Summer thesis work, if needed.

Lists of MDP-relevant courses will be provided to students in the program prior to registration for each semester, based on offerings available in the appropriate departments

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**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.

Interested students have the option of starting the Dual Degree in the sixth semester of the political science BA at AUC. During the fifth semester (i.e., before the semester in which s/he enrolls in 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.

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 514/5214 - Human Rights in the Middle East (3 cr.) * (2 out of 3 starred courses required)

LAW 519/5219 - Human Rights in Africa (3 cr.) * (2 out of 3 starred courses required)

LAW 513/5213 - The European System of Human Rights Protection (3 cr.) * (2 out of 3 starred courses required)

LAW Electives**

**SEMESTER X (MA IHRL program)**

LAW Electives**

LAW Electives**

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

**SEMESTER XI (MA IHRL program)**

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

**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 Designat 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 5212, GREN 5213, GREN 5214), the Entrepreneurship Module (GREN 5221, GREN 5222, GREN 5223, GREN 5224), the Sustainable Cities Module (GREN 5231, GREN 5232, GREN 5233), or the Sustainable Communities Module (GREN 5241, GREN 5243, GREN 5242, GREN 5244). 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 5212, GREN 5213, GREN 5214), the Entrepreneurship Module (GREN 5221, GREN 5222, GREN 5223, GREN 5224), the Sustainable Cities Module (GREN 5231, GREN 5232, GREN 5233), or the Sustainable Communities Module (GREN 5241, GREN 5243, GREN 5242, GREN 5244). 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 total54 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.

**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.)
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

A maximum of two 400-level courses may be taken as part of the M.A. program. 300 and 400 level courses may be taken at the 500 level in which case extra readings and research will be required of the graduate student. 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 Master of Arts in Community Psychology is administrated by the graduate program in Counseling and 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.

Admission

The applicant should have a minimum of 3.0 GPA in undergraduates studies; if the student has an MA 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 filed, or have relevant work experience.

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 - Community and Group Interventions (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 596/5263 - Internship in Community Psychology (3 cr.)
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 Master of Arts in Counseling Psychology is administered by the graduate program in Counseling and Community 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 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 an MA 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 15 credits (or equivalent) in psychology or related social/behavioral sciences including Statistics, Research Design, and Psychopathology.

Language Requirement

The applicant should demonstrate proficiency in the English language in accordance with AUC standards

Courses (42 credit hours)

Course work for the Master of Art requires the completion of 42 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 504/5291 - 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 - Community and Group Interventions (3 cr.)

2. Specialization courses:
18 credits/ 6 courses
• PSYC 506/5261 - Psychopathology and Resilience across Cultures (3 cr.)
• PSYC 510/5241 - Theories of Counseling and Psychotherapy (3 cr.)
• PSYC 515/5251 - Psychological Assessment (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.)

**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 four 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 590/5259 - Practicum (3 cr.)

2. Choose five 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 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 Forced 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**
- LAW 503/5203 - Law and Economic Development (3 cr.)
- LAW 512/5212 - Human Rights and the United Nations (3 cr.)
- LAW 516/5216 - Economic, Social, and Cultural Rights (3 cr.)
- LAW 522/5222 - International Economic and Trade Law (3 cr.)

**Group 5**
- PPAD 504/5222 - Fundamentals of Financial Planning and Management for Government and Nonprofit Organizations (3 cr.)
- PPAD 505/5121 - Institutions, Democratization, and Public Policy (3 cr.)
- PPAD 512/5114 - Management of Development Programs (3 cr.)
- PPAD 517/5126 - Non-profit Management (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.)

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 six 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 six 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**
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 complete and defend a thesis.

**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 the 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 field.
4. 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.

A proposal must be submitted to, and approved by, a committee consisting of a faculty supervisor, a second reader, and the Department Chair. 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.

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 - Transformational 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.

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 544/5222 - School Governance and Management (3 cr.)
- EDUC 573/5224 - Research-based Instructional Leadership (3 cr.)
- EDUC 583/5229 - Issues in Comparative Education for Educational Leaders (3 cr.)
- EDUC 556/5233 - Action Research (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (3 cr.)

2. Higher Education

Students in the Higher Education concentration are required to complete at least three of the following courses:
• EDUC 552/5231 - The Potential of Emerging Technologies as Transformative Learning Tools (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 561/5249 - Current Issues in Higher Education (3 cr.)
• EDUC 580/5282 - Independent Study in International & Comparative Education (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:
1. Art, Archaeology and History
2. Language, Literature and Religion
3. 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.

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), 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. These 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.

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 ECLT 5106 "Greek Classics and Translation", ECLT 5108 "The History of Literary Criticism", ECLT 5109 "Modern Literary Criticism", and ECLT 5255 "Research Methods in Literature", unless they have taken these courses at the undergraduate level. 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.

Comprehensive Examination

All candidates for the master’s degree will be required to sit for a qualifying examination after completing six courses in the department. The exam will be both written and oral. The exam will cover a list of 30 books, to be submitted by the student one month in advance, and will be prepared in consultation with the adviser. The list must be approved by the student's adviser and the department chair. Selection will be made from the major periods of Western literature and should include selections from poetry, drama, and prose. If the exam is failed, it may be repeated once. The student will not be permitted to write a thesis until the exam is passed.

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 European 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 one of which must be a GWST course. 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 504/5104 - Gender and Migration (3 cr.)
- GWST 506/5106 - Reading Capital (3 cr.)
- GWST 507/5107 - Critical Geographies: Reading the Global South (3 cr.)

Electives:
The remaining three courses are 500 level electives one of which must be a GWST course. 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 - Approaches to Middle East/ North Africa Gender and Women's Studies (3 cr.)
- GWST 503/5103 - Histories and Theories of Gender and Development (3 cr.)
- GWST 504/5104 - Gender and Migration (3 cr.)

Electives:
The remaining three courses are 500 level electives one of which must be a GWST course. 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 semester only.

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

Master of Arts in International & Comparative Education

A total of 34 credit hours (10 curses plus the thesis) are required for MA students. Students may, with prior department approval, bring it 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 complete and defend a thesis.

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.

A proposal must be submitted to, and approved by, a committee consisting of a faculty supervisor, a second reader, and the Department Chair. 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.

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 575/5215 - Educational Policy Analysis (3 cr.)
- EDUC 534/5217 - Strategic Educational Planning and Development (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.

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 585/5219 - Current Issues in International Education Development and Policy (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (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 552/5231 - The Potential of Emerging Technologies as Transformative Learning Tools (3 cr.)
- EDUC 554/5232 - Reading and Writing in the Content Area Classroom (3 cr.)
- EDUC 556/5233 - Action Research (3 cr.)
- EDUC 557/5234 - Reaching Diverse and Underserved Learners (3 cr.)
- EDUC 581/5239 - Current Issues in Teaching & Learning (3 cr.)
- EDUC 580/5282 - Independent Study in International & Comparative Education (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 (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.)
Two out of the following three courses:

- LAW 513/5213 - The European System of Human Rights Protection (3 cr.)
- LAW 514/5214 - Human Rights in the Middle East (3 cr.)
- LAW 519/5219 - Human Rights in Africa (3 cr.)

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., graded)

**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.

Interested students have the option of starting the Dual Degree in the sixth semester of the political science BA at AUC. During the fifth semester (i.e., before the semester in which s/he enrolls in 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.
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 514/5214 - Human Rights in the Middle East (3 cr.) * (2 out of 3 starred courses required)

LAW 519/5219 - Human Rights in Africa (3 cr.) * (2 out of 3 starred courses required)

LAW 513/5213 - The European System of Human Rights Protection (3 cr.) * (2 out of 3 starred courses required)

LAW Electives**

**SEMESTER X (MA IHRL program)**

LAW Electives**

LAW Electives**

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

**SEMESTER XI (MA IHRL program)**

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

**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.

- 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.)

Note

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

- JRMC 500/5200 - Seminar in Mass Communication Theory and Literature (3 cr.)
- JRMC 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.)
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 2011 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 2101-2102-2103.
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 eight courses:

- An approved 400 or 500 level course in modern Arabic literature.
- ARIC 451/5133 - Islamic Institutions (3 cr.)
- ARIC 542/5231 - Seminar on the Nineteenth-Century Middle East (3 cr.)
- HIST 5222
- ECON 511/5252 - Economic Development in Middle East Countries (3 cr.)
- GWST 501/5101 - Approaches to Middle East/ North Africa Gender and Women's Studies (3 cr.)
- LAW 505/5205 - Islamic Law Reform (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 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 requirement 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: General 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 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- MRS 518/5201 - International Refugee Law (3 cr.)
- MRS 500/5202 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)
- MRS 501/5203 - 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 - 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 Migrants (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 500/5201 - Classical Western Philosophy (3 cr.)
• PHIL 501/5202 - Advanced Seminar in Islamic Philosophy (3 cr.)
• PHIL 504/5203 - Kant and Idealism (3 cr.)
• PHIL 505/5204 - Advanced Seminar in Phenomenology (3 cr.)

Optional Philosophy Graduate Courses:

• PHIL 502/5111 - Metaphysics (3 cr.)
• PHIL 503/5199 - Selected Topics in Philosophy (3 cr.)
• PHIL 510/5112 - Advanced Seminar in Aesthetics (3 cr.)
• PHIL 517/5113 - Current Trends in Philosophy (3 cr.)
• PHIL 518/5114 - Philosophical Masterpieces (3 cr.)
• PHIL 520/5115 - Philosophical Figures (3 cr.)
• PHIL 530/5116 - Advanced Ethics (3 cr.)
• PHIL 458-558/5119 - Advanced Seminar in Political Philosophy (3 cr.)
• PHIL 560/5117 - Philosophy of Language and Communication (3 cr.)
• PHIL 562/5118 - Formal and Mathematical Logic (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 535/5235 - Middle East Politics (3 cr.)
  (1st semester)
• POLS 558/5258 - Comparative Politics and the Middle East (3 cr.)
  (2nd semester)
• POLS 530/5230 - Regime Change and Democratization (3 cr.)
  (or Tubingen equivalent 3rd semester)
• POLS 545/5245 - Development Politics and International Cooperation (3 cr.)
  (3rd semester)
Plus- elementary German Proficiency.

Plus four 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

All specializations require the following course:

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 530/5230 - Regime Change and Democratization (3 cr.)
- POLS 558/5258 - Comparative Politics and 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 Theory (3 cr.)
- POLS 525/5225 - International Political Economy (3 cr.)

In addition, three 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 Theory (3 cr.)
- POLS 504/5204 - Advanced Political Science Methods (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 505/5205 - Identity, Culture and Norms in World Politics (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, three courses 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 584/5284 - Practicum: Internship or Research (3 cr.)
- POLS 585/5285 - Project Seminar (3 cr.)
- POLS 586/5286 - Skills in Development Practice (3 cr.)

Plus one course from the following:

- POLS 501/5201 - Comparative Theory (3 cr.)
- POLS 503/5203 - International Relations Theory (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 are strongly encouraged to take up to six hours of 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 the knowledge and skills necessary to understand, critically engage with, and effect change in local, regional, and global communities. Its longstanding tradition of combining scholarship with a commitment to social, economic, and political justice, alongside the quality and diversity of its students and faculty, make the program a dynamic environment for learning and research.
The program emphasizes an interdisciplinary approach to social theory and research. As such, participating faculty focus on a broad set of issues, including media and public culture, memory and social history, power and inequality, development and contentious politics, migration, and transnational studies, as well as gender, religion, and urban studies.

The vibrant and cosmopolitan city of Cairo makes the program's location ideal for students interested 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, however, encourages and accepts applications from all interested and qualified applicants.

**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.

**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. 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.

**Thesis**

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.

**Teaching Arabic as a Foreign Language (M.A.)**

*Professor:* El S. Badawi

*Assistant Professors:* Z. Taha (Director, Arabic Language Institute), 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 with undergraduate specialization in a modern language other than Arabic must take a number of additional courses in the field of Arabic studies. Applicants who are not specialized in Arabic language will need also to take an entrance exam to be offered by ALI to show that applicant has sufficient command of Arabic to qualify for admission into an Arabic language program. 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.

**Language**

Non-native speakers of Arabic and holders of 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. The level of language proficiency required for admission is not less than the level 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 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.

**Courses**

A minimum of 30 graduate credit hours and a thesis are required except as indicated in the "Thesis" section below.

**Required of all students**

- 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 a Foreign Language II (3 cr.)
- APLN 553/5205 - Sociolinguistics (3 cr.)
- APLN 555/5206 - Seminar on Challenges Facing AFL Teachers (3 cr.)

**Electives**

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.

**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 and 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.)**

*Professors Emeriti:* S. El Araby, Y. El-Ezabi, E. F. Perry, P. Stevens  
*Associate Professors:* R. Bassiouney, M. Plumlee, R. Williams (Chair)  
*Assistant Professors:* L. Fredricks, A. Gebril

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**

Applicants for the Master of Arts degree in TESOL must have teaching experience prior to admission into the program, or may 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 500/5303 - English Grammar (3 cr.)
• APLN 501/5301 - Principles of Linguistic Analysis (3 cr.)
• APLN 502/5305 - Assessment in Language Learning (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.)
• APLN 520/5302 - Research Methods in Applied Linguistics (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 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.)
   • APLN 570/5311 - Thesis Proposal Writing (3 cr.)

2. Linguistics:
   • APLN 521/5320 - English Syntax (3 cr.)
   • APLN 540/5370 - Selected Topics in Applied Linguistics (1, 2, or 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.)

3. Cross-linguistic, cross-cultural studies:
   • APLN 525/5330 - Language Transfer, Contrastive Analysis, and Error Analysis (3 cr.)
   • APLN 540/5370 - Selected Topics in Applied Linguistics (1, 2, or 3 cr.)
   • APLN 550/5322 - Language Pragmatics (3 cr.)
   • APLN 553/5331 - Sociolinguistics (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.
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 JRMC 5200, JRMC 5202, JRMC 5204 and JRMC 5250, sit for comprehensives and enroll for a thesis.

Master of Business Administration (MBA)

The MBA is a professional degree designed to prepare students who have completed undergraduate work in any academic discipline and intend to pursue a management career. The curriculum emphasizes the principles underlying business operations as well as advanced technical knowledge in relevant specializations. It provides tools for analysis and helps develop a managerial perspective. Advanced specialized and elective courses provide the necessary skills in a functional area of business. The MBA program is accredited by the Association to Advance Collegiate Schools of Business (AACSB), European Quality Improvement System (EQUIS), and the Association of MBAs (AMBA).

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 (3-27 credits)

The MBA Foundation courses are directed at providing the student with a basic background in the various functional areas of Business. Between one and nine courses are required for the completion of foundation courses. Once these foundation courses are completed, students may start taking the elective courses. These courses are usually chosen from the following list:

- 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 in a Dynamic Environment (3 cr.)
- MGMT 510/5307 - Entrepreneurship and Innovation (3 cr.)
- MKTG 520/5201 - Marketing Management (3 cr.)
- MOIS 508/5201 - Information Technology in Business (3 cr.)
- OPMG 507/5201 - Introduction to Business Statistics (3 cr.)
- OPMG 520/5202 - Operations Management for Competitive Advantage (3 cr.)

MBA Electives and Concentration (18-33 credits)

Advanced coursework for the MBA constitutes a diversified program aiming at providing the student with:

a. General background in the concepts, processes, and institutions of finance, marketing, personnel, and operations management
Students must take a minimum of 9-12 credit hours that covers at least three of the following business areas:

- **Finance**
- **Leadership and Human Resources Management**
- **Management of Information Technology**
- **Marketing**
- **Operations Management**
- **Construction Industry**

Students may concentrate in one of these areas (except Accounting) by taking at least three courses in that area (9 credit hours).

**Accounting**
- 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.)

**Finance**
- FINC 541/5203 - Investments and Portfolio Management (3 cr.)
- FINC 542/5311 - International Financial Management (3 cr.)
- FINC 543/5312 - Financial Institutions and Markets (3 cr.)
- FINC 512/5313 - Options and Derivatives (3 cr.)
- FINC 513/5331 - Fixed Income Securities (3 cr.)
- FINC 545/5333 - Private Equity and Venture Capital (3 cr.)
- FINC 544/5351 - Advanced Corporate Finance (3 cr.)
- FINC 517/5352 - Financial Modeling (3 cr.)
- FINC 570/5370 - Selected Topics in Financial Management (3 cr.)
- FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

**Leadership and Human Resources Management**
- MGMT 503/5301 - Leading Change in Organizations (3 cr.)
- MGMT 504/5302 - Human Capital Strategy (3 cr.)
- MGMT 506/5304 - Management of International Business Organizations (3 cr.)
- MGMT 507/5305 - Global Business Strategy (3 cr.)
- MGMT 509/5306 - Leadership (3 cr.)
• MGMT 511/5308 - Strategic Management of Innovation (3 cr.)
• MGMT 000/5310 - Business Consultancy (3 cr.)
• MGMT 570/5370 - Selected Topics in Management (3 cr.)
• MGMT 575/5375 - Independent Study in Management (1-3 cr.)

Management of Information Technology

• MOIS 549/5301 - Systems Analysis, Design, and Implementation (3 cr.)
• MOIS 550/5302 - Decision Support Systems (3 cr.)
• MOIS 551/5303 - Electronic Business: Doing Business in the Digital Economy (3 cr.)
• MOIS 555/5305 - Information Technology Strategy and Entrepreneurship (3 cr.)
• MOIS 517/5309 - Technology and Innovation Management (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.)

Marketing

• MKTG 521/5301 - Marketing Research Methods (3 cr.)
• MKTG 522/5302 - Marketing Channel Strategies (3 cr.)
• MKTG 523/5303 - Sales Force Management (3 cr.)
• MKTG 524/5304 - Global Marketing (3 cr.)
• MKTG 526/5305 - Integrated Marketing Communication (3 cr.)
• MKTG 530/5306 - Strategic 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

• OPMG 521/5301 - Managing and Coordinating Supply Chains (3 cr.)
• OPMG 528/5302 - Managing Dynamic Projects (3 cr.)
• OPMG 530/5303 - Data Analysis (3 cr.)
• OPMG 531/5304 - Stochastic Models in Managerial Decision Making (3 cr.)
• OPMG 532/5305 - Operations Strategy (3 cr.)
• OPMG 533/5306 - Business Dynamics (3 cr.)
• OPMG 570/5370 - Selected Topics in Operations Management (3 cr.)
• OPMG 575/5375 - Independent Study in Operations Management (1-3 cr.)

Construction Industry

Students may concentrate in the Construction Industry by taking at least four courses in that area (12 credit hours)

• CENG 530/5261 - Contracts in Construction Industry (3 cr.)

** Mandatory for students who do not have a degree in Construction Engineering from AUC. Not open for AUC students with a degree in construction engineering.
• CENG 531/5262 - Construction Management (3 cr.)
• CENG 532/5263 - Planning, Scheduling and Control (3 cr.)
  ** Mandatory for students who do not have a degree in Construction Engineering from AUC. Not open for
  AUC students with a degree in construction engineering.
• CENG 533/5264 - Management for Multi-National Environments (3 cr.)
  * Not open for AUC students in construction engineering students with a concentration in Construction Management.
• CENG 534/5265 - Risk Management and Bidding Strategies (3 cr.)
  * Not open for AUC students in construction engineering students with a concentration in Construction Management.
• CENG 535/5266 - Claims and Disputes in the Construction Industry (3 cr.)
• CENG 536/5267 - Systems Analysis for Construction (3 cr.)
• CENG 537/5268 - Resource Management for Construction Projects (3 cr.)
• CENG 538/5269 - Procurement of Assets & Services for Construction Projects (3 cr.)
• CENG 567/5243 - Construction Leadership and Management Skills (3 cr.)

MBA Capstone Course (3 credits)

Finally, a capstone course, the following is required for all MBA candidates:
• MGMT 508/5401 - Strategic Management (3 cr.)

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. Classes are on monthly basis and are held on long weekends, alternating between three days weekend in one month (Thursday to Saturday) and five days weekend in the other month (Thursday to Monday) and so on.

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 throughout 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.)
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 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 529/5222 - Design and Analysis of Parallel Algorithms (3 cr.)
- CSCE 532/5242 - Parallel Computer Architecture (3 cr.)
- CSCE 535/5232 - High Speed Networks (3 cr.)
- CSCE 541/5271 - Advanced Software Engineering (3 cr.)
- CSCE 543/5272 - Advanced Software Quality (3 cr.)
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 EENG course list:

- EENG 510/5210 - Advanced Solid-State Devices (3 cr.)
• EENG 516/5216 - Analog Integrated Circuit Design (3 cr.)
• EENG 517/5217 - Digital Integrated Circuit Design (3 cr.)
• EENG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
• EENG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
• EENG 520/5231 - Advanced Digital Communications (3 cr.)
• EENG 521/5233 - Wireless Communication Systems (3 cr.)
• EENG 522/5230 - Stochastic Processes for Engineers (3 cr.)
• EENG 524/5234 - Enabling Technologies for High Date Rate Communications (3 cr.)
• EENG 525/5225 - Digital Signal Processing (3 cr.)
• EENG 526/5236 - Information Theory and Coding (3 cr.)
• EENG 530/5238 - Advanced Computer Networks (3 cr.)
• EENG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)
• EENG 547/5247 - RF and Microwave Systems (3 cr.)
• EENG 548/5248 - RF Integrated Circuit Design (3 cr.)
• EENG 549/5249 - Antennas Design and Applications (3 cr.)
• EENG 553/5223 - Fault-tolerant Computing and Reliability Modeling (3 cr.)
• EENG 556/5226 - Networked Control Systems Design & Applications (3 cr.)
• EENG 594/5930 - Advanced Topics in Electronics Engineering (3 cr.)

**Note:**
- Up to two PHD EENG 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
  1. one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering;
  2. Graduate Independent Study course (EENG 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 EENG 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 EENG 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:

- EENG 510/5210 - Advanced Solid-State Devices (3 cr.)
- EENG 516/5216 - Analog Integrated Circuit Design (3 cr.)
- EENG 517/5217 - Digital Integrated Circuit Design (3 cr.)
- EENG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
- EENG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
- EENG 520/5231 - Advanced Digital Communications (3 cr.)
- EENG 521/5233 - Wireless Communication Systems (3 cr.)
- EENG 522/5230 - Stochastic Processes for Engineers (3 cr.)
- EENG 524/5234 - Enabling Technologies for High Date Rate Communications (3 cr.)
- EENG 525/5225 - Digital Signal Processing (3 cr.)
- EENG 526/5236 - Information Theory and Coding (3 cr.)
- EENG 530/5238 - Advanced Computer Networks (3 cr.)
• EENG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)
• EENG 547/5247 - RF and Microwave Systems (3 cr.)
• EENG 548/5248 - RF Integrated Circuit Design (3 cr.)
• EENG 549/5249 - Antennas Design and Applications (3 cr.)
• EENG 553/5223 - Fault-tolerant Computing and Reliability Modeling (3 cr.)
• EENG 556/5226 - Networked Control Systems Design & Applications (3 cr.)
• EENG 594/5930 - Advanced Topics in Electronics 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:
1. one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering;
2. Graduate Independent Study (EENG 5910) course (1 to 3 credit hours).

MoT Courses (9 credit hours)
Candidates must select 3 courses out of the following list:
• EENG 570/5271 - New Product Design and Development (3 cr.)
• EENG 571/5272 - Technology and Innovation Management (3 cr.)
• EENG 572/5273 - Strategic Management of Innovation (3 cr.)
• EENG 573/5274 - Entrepreneurship and Innovation (3 cr.)

Environmental Systems Design (M.Eng.)
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 mechanical engineering courses.

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 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 Cooperation, and International Security (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, one (1) course in group 2, and one (1) course in group 3.

Group 1: Complete all four (4) of the following:
• PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.)
• PPAD 527/5251 - International Organization in Global Governance (3 cr.)
• PPAD 528/5252 - Theory and Practice of Negotiation (3 cr.)
• PPAD 540/5161 - Diplomacy: Theory and Practice (3 cr.)

Group 2: Complete one (1) of the following:

• PPAD 524/5129 - Globalization and Development (3 cr.)
• PPAD 529/5151 - Issues in International Security (3 cr.)
• LAW 509/5209 - International Law (3 cr.)

Group 3: Complete one (1) of the following:

• PPAD 502/5231 - Economics for Public Policy Analysis (3 cr.)
• PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
• POLS 561/5261 - Public Policy and Development (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 Security – 5 courses (15 credits) required

Group 1: Required for all students in the concentration

• PPAD 530/5152 - International Intervention and Conflict Management (3 cr.)
• PPAD 539/5258 - Role of Force: Strategy and Statecraft (3 cr.)

Group 2: Complete one (1) of the following:

• PPAD 531/5153 - Armament, Arms Control and Disarmament (3 cr.)
• PPAD 532/5154 - Issues in regional security in the Middle East and Africa (3 cr.)
• POLS 554/5254 - Comparative Foreign Policy: Theories and Applications (3 cr.)
• PPAD 591/5198 - Practicum (3 cr.)
• PPAD 529/5151 - Issues in International Security (3 cr.)
  (If not taken in core group 2).
• PPAD 542/5159 - Islam and Global Affairs (3 cr.)
• PPAD 543/5160 - War, Peace and Conflict Resolution in Islam (3 cr.)

Group 3:
Complete two (2) additional relevant courses (other than PPAD 5298 and PPAD 5299; selected in consultation with departmental advisor.

MGA Concentration 2: International Cooperation -- 5 courses (15 credits) required

Group 1: Required for all students in concentration

• PPAD 533/5155 - Cooperation for Development in the Multilateral System (3 cr.)
• POLS 525/5225 - International Political Economy (3 cr.)

Group 2: Complete one (1) of the following:

• PPAD 516/5132 - Social and Environmental Policy (3 cr.)
• PPAD 534/5156 - Comparative Bilateral Cooperation Policies for Development (3 cr.)
• PPAD 535/5157 - Multilateral Cooperation for Development at the Country Level: Issues and Practice (3 cr.)
• PPAD 591/5198 - Practicum (3 cr.)
• PPAD 542/5159 - Islam and Global Affairs (3 cr.)

Group 3:
Complete two (2) additional relevant courses (other than PPAD 5298 and PPAD 5299; selected in consultation with departmental advisor).

Master's Project (6 credits)

Students are required to complete a master's project addressing a challenge relevant to their concentration from the point of view of an organization involved in the issue, which will serve as the project's client. If a member of the organization's staff is not available, the client role may be performed by an alternate designated by the department. The preparation of the master's project proposal and final report must comply with departmental guidelines with regard to client involvement, content, format, dates, and the review and supervision process. Students developing a project proposal with a client are strongly encouraged to enroll in PPAD 5198, the practicum. Once the project proposal is approved by the student's master's project supervisor, the student must enroll in PPAD 5298, the research seminar, for one semester and for the additional semesters that are needed to complete the project, in PPAD 5299, research guidance, until the project is completed. The student will pay 3 credits of tuition for the first enrollment in PPAD 5299, subsequent enrollments if needed will require payment of 1 credit per semester. The master's project may be completed as a team or as an individual project.

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 LLM 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., graded)

Public Administration, with concentrations in Management of Public Sector Reform, and Management of Nonprofit and Development Organizations (MPA)

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. 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 Management of Public Sector Reform or the concentration in Management of Nonprofits and Development Organizations. 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 thesis consistent with department and university guidelines and complete at least one enrollment in each of the mandatory thesis sequence courses (PPAD 5298 and PPAD 5299, both non-credit).

Core Requirement (18 credit hours):

Students must complete four (4) courses in group 1, one (1) course in group 2, and one (1) course in group 3.

**Group 1: Complete all four (4) of the following:**
- 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.)

**Group 2: Complete one (1) of the following:**
- PPAD 504/5222 - Fundamentals of Financial Planning and Management for Government and Nonprofit Organizations (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.)

**Group 3: 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.)
- PPAD 515/5202 - Public Policy Analysis and Program Evaluation (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 3 concentration course, if not taken as a core course (i.e., a course may be counted toward only one requirement).

MPA Concentration 1: Management of Public Sector Reform -- 5 courses (15 credits) required

**Group 1: Choose two from the following four courses**
- PPAD 510/5113 - Organizational Behavior for Government and Nonprofit Management (3 cr.)
- PPAD 513/5223 - International Models of Public Management (3 cr.)
- PPAD 518/5123 - Governance, Accountability, and Stakeholder Negotiations (3 cr.)
• PPAD 523/5125 - Citizen-centered government (3 cr.)

**Group 2:** Complete three other courses selected in consultation with the departmental advisor, of which at least two must be PPAD courses. Students are strongly encouraged to take a course in another School of Global Affairs and Public Policy department or center if possible and in particular students in this concentration are strongly recommended to take at least one course in law as a concentration elective.

MPA Concentration 2: Management of Nonprofit and Development Organizations -- 5 courses (15 credits) required

**Group 1:** Choose two from the following three courses

- PPAD 512/5114 - Management of Development Programs (3 cr.)
- PPAD 517/5126 - Non-profit Management (3 cr.)
- PPAD 526/5128 - Corporate Social Responsibility and NGO Partnerships (3 cr.)

**Group 2:** Complete three other courses selected in consultation with the departmental advisor, of which at least two must be PPAD courses.

Students are strongly encouraged to take a course in another School of Global Affairs and Public Policy department or center if possible.

**Practicum (PPAD 591): 3 credits Graded Pass-Fail**

Students are strongly encouraged to undertake a practicum within their concentration, ideally in conjunction with their thesis work.

**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 are required to 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 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.

**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 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. Those interested in this option are required to complete a summer work assignment for Fall practicum 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. 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:

**SEMESTER IX**
- CENG 424/4253 - Methods and Equipment for Construction II (2 cr.)
- Eng. Concentration 1 elective
- CENG 448/4460 - Financial Management and Accounting for Construction (3 cr.) (MPA credit)
- CENG Elective (1)
- CENG 431/4351 - Transportation Engineering (3 cr.)
- CENG 490/4980 - Senior Project I (1 cr.) (Capstone Core Level I)
- CENG 497/4951 - Practical Training (1 cr.) (Practicum)

**SEMESTER X**
- Engineering Concentration 2
- CENG 567/5243 - Construction Leadership and Management Skills (3 cr.)
- CENG 491/4981 - Senior Project II (2 cr.) (Capstone Core Level II)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.) (MPA credit)
- PPAD 500/5201 - Research Methods for Public Policy and Administration (3 cr.) (MPA credit)
- Science elective (from MDP list)
- Summer internship – public/NGO management focus preferred (MPA credit through 5198)

**SEMESTER XI**
- PPAD 591/5198 - Practicum (3 cr.) (Capstone Level II) (MPA Credit)
- ENGR 516/5240 - Engineering for a Sustainable Environment (3 cr.) (MPA Credit)
- PPAD Elective selected with MPA advisor (MPA Credit)
- Science elective (selected with PPAD advisor)
- PPAD 598/5298 - Research Seminar (0 cr.) (MPA Credit)

**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 - Non-profit Management (3 cr.) (MPA Credit)
- PPAD 599/5299 - Research Guidance (0 cr.) (MPA Credit)
Summer thesis work, if needed. Lists of MDP-relevant courses will be provided to students in the program prior to registration for each semester, based on offerings available in the appropriate departments.

**Public Policy, with concentrations in Social and Environmental Policy, Promotion and Regulation of Private Sector Development, and Media 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. 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 consistent with department and university guidelines and complete at least one enrollment in each of the mandatory thesis sequence courses (PPAD 5298 and PPAD 5299, both non-credit).
Core Requirement (18 credit hours):

Students must complete four (4) courses in group 1, one (1) course in group 2, and one (1) course in group 3.

**Group 1: Complete all four (4) 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 Analysis and Program Evaluation (3 cr.)

**Group 2: Complete one (1) of the following:**
- PPAD 505/5121 - Institutions, Democratization, and Public Policy (3 cr.)
- PPAD 506/5111 - Essentials of Public Policy and Administration (3 cr.)
- PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)
- PPAD 517/5126 - Non-profit Management (3 cr.)
- PPAD 518/5123 - Governance, Accountability, and Stakeholder Negotiations (3 cr.)
- PPAD 519/5124 - Leadership and Communication for Public Affairs (3 cr.)

**Group 3: 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.)

**NOTE:** Students with limited preparation in management and social science are strongly encouraged to enroll in PPAD 5111; conversely, students with a background in management and/or social science may not enroll in PPAD 5111 for credit toward the MPP. Students with strong preparation in economics may substitute any course in Group 2 or 3 to complete their Group 1 requirement.

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: Social and Environmental Policy – 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: Required for all students in concentration**
- PPAD 516/5132 - Social and Environmental Policy (3 cr.)

**Group 2: Complete one (1) of the following:**
- PPAD 520/5133 - Global Health Issues and Policies (3 cr.)
- PPAD 524/5129 - Globalization and Development (3 cr.)
- PPAD 525/5127 - Reforming Delivery of Social Services (3 cr.)
- PPAD 526/5128 - Corporate Social Responsibility and NGO Partnerships (3 cr.)
Group 3: Complete three (3) additional courses selected in consultation with the departmental advisor, of which at least two should be PPAD courses selected in consultation with departmental advisor. Students are strongly encouraged to take at least one (1) course in another School of Global Affairs and Public Policy department or center if possible.

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:** Complete two (2) of the following:
- PPAD 521/5134 - Government Regulation of Business and Investment (3 cr.)
- PPAD 522/5135 - Promotion of Local Economic Development (3 cr.)
- PPAD 507/5131 - Government Finance for Policy Analysis (3 cr.)

**Group 2:** Complete two (2) courses from the offerings of the Law and/or Economics Departments
Selected in consultation with departmental advisor. Students with limited backgrounds in law or economics may take one course at the 400 level in law or economics or select alternative PPAD course(s).

**Group 3:** Complete one (1) additional PPAD course selected in consultation with the departmental advisor.

MPP Concentration 3: Media Policy - 5 courses (15 credits) required

**Group 1:** Required for all students in the concentration:
- JRMC 444/4444 - Media Law and Policy (3 cr.)
- JRMC 550/5250 - Seminar in International Communication (3 cr.)
- JRMC 570/5270 - Seminar in Mass Communication and National Development (3 cr.)

**Group 2:** Complete two of the following:
- JRMC 420/4420 - Media Management (3 cr.)
- JRMC 502/5202 - Seminar: Current Issues in Mass Communication (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 and Humanitarian Law (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 are required to 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.

**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 electives.
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.)

Biotechnology Electives (12 credit hours)
Student may select from the following list of courses:

- BIOT 511/5211 - Bioengineering (3 cr.)
- BIOT 521/5206 - Fundamentals of Bioinformatics (3 cr.)
- BIOT 531/5207 - Molecular Diagnosis (3 cr.)
- BIOT 533/5209 - Pharmacogenomics and Pharmacogenetics (3 cr.)
- BIOT 541/5208 - Molecular Genetics (3 cr.)
- BIOT 543/5210 - Microbial Biotechnology (3 cr.)
- BIOT 551/5930 - Selected 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. Since various research topics are addressed in a sequence of two seminar courses, the student must register for the first (BIOT 5940) before submitting a thesis topic while the second (BIOT 5941) must be taken during the execution of the thesis research. 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 590/5940 - Graduate Seminar I (2 cr.)
- BIOT 591/5941 - Graduate Seminar II (1 cr.)
- BIOT 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)

Chemistry, with concentration in Food Chemistry (M.Sc.)

Master of Science in Chemistry

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 Concentration can fulfill the 12 credits of the concentration requirements with any chemistry 500 or 600 level courses. With the consent of the program director, one 500 or 600 level course in another science or engineering discipline can be taken and counted towards the concentration requirements.

Core Courses (9 credit hours)

To be chosen from the following courses:

- 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 500/5206 - Advanced Food Chemistry (3 cr.)
- CHEM 519/5219 - Food Analysis (3 cr.)

Food Chemistry Concentration 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 519/5219 - Food Analysis (3 cr.)
Chemistry 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. Since various research topics are addressed in a sequence of two seminar courses, the student must register for the first (CHEM 5940) before submitting a thesis topic while the second (CHEM 5941) must be taken during the execution of the thesis research. 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 590/5940 - Graduate Seminar I (2 cr.)
- CHEM 591/5941 - Graduate Seminar II (1 cr.)
- 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: four core courses (12 credit hours), and four electives (12 credit hours).

Core Courses (12 credit hours)

All candidates must take the following four core 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.)
Elective Courses (12 Credit hours)

- CSCE 527/5262 - Neural Networks and Genetic Algorithms (3 cr.)
- CSCE 529/5222 - Design and Analysis of Parallel Algorithms (3 cr.)
- CSCE 532/5242 - Parallel Computer Architecture (3 cr.)
- CSCE 535/5232 - High Speed Networks (3 cr.)
- CSCE 541/5271 - Advanced Software Engineering (3 cr.)
- CSCE 543/5272 - Advanced Software Quality (3 cr.)
- CSCE 555/5268 - Computer Graphics and Animation (3 cr.)
- CSCE 561/5263 - Knowledge Engineering (3 cr.)
- CSCE 563/5267 - Digital Image Processing (3 cr.)
- CSCE 564/5265 - Web Mining (3 cr.)
- CSCE 567/5266 - Computer Vision (3 cr.)
- CSCE 569/5264 - Natural Language Processing and Machine Translation (3 cr.)
- CSCE 585/5930 - Selected Topics in Computer Science (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 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 and ENGR 5941, Graduate Thesis Seminar I and II. Students must register in ENGR 5940 before submitting a thesis topic and in ENGR 5941 during execution of the thesis research to present their thesis plan. 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 EENG course list:

- EENG 510/5210 - Advanced Solid-State Devices (3 cr.)
- EENG 516/5216 - Analog Integrated Circuit Design (3 cr.)
- EENG 517/5217 - Digital Integrated Circuit Design (3 cr.)
- EENG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
- EENG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)
- EENG 520/5231 - Advanced Digital Communications (3 cr.)
• EENG 521/5233 - Wireless Communication Systems (3 cr.)
• EENG 522/5230 - Stochastic Processes for Engineers (3 cr.)
• EENG 524/5234 - Enabling Technologies for High Date Rate Communications (3 cr.)
• EENG 525/5225 - Digital Signal Processing (3 cr.)
• EENG 526/5236 - Information Theory and Coding (3 cr.)
• EENG 530/5238 - Advanced Computer Networks (3 cr.)
• EENG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)
• EENG 547/5247 - RF and Microwave Systems (3 cr.)
• EENG 548/5248 - RF Integrated Circuit Design (3 cr.)
• EENG 549/5249 - Antennas Design and Applications (3 cr.)
• EENG 553/5223 - Fault-tolerant Computing and Reliability Modeling (3 cr.)
• EENG 556/5226 - Networked Control Systems Design & Applications (3 cr.)
• EENG 594/5930 - Advanced Topics in Electronics Engineering (3 cr.)

**Note:**
- Up to two PHD EENG 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
  1. one 400-level or graduate-level course (3 credit hours) from outside the department and within the School of Sciences and Engineering;
  2. Graduate Independent Study course (EENG 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 EENG 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 (2 credits) and ENGR 5941 (1 credit), Graduate Thesis Seminar I and II. Students must register in ENGR 5940 before submitting a thesis topic and in ENGR 5941 during execution of the thesis research to present their thesis plan. To ensure adequate faculty consultation on the thesis, the student must register for EENG 5980, Graduate Thesis, by the completion of 18 credit hours. Students must register in EENG 5980 for at least two semesters. The first two registrations in EENG 5980 must be for three credit hours, after that EENG 5980 is taken for one credit hour each semester until completion of the program requirements.

**Environmental Engineering (M.Sc.)**

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 well-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 the following Graduate Thesis Seminar courses. Students must register in ENGR 5940 before submitting a thesis topic and in ENGR 5941 during execution of the thesis research to present their thesis plan. To ensure adequate faculty consultation on the thesis, the student must register for the following ENVE course, by the completion of 18 credit hours.

Students must register in the following ENVE course continuously and for at least two semesters. 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, and Investments (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 37 credit hours of which 31 credit hours of course work and six credit hours of thesis. Students with relevant background can waive up to two core courses but must complete a minimum of 31 credit hours (courses and thesis) 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.)
• OPMG 507/5201 - Introduction to Business Statistics (3 cr.)

MSc Electives (12 credits)

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

1- Investments Concentration

Students must take four elective (12 credits)
• 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 570/5370 - Selected Topics in Financial Management (3 cr.)
• FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

2- Corporate Finance Concentration

• 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 570/5370 - Selected Topics in Financial Management (3 cr.)
• FINC 575/5375 - Independent Study in Financial Management (1-3 cr.)

Research Methodology (1 Credit hour)

A student must take a research methodology course before starting the thesis.
• FINC 590/5402 - Research Methodology (1 cr.)

Thesis (six 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 (6 cr.)
Mechanical Engineering, with specializations in Design, Industrial Engineering, Materials & Manufacturing Engineering, Mechatronics, and Power (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 573/5263 - Cogeneration and Energy Storage (3 cr.)
• MENG 575/5265 - CFD and Turbulence Modeling (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 and ENGR 5941, Graduate Thesis Seminar I and II. Students must register in ENGR 5940 before submitting a thesis topic and in ENGR 5941 during execution of the thesis research to present their thesis plan. 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 501/5201 - Advanced Quantum Mechanics (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.)

II. Nanotechnology Elective courses (at least 9 credit hours)

A minimum of 9 credit hours are required from this list of courses.
- NANO 521/5221 - MEMS/NEMS Technology and Devices (3 cr.)
- NANO 522/5222 - Electronic Transport in Semiconductors (3 cr.)
- NANO 531/5231 - Nanomaterials, Synthesis, Processing and Applications (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. Elective Courses (6 credit hours)

A minimum of two courses are selected as electives. The courses are selected from the NT Core (I) or Elective courses (II) or from other 5000 or 6000 level courses from graduate programs in the Sciences and Engineering, subject to the advisor's approval. No more than one 4000-level course (3 cr.) may be taken from graduate credit in Sciences and Engineering, or other related areas, subject to the advisor'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 NANO 5940 and NANO 5941, Graduate Thesis Seminar I and II, respectively. Students must register for Graduate Thesis Seminar I (NANO 5940) before submitting a thesis topic while Graduate Thesis Seminar II (NANO 5941) should be taken during the execution of the thesis research work. 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 590/5940 - Graduate Thesis Seminars I (2 cr.)
- NANO 591/5941 - Graduate Thesis Seminar II (1 cr.)
- NANO 599/5980 - Research Guidance Thesis (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 32 credit hours is required for the Master of Science degree. This consists of 24 credit hours of courses and 8 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 12 credit hours of core courses, 3-6 credit hours of core elective courses, and 6-9 credit hours of Physics electives.

**Core Courses (12 credit hours)**

- PHYS 501/5061 - Mathematical Physics (3 cr.)
- PHYS 502/5023 - Classical Electrodynamics (3 cr.)
- PHYS 504/5013 - Classical Mechanics (3 cr.)
- PHYS 506/5043 - Advanced Quantum Mechanics (3 cr.)

**Core Elective Courses (3-6 credit hours)**

Choice of courses with consultation of advisor.

- PHYS 507/5242 - Computational Physics (3 cr.)
• PHYS 508/5282 - Advanced Experimental Techniques (3 cr.)
• PHYS 509/5032 - Advanced Thermodynamics and Statistical Mechanics (3 cr.)

Physics Electives (6-9 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 510/5235 - Introduction To Solids (3 cr.)
• PHYS 512/5236 - Electronic Transport in Semiconductor (3 cr.)
• PHYS 513/5237 - Theory of Solids (3 cr.)
• PHYS 549/5024 - Passive Microwave Circuits (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.)

Thesis (8 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. Since various research topics are addressed in a sequence of two seminar courses, the student must register for the first before submitting a thesis topic while the second must be taken during the execution of the thesis research. To ensure adequate faculty consultation, two semesters of the graduate thesis course are required.
• PHYS 590/5940 - Graduate Seminar I (1 cr.)
• PHYS 591/5941 - Graduate Seminar II (1 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 RCSS 5940 and RCSS 5941, Graduate Thesis Seminar I and II. Students must register in RCSS 5940 before submitting a thesis topic and in RCSS 5941 during execution of the thesis research to present their thesis plan. 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 590/5940 - Graduate Thesis Seminar I (2 cr.)
• RCSS 591/5941 - Graduate Thesis Seminar II (1 cr.)
• RCSS 599/5989 - Research Guidance Thesis (3 cr.)

Sustainable Development (M.Sc.)

Director: Hani Sewilam

Steering Committee: Amr Shaarawi (Dean of Graduate Studies), Salah El-Hagger (SSE), James Curiel (HUSS), Ayman Ismail (BUS), Jennifer Bremer (GAPP), Ted Purinton (GSE), Richard Tutwiler (DDC) and the Associate Deans of Graduate Studies 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. Adapting 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 modules. 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 Module M3- Electives (15 Credit Hours)
Students should take four courses from three of the four sustainable development sub-modules and at least one course from the Green Technologies Module M3-A. At least two courses should be taken from the specialization module.

Green Technologies Module (M3-A):

- GREN 511/5211 - Water Desalination (3 cr.)
- GREN 512/5212 - Design of Renewable Energy Systems (3 cr.)
- GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)
- GREN 514/5214 - Green Buildings (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.)

Sustainable Communities Module (M3-D):

• GREN 541/5241 - Maintaining Systems of Global Inequality (3 cr.)
• GREN 543/5243 - Revisiting the Rural (3 cr.)
• GREN 542/5242 - Modern Social Movements (3 cr.)
• GREN 544/5244 - Cities: Structure and Dynamics (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.

Community Psychology (Graduate Diploma)

The Graduate Diploma in Community Psychology is administrated by the graduate program in Counseling and Community Psychology. The 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 complete students' existing knowledge 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. For students pursuing a dual degree, a maximum of two courses from their Master's degree can double count towards the diploma.

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 in consideration the vocational and intellectual interest of the student. Students will have a choice of four graduate courses in ECLT and two graduate courses in specified Departments/Programs of HUSS.

- 1 ECLT course in Period/Genre/Theme/Author. 3 cr.
- 1 ECLT course in Literary Criticism/Hermeneutics/Philosophical Dimension of Literature. 3 cr.
- 2 ECLT courses in Selected Topics in Comparative Literature. 6 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 Forced 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.

**Forced Migration and Refugee Studies (Graduate Diploma)**

**Specialized Graduate Diploma in Forced 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 500/5202 - Migration & Refugee Movements in the Middle East and North Africa (3 cr.)
• MRS 501/5203 - International Migration & Development (3 cr.)
• MRS 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
• MRS 518/5201 - 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 Forced 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.

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.

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 (Graduate Diploma)

The Graduate Diploma in International Human Rights Law 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 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 and Humanitarian Law (3 cr.)

And Two out of the following three courses:

- LAW 513/5213 - The European System of Human Rights Protection (3 cr.)
- LAW 514/5214 - Human Rights in the Middle East (3 cr.)
- LAW 519/5219 - Human Rights in Africa (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.

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 or Anthropology/Sociology.

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 refuges 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 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)
- MRS 512/5112 - Psychosocial Issues in Forced Migrants (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.

Sustainable Development (Graduate Diploma)

Director: Hani Sewilam
Steering Committee: Amr Shaarawi (Dean of Graduate Studies), Salah El-Hagger (SSE), James Curiel (HUSS), Ayman Ismail (BUS), Jennifer Bremer (GAPP), Ted Purinton (GSE), Richard Tutwiler (DDC) and the Associate Deans of Graduate Studies of the SSE, HUSS, BUS, GAPP and GSE.

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. p.23.

**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 nine credit hours of electives from three sustainable development modules. Students might be asked to take additional noncredit 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)**

501
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 three courses from three of the four sustainable development sub-modules at least one of them from the Green Technologies Module M3-A.

Green Technologies Module (M3-A):

- GREN 511/5211 - Water Desalination (3 cr.)
- GREN 512/5212 - Design of Renewable Energy Systems (3 cr.)
- GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)
- GREN 514/5214 - Green Buildings (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.)

Sustainable Communities Module (M3-D):

- GREN 541/5241 - Maintaining Systems of Global Inequality (3 cr.)
- GREN 542/5242 - Modern Social Movements (3 cr.)
- GREN 543/5243 - Revisiting the Rural (3 cr.)
- GREN 544/5244 - Cities: Structure and Dynamics (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 a Foreign Language 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 and Nanotechnology (Ph.D.)

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 administrated by the Doctoral Program Steering Committee which has a representation of one faculty from the various departments in the School of Sciences and Engineering. This program offers a Ph.D. degree in Applied Sciences with specializations in:

- Nanotechnology,
- Biotechnology,
- Chemistry,
- or Computer Science.

**Admission Requirements**

- M.Sc. in Engineering or Sciences 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 caliber 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:**

Doctoral qualifications decisions are made by the Doctoral Program Steering Committee. 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, doctoral students must include in the program of study at least one graduate course for a minimum of 3 hours of credit 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 Advising 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 to be identified by the Doctoral Program Steering Committee (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 Advisor) and two other members. This committee will play 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 a faculty member willing to serve as the Chair of the Research Advisory Committee and to choose in consultation with her/him the other members. In most cases the Chair of the Committee will eventually become the dissertation advisor.
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 Candidacy.

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 to be approved by the Doctoral Program Steering Committee.

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 administrated by an Examining Committee in each specialization. Following the examination, the Examining Committee will submit an evaluation of the student's performance to the Doctoral Program Steering Committee. 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.

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 Advisor 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 Doctoral Program Steering Committee. 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 advisor. The Proposal Presentation requirement is completed when the Research Advisory Committee chair reports a successful proposal presentation to the Office of the Registrar.

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 student should submit a written request to the Doctoral Program Steering Committee to approve the proposed Dissertation Defense Committee. The membership of this Committee is communicated to the SSE Dean and the Dean of Graduate Studies for approval.

The Dissertation and Its Defense --- Final Oral Defense:
Upon completion, the dissertation must receive a written evaluation from each other member of the Dissertation Defense Committee and must be defended orally in an open examination before the committee. Following the successful Final Oral Defense, the student must consult with the dissertation advisor(s) about any changes required by the committee, and must take these changes before final submission of the dissertation to the Dean of Graduate Studies.

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 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. 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 2: M.Sc. in a different Applied discipline, or 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:

I. Core Courses

Core courses are selected from an area outside of the specialization of the student.

Admission Case 1: at least 3 credit hours.
Admission Case 2: 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.)
- EENG 510/5210 - Advanced Solid-State Devices (3 cr.)
- EENG 520/5231 - Advanced Digital Communications (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 502/523 - Classical Electrodynamics (3 cr.)
RCSS 504/5204 - Applied Estimation (3 cr.)
RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)
PHDS/PHDE 601/6201 - 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: at least 6 credit hours.
- Admission Case 2: 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.)
- EENG 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 I, 2 cr. (According to discipline student)
• Graduate Advanced Research Seminar (PHDS 6291), 1 cr.

Research Dissertation Guidance, a minimum of 33 cr. (BIOT 6980, CHEM 6980, CSCE 6980, or NANO 6980)

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.)**

**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 administrated by the Doctoral Program Steering Committee which has a representation of one faculty from the various departments 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, (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. )

• 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 caliber 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:**

Doctoral qualification decisions are made by the Doctoral Program Steering Committee. 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 course 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, doctoral students must include in the program of study at least one graduate course for a minimum of 3 hours of credit 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 Advising 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 to be identified by the Doctoral Program Steering Committee (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 Advisor) and two other members. This committee will play 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 a faculty member willing to serve as the Chair of the Research Advisory Committee and to choose in consultation with her/him the other members. In most cases the Chair of the Committee will eventually become the dissertation advisor.

**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 for Candidacy.

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 to be approved by the Doctoral Program Steering Committee.

**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 Doctoral Program Steering Committee. 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.

**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 Advisor 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 Doctoral Program Steering Committee. 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 advisor. The Proposal Presentation requirements is completed when the Research Advisory Committee chair reports a successful proposal presentation to the Office of the Registrar.

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 student should submit a written request to the Doctoral Program Steering Committee to approve the proposed Dissertation Defense Committee. The membership of this Committee is communicated to the SSE Dean and the Dean of Graduate Studies for approval.

**The Dissertation and Its Defense - Final Oral Defense:**

Upon completion, the dissertation must receive a written evaluation from each member of the Dissertation Defense Committee and must be defended orally in an open examination before the committee. Following the successful Final Oral Defense, the
student must consult with the dissertation advisor(s) about any changes required by the committee, and must make these changes before final submission of the dissertation to the Dean of Graduate Studies.

**Course and Research Requirements**

Minimum number of credit hours beyond the B.Sc. degree: 72

Dissertation hours 33  (CENG 6290, EENG 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 of the student at the time of admission. At least eighteen (18) credit hours of coursework must be earned at AUC.

**Case 1:** 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 2:** M.Sc. in a different Engineering discipline, or 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:

**I - Core Courses**

Core courses are selected from an area outside of the specialization of the student.

Admission Case 1: at least 3 credit hours.

Admission Case 2: 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.)
- EENG 510/5210 - Advanced Solid-State Devices (3 cr.)
- EENG 520/5231 - Advanced Digital Communications (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 (3 cr.)
• RCSS 504/5204 - Applied Estimation (3 cr.)
• RCSS 541/5241 - Smart Systems and Computational Intelligence (3 cr.)
• PHDS/PHDE 601/6201 - 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: at least 6 credit hours.

Admission Case 2: at least 12 credit hours.

5000-level masters courses offered by the graduate programs of Construction Engineering (CENG), Environmental Engineering (ENVE), Electronics Engineering (EENG), 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:
• EENG 619/6219 - Design and Analysis of High-Performance Integrated Circuits (3 cr.)
• EENG 694/6930 - Advanced Selected Topics in Electronics Engineering (3 cr.)
• EENG 625/6235 - Detection, Classification, and Estimation Theory (3 cr.)
• EENG 661/6211 - Nanoscale CMOS (3 cr.)
• EENG 694/6930 - Advanced Selected Topics in Electronics 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.)
• 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. 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 I, 2cr. (According to discipline student)
• Graduate Advanced Research Seminar (PHDE 6291), 1 cr.

Research Dissertation Guidance, a minimum of 33 cr. (CENG 6290, EENG 6980, ENVE 6980, MENG 6980 or RCSS 6980)

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-Antropology (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:* R. Siam (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 (0/3)
• 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.)

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**
ACCT 301/3001 - Intermediate Accounting I (3 cr.)

Prerequisites
ACCT 2001 and MACT 2222.

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 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 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 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 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 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 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 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 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 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 306/3006 - Principles of Taxation (3 cr.)**

Prerequisites
ACCT 3002 and MGMT 3301

Description
Taxation of various business entities and the investors who own them, both in the US and Egypt. Practical cases covering tax planning, tax rules and regulations are highlighted.

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 401/4001 - Contemporary Issues in Auditing (3 cr.)**

**Prerequisites**
ACCT 3005

**Description**
This course highlights the governance aspects of the auditing function and its role in promoting financial transparency. Topics covered will include fraud auditing, advanced audit sampling techniques, auditing in IT environments, and the auditor's professional responsibilities.

When Offered
Offered in fall and spring.

**ACCT 402/4002 - Special Topics in Tax Accounting (3 cr.)**

**Prerequisites**
ACCT 3006

**Description**
Practical and theoretical training in the more common and important provisions of the tax codes. Tax case research and preparation are emphasized.

When Offered
Offered in fall and spring.
ACCT 403/4003 - Contemporary Issues in Accounting (3 cr.)

Prerequisites
Graduating Senior.

Description
This is a research and readings capstone course which integrates all branches of Accounting. Emphasis is on developing the research skills to deal with current and prospective issues and problems of accounting.

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
ACCT 5201, FINC 5201, FINC 5202, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201, OPMG 5202 and MGMT 5307.

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
Consent of the Instructor.

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.

AENG 221/1511 - Free-hand Representation for Architects (3 cr.)

Prerequisites
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.

AENG 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.

AENG 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.

AENG 314/2211 - History and Philosophy of Modern and Contemporary Architecture (3 cr.)

Prerequisites
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.
AENG 234/2221 - Human Aspects in Architectural Design (3 cr.)

Prerequisites
AENG 1521.

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.

AENG 326/2231 - Environmental Control Systems and Sustainable Design (3 cr.)

Prerequisites
PHYS 1011, MACT 1122 and AENG 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.

AENG 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.

AENG 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.

AENG 251/2551 - Introduction to Architectural Design (3 cr.)

Prerequisites
AENG 1521.

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.

AENG 351/2552 - Architectural Design Studio I (4 cr.)

Prerequisites
AENG 1511, AENG 2221, and AENG 2551

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.

AENG 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.
AENG 426/3321 - Building Service Systems and Building Systems Integration (3 cr.)

Prerequisites
AENG 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.

AENG 323/3331 - Construction Materials and Quality Control (3 cr.)

Prerequisites
ENGR 2112

Description

Hours
Two one-hour class periods and three-hour lab period.

When Offered
Offered in fall and spring.

AENG 473/3522 - Digital Design Studio and Workshop (3 cr.)
Prerequisites
AENG 2551

Description

Hours
Three-hour studio period and three-hour lab period.

When Offered
Offered in fall and spring.

AENG 368/3531 - Housing Design and Geographic Information Systems (3 cr.)

Prerequisites
AENG 2411 and AENG 2552

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.

AENG 352/3553 - Architectural Design Studio II (4 cr.)
Prerequisites
AENG 2512 and AENG 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.

AENG 453/3554 - Architectural Design Studio III (4 cr.)

Prerequisites
AENG 2231 and AENG 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.
AENG 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
(Three-hours lecture period and three-hour lab period)

AENG 496/3950 - Internship in Construction Projects (0 cr.)

Prerequisites
AENG 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 and evaluated.

When Offered
Offered in fall and spring.

AENG 429/4312 - Design Development and Construction Documents (3 cr.)

Prerequisites
AENG 3311

Description
Development of design into technical documents. Production of construction documents. Design of construction assemblies,

Hours
Six-hour studio period.

When Offered
Offered in fall and spring.

AENG 441/4421 - Professional Practice, Design Management and Codes (2 cr.)

Prerequisites
AENG 2551.

Description

Hours
One hour class period and 1.5 hours studio period.

When Offered
Offered in fall and spring.

AENG 468/4532 - Urban Design and Landscape Architecture (3 cr.)

Prerequisites
AENG 3531

Description
Hours
One-hour class period and three-hour studio period.

When Offered
Offered in fall and spring.

**AENG 420/4541 - Design of Interior Spaces (3 cr.)**

**Prerequisites**
CENG 2251 or AENG 1521

**Description**

Hours
One-hour lecture and three-hour Studio.

When Offered
Offered in fall and spring.

**AENG 454/4555 - Architectural Design Studio IV (4 cr.)**

**Prerequisites**
AENG 3554 and CENG 3152

**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.

**AENG 455/4556 - Architectural Design Studio V (4 cr.)**

**Prerequisites**
AENG 4555 and AENG 3522.

**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.

**AENG 456/4557 - Architectural Design Studio VI (4 cr.)**

**Prerequisites**
AENG 4556, AENG 4532, ARIC 2205 and EGPT 2030

**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.
AENG 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.

AENG 494/4930 - Selected Topics in Architectural Engineering (3 cr.)

Prerequisites
Prerequisite: senior standing.

Description
Specialized topics in Architectural engineering will be selected and presented.

When Offered
Offered in fall and spring.

AENG 497/4951 - Internship in Technical Drawing and Design (1 cr.)

Prerequisites
AENG 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. A complete account of the experience is reported, presented and evaluated. Introduction to professional ethics, professional judgment and the social responsibilities of architects.

When Offered
Offered in fall and spring.

AENG 490/4980 - Senior Project I (2 cr.)

Prerequisites
AENG 4556

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

AENG 491/4981 - Senior Project II (5 cr.)

Prerequisites
AENG 4541 , AENG 4557 , AENG 4980

Description
A continuation of senior project I. Comprehensive architectural design demonstrating an understanding of the different conceptual and technical aspects of architecture. In depth analysis and design study for specific aspects of the project.

Hours
Eight-hour studio period.

When Offered
Offered in fall and spring.
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 stylistics 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 Boarders (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.

**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 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 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 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 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 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 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.


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 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 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 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 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 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 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 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 pattern system of the language and helps them navigate it more effectively. Targets phonology to highlight 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 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 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 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
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 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 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.

**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 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 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 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 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 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 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 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 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.

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.


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.

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

Description
Develops the fundamentals of modern standard Arabic through reading, writing, and oral drill 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, winter, spring and summer.

Notes
Noncredit for Thanawiyya Amma holders.

**ALNG 109-110/1301-1302 - Introduction to Colloquial Arabic (3 cr. each per semester)**

Description
Study, by means of phonetic transcription, or the Arabic alphabet, of the basic inflectional and syntactical patterns of Egyptian colloquial Arabic. Two-semester sequence. Each course meets five hours per week. Registration requires permission of the ALNG Director.

When Offered
Offered in fall, winter, spring and summer.

Notes
Noncredit for students from Arab countries and Thanawiyya Amma holders.
ALNG 111-112/1501-1502 - Accelerated Elementary Modern Standard Arabic (6 cr.each per semester)

Description
ALNG 1501 covers material of ALNG 1101 and ALNG 1102, while ALNG 1502 covers the materials of ALNG 1103 and ALNG 2101. Two-semester sequence. Each 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.

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, spring, summer and winter.

Notes
May be repeated for credit if content changes. Noncredit for Thanawiyya Amma holders.

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, spring, summer and winter.

Notes
Noncredit for Thanawiyya Amma holders

**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; develops 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, winter, spring and summer.

Notes
Noncredit for Thanawiyya Amma holders.

**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 the 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
**ALNG 210/2301 - Intermediate Egyptian Colloquial Arabic (3 cr. per semester)**

**Prerequisites**
ALNG 1302.

**Description**
Concentrates on developing the students' listening and speaking skills in daily life situations through activities and situations and presentations as well as introducing the cultural connotations. The course meets five hours per week. Registration requires permission of the ALNG Director.

**When Offered**
Offered in fall, winter, spring and summer.

**Notes**
Non credit for students from the Arab countries and Thanawiyya Amma holders.

**ALNG 211-212/2501-2502 - Accelerated Intermediate Modern Standard Arabic (6 cr. each per semester)**

**Prerequisites**
ALNG 2101 or placement examination.

**Description**
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 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**
Noncredit for Thanawiyya Amma holders.

**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.

Hours
The course meets 5 hours per week.

When Offered
Offered in fall, winter, spring and summer.

Notes
May be repeated for credit if content changes. Noncredit for Thanawiyya Amma holders.

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
Noncredit for Thanawiyya Amma holders.

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
Noncredit for Thanawiyya Amma holders.

**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

**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.
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 spring.

Notes
Non-credit for Thanawiyya Amma holders.

ALNG 399/3991 - Selected Topics (3 cr. per semester)

Description
Study of selected topics for advanced students. The course meets five hours per week. Registration requires the permission of ALNG Director.

When Offered
Offered in fall, winter, spring and summer.

Notes
May be repeated for credit if content changes. Noncredit for Thanawiyya Amma holders.

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 221/2271 - From Reading to Writing: Intermediate Level: 3 credits

Description
Students scoring less than 70 in the Arabic Writing Placement exam can take this course. 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.

When Offered
Offered in the fall, winter, spring, summer.

ALWT 321/3271 - From Reading to Writing: High Intermediate Level: 3 credits

Description
Students scoring from 70-84 in the Arabic Writing Placement exam can take this course. 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.

When Offered
Offered in the fall, winter, spring and summer.

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**
Score 85 or more in the Arabic Writing Placement Exam or have taken either 2271 or 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, winter, spring and summer.

**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 maskers 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 the fall, winter, spring and summer.

**ALWT 422/4273 - Professional Business Writing: 3 credits**

**Prerequisites**
Score 85 or more in the Arabic Writing Placement Exam or have taken either 2271 or 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, winter, spring and summer.

**ALWT 423/4274 - Professional Diplomatic Writing: 3 credits**

**Prerequisites**
Score 85 or more in the Arabic Writing Placement Exam or have taken either 2271 or 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, winter, spring and summer.

**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.

**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 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.)

Prerequisites
Two philosophy courses or consent of instructor.

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.

When Offered
Offered occasionally.

**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 JRMC 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 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 310/3035 - Contemporary Sociological Theory (3 cr.)**

Prerequisites
ANTH 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.

Cross-listed
Same as SOC 3104.

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, Ethnicity, and Class (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 - Peoples and Cultures of the Middle East and North Africa
(3 cr.)

Prerequisites
3 hours of Social Sciences.

Description
Basic structure of contemporary societies and cultures of the Middle East and North Africa, with special emphasis on the Arab
population. Problems of ecology, economics, social organization, law and politics, religion and patterns of social change.

When Offered
Offered in fall and spring.

ANTH 382/3302 - Peoples and Cultures of Sub-Saharan Africa (3 cr.)

Prerequisites
Three hours of Social Sciences.

Description
Basic structure of contemporary societies and cultures of sub-Saharan Africa with special emphasis on problems of ecology,
economics, social organization, law and politics, religion, and patterns of social change.

When Offered
Offered in alternate years.

ANTH 384/3303 - Peoples and Cultures of Latin America (3 cr.)
Prerequisites
Three hours of Social Sciences.

Description
Basic structure of contemporary societies and cultures of Latin America with special emphasis on problems of ecology, economics, social organization, law and politics, religion, and patterns of social change.

When Offered
Offered in alternate years.

ANTH 386/3304 - Peoples and Cultures of Asia (3 cr.)

Prerequisites
Three hours of Social Sciences.

Description
Basic structure of contemporary societies and cultures of South, South-East, and East Asia with special emphasis on problems of ecology, economics, social organization, law and politics, religion and patterns of social change.

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 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 - Third World 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 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 a Foreign Language II (3 cr.)

Prerequisites
APLN 5203

Description
Survey of approaches to the design and implementation of foreign language curricula and teaching materials and teaching practicum. The practicum includes foreign language classroom observations, supervised practice teaching, and materials development, selection, and adaptation.

When Offered
Offered consecutively with APLN 5203.

APLN 553/5205 - Sociolinguistics (3 cr.)

Description
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. 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.)

Prerequisites
APLN 5205

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 will be 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
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.

**APLN 550/5322 - Language Pragmatics (3 cr.)**

**Prerequisites**
APLN 5301

**Description**

**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

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.

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 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 'Amma 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 'Amma 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.

Hours
Classwork is supplemented by six to eight field trips on Friday or Saturday mornings.

When Offered
Offered in the fall and spring.

Notes
Classwork is supplemented by six to eight field trips on 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 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.)

Prerequisites
ARIC 2270 or 2271.

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.

When Offered
Offered in alternate years

ARIC 369/3269 - Ceramic Arts of the Islamic World (3 cr.)

Prerequisites
ARIC 2270 or 2271.

Description
Techniques, styles and dating of Islamic Pottery. Emphasis on traditional stylistic motifs and external influences across the Islamic world from the 6th to the 18th centuries. Work with the AUC shared collection and visits to local museums will enhance the student's appreciation of the subject.
When Offered
Offered in alternate years.

**ARIC 370/3270 - The Age of Transition: Early Islamic Art and the Pre-Islamic Past (3 cr.)**

Prerequisites
ARIC 2271.

Description
Near Eastern art forms during 200-634 AD. Byzantium, the Mediterranean, Arabia, Syria, and the Copts, Persia and Central Asia, their legacy.

When Offered
Offered in alternate years.

**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 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.

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'î 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'lîyya and the Zaydiyya will also receive due consideration.

**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.)
Prerequisites
ARIC 2346 or consent of instructor.

Description
The development of political theory in Muslim civilization. Analysis of leading schools and individuals.

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 (3 cr.)

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 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 fulfill 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.

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 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 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.

**Notes**
Selected topics in Medieval Arab/Islamic history, 600-1800 A.D.

**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.

**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.

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.

Cross-listed
Same as DSGN 2113,FILM 2113.

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.

Cross-listed
Same as DSGN 2200,FILM 2200.

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 205/2205 - Introduction to Alternative Practices (3 cr.)

Description
Introduces students to alternative practices in contemporary art with emphasis on social art and activism. Helps students to build awareness of critical debates in contemporary art practice within the context of social media particularly. Classes include workshops on open source practices, Facebook, Skype, and Twitter.

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 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 311/3211 - Art Studio I (3 cr.)

Prerequisites
Second-year standing.

Description
This intensive studio course is the first of a four-part sequence designed to guide majors toward building a self-directed creative practice. Diverse concepts and approaches are examined with the aim of helping students gain an appreciation of the contemporary theoretical and practical framework in which they are working. The class is conducted by a combination of lectures, tutorials, and project assignments.

ARTV 312/3212 - Art Studio II (3 cr.)

Prerequisites
ARTV 3211.

Description
A practical examination of visual, conceptual and theoretical language, concepts and ideas. Continuation of Art Studio I.

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 410/4110 - 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.

ARTV 411/4211 - Studio III (3 cr.)

Prerequisites
ARTV 3212

Description
Advanced art studio. Continuation of Art Studio II.

ARTV 412/4212 - Studio IV (3 cr.)

Prerequisites
ARTV 4211
Description
Advanced art studio. Continuation of Art Studio III.

ARTV 469/4269 - Senior Project (A) (3 cr.)

Prerequisites
ARTV 4212

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.)
Prerequisites
ARTV 3211 or ARTV 3212.

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.

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
BIOL 1011 cannot be taken by students who have taken BIOL 1010 for credit.

BIOL 105/1012 - Introductory Biology II (3 cr. + 1 cr. lab)

Description
Based on the diversity of life: viruses, bacteria, protistans, fungi, plants and animals are studied. The course concentrates on development, structure, and function of plants and animals, population genetics, ecology and the environment, and animal behavior. Laboratories introduce students to systematics, evolution, population dynamics, and modeling of populations of organisms and ecosystems. Some field applications are examined.

When Offered
Offered in spring.

Notes
This course is designed for science majors, but can be taken by anyone interested in studying biology in more depth than BIOL 1010.

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.

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 consists 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 on 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 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 as CHEM 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
A 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 533/5209 - Pharmacogenomics and Pharmacogenetics (3 cr.)**

**Description**
Principles of pharmacology, drug efficacy, pharmacogenetics of major drug groups, application of pharamcogenomics and proteomics to clinical practice.

**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 590/5940 - Graduate Seminar I (2 cr.)

Description
Seminars on research topics, research methodology, and thesis writing and presentations given by invited speakers.

BIOT 591/5941 - Graduate Seminar II (1 cr.)

Prerequisites
BIOT 5940

Description
Seminars on research topics given by invited speakers and on research plans given by students to discuss their thesis topics and the results obtained in their work.

BIOT 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)

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 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 nanobiotechnology 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.

**CENG 215/2251 - Drawing for Construction Engineering and Architecture (1 cr.)**

**Prerequisites**
ENGR 1005

**Description**

**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.
CENG 325/3010 - Mechanical Engineering in Construction (2 cr.)

Prerequisites
ENGR 2122

Description
Introduction to energy transformation systems. Sizing, matching and installation of mechanical, plumbing, heating, ventilation and air conditioning (HVAC) and machining systems.

Hours
One class period and three-hour lab period.

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 2112 or concurrent.

Description

When Offered
Offered in fall and spring.

CENG 305/3151 - Structural Design for Architects I (3 cr.)

Prerequisites
CENG 3112

Description

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**

**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
Review of states of stresses, shear center, principles of fracture mechanics; energy principles with applications to beam deflection and analysis of beams on elastic foundation; principals of structural dynamics; structural stability principles, buckling analysis, and P-Delta effect; introduction to theory of plates and shells.

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 427/4156 - Prefabricated, Water and Prestressed Concrete Structures (3 cr.)**

Prerequisites
CENG 3153

Description
Prefabricated concrete; design methods, tolerance, floor and roof systems, wall panels and construction joints. Concrete water structures; design considerations and parameters, water tightness, construction of circular and rectangular tanks. Prestressed concrete; basic principles, methods and systems of prestressing, partial loss of prestressing, analysis and design for flexural, shear, bond and bearing.

**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**
AENG 2551 or AENG 3562, CENG 3112 or CENG 3153 or with AENG 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 5246 with special course assignments for graduate students.

When Offered
Offered in fall and spring.

CENG 411/4313 - Soil Mechanics (3 cr.)

Prerequisites
ENGR 2112 and CENG 3511

Description
Index properties and engineering classification, composition and structure of soils; stresses in soil, stress-strain properties of soils; shear strength, and consolidation. Experimental measurements. Lab and field compaction.

Hours
Two 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 AENG 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

When Offered
Offered in fall and spring.

CENG 444/4430 - Risk Management and Bidding Strategies (3 cr.)

Prerequisites
CENG 4410 and CENG 4440

Description

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

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

When Offered
Offered in fall and spring.
CENG 475/4555 - Solid and Hazardous Wastes Engineering (3 cr.)

Prerequisites
Pre-requisites: Senior standing.

Description

Cross-listed
Same as ENVE 5254, but with additional requirements for graduate students.
Same as GREN 5213.

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
Prerequisite: completion of 78 credits in major.

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
Prerequisite: CENG 4980.

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 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 viewpoints 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

When Offered
Offered in fall and spring.

CENG 534/5265 - Risk Management and Bidding Strategies (3 cr.)

Prerequisites
CENG 5262

Description

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

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

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.

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

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

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
When Offered
Offered occasionally.

**CHEM 303/3003 - Thermodynamics (3 cr.)**

Prerequisites
MACT 2123 CHEM 2006 and concurrent with CHEM 3013.

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 307/3007 - 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 every other semester.

CHEM 309/3009 - Inorganic Chemistry I (3 cr.)

Prerequisites
CHEM 1006 and junior standing.

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.

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

Hours
Two class periods and one three-hour lab period.
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 410/4002 - Archaeological Chemistry II (3 cr.)**

Prerequisites
CHEM 3002

Description
When Offered
Offered occasionally.

Notes
Pore size distribution studies.

**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\(^{13}\)) 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

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 450/4050 - Electrochemistry (3 cr.)**

Prerequisites
CHEM 3004 , CHEM 3014 , and consent of instructor.

Description
Electrochemical processes, irreversible electrodes and cells; dissolution and corrosion of metals; passivity, electrolytic reduction and oxidation; applications of electrochemistry to include fuel cells, electrodialysis, electrophoresis, molten salt cells.
Hours
Three class periods or two class periods and one three-hour lab period.

When Offered
Offered occasionally.

CHEM 444/4910 - Independent Study (1-3 cr.)

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 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-borne 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 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 NANOubes/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, etc...). 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 590/5940 - Graduate Seminar I (2 cr.)**

Description
Seminars on research topics, research methodology, and thesis writing and presentations given by invited speakers.

**CHEM 591/5941 - Graduate Seminar II (1 cr.)**

Prerequisites
CHEM 5940.

Description
Seminars on research topics given by invited speakers and on research plans given by students to discuss their thesis topics and the results obtained in their work.

**CHEM 599/5980 - Research Guidance and Thesis (3 cr. + 3 cr.)**

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

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.)**

Prerequisites

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.

**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 000/2096 - 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 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.

CREL 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.

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 106/1001 - Fundamentals of Computer Science (3 cr.)

Prerequisites
Prerequisite: College level preparation course in Mathematics or MACT 1111.

Description
Introduction to the discipline of computing. Computer systems, number systems, data representation and basic computer organization. Basic Math concepts, functions and propositional logic. Problem solving, abstraction, design and programming. Selection structures, repetition and loop statements. Modular programming. Basic testing and debugging of programs. Introduction to programming in C++. Professional Ethics for computer professionals.

When Offered
Offered in fall and spring.

CSCE 102/1002 - 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, spreadsheet, 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 110/1101 - Programming Fundamentals (3 cr.)**

Prerequisites
CSCE 1001

Description
Overview of basic programming constructs. Functions, parameter passing and files. Data modeling with arrays, structures and classes. Pointers and linked lists. Recursion. Basic program design and analysis, testing and debugging techniques. Programming in C++. Program development using modern APIs.

When Offered
Offered in fall and spring.

**CSCE 210/2201 - Data Structures and Algorithms (3 cr.)**

Prerequisites
CSCE 1101

Description

When Offered
Offered in fall and spring.

**CSCE 230/2301 - Digital Design I (3 cr.)**

Prerequisites
PHYS 2211
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

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 EENG 3502.
When Offered
Offered in fall and spring.

**CSCE 253/2501 - Fundamentals of Database Systems (3 cr.)**

**Prerequisites**
CSCE 2201

**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 (1-2 cr.)**

**Prerequisites**
CSCE 2201

**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 2201

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 2201

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 2201

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 321/3201 - Analysis and Design of Algorithms (3 cr.)

Prerequisites
CSCE 2201 and MACT 2131

Description
Design and analysis of basic classes of algorithms: Divide and conquer, greedy methods, tree and graph traversals, and backtracking. Applications to problems such as sorting and searching, traveling salesperson, and knapsack. Theory of complexity.

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 EENG 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 EENG 4508L

When Offered
Offered in fall and spring.

CSCE 332/3303 - Fundamental Microelectronics (3 cr.)

Prerequisites
PHYS 2211

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 fall.

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 2201 and PHYS 2211

Description
Data transmissions. Transmission media, data encoding, data link control, and multiplexing. Introduction to wide area networks and local area networks technology and systems.

When Offered
Offered in fall and spring.

CSCE 345/3401 - Operating Systems (3 cr.)

Prerequisites
CSCE 2201 and CSCE 3301

Description

When Offered
Offered in fall and spring.

CSCE 342/3421 - Computer 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 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 2201

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

When Offered
Offered in fall and 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
When Offered
Offered in fall and spring.

**CSCE 432/4301 - Embedded Systems (3 cr.)**

**Prerequisites**
CSCE 3401 or concurrent.

**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 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 spring.

**CSCE 435/4311 - Wide Area Networks (3 cr.)**

**Prerequisites**
CSCE 2201 and PHYS 2211

**Description**
When Offered
Offered in fall.

CSCE 439L/4312 - Wide Area Networks Lab (1 cr.)

Prerequisites
Concurrent with CSCE 4311

Description
The laboratory will cover experiments in computer networks illustrating material of course CSCE 4311.

When Offered
Offered in fall.

CSCE 437/4313 - Local and Metropolitan Area Networks (3 cr.)

Prerequisites
CSCE 3311

Description

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

Description

When Offered
Offered in fall and spring.

**CSCE 401/4503 - Internet-based Information Systems (3 cr.)**

Prerequisites
MOIS 2101

Description

When Offered
Offered in fall and spring.

**CSCE 465/4601 - Artificial Intelligence (3 cr.)**

Prerequisites
CSCE 3104 and MACT 2131
Description
Problem spaces and application areas in engineering and science. LISP or PROLOG programming. AI architecture, knowledge representation, hierarchical planning. Machine learning and Connectionist models. Parallel and distributed AI. Object-oriented Knowledge representations. Students will use an AI programming language to solve some of the famous AI problems.

When Offered
Normally offered in fall.

CSCE 427/4602 - Introduction to Artificial Neural Networks (3 cr.)

Prerequisites
CSCE 2201 MACT 2123 and MACT 2132

Description

When Offered
Offered Occasionally.

CSCE 455/4621 - Computer Graphics (3 cr.)

Prerequisites
CSCE 2201 and MACT 2132  or concurrent.

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

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
CSCE 3701 or concurrent and Senior standing.

Description
Participating students select project topic according to their subject of interest and the availability of facilities and advisors. Students carry out necessary preliminary work and submit a progress report. Ethical responsibilities of a computing professional are covered by lectures and seminars and emphasized through the student's team work.
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. 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

CSCE 529/5222 - Design and Analysis of Parallel Algorithms (3 cr.)

Description

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.)**

**Prerequisites**
CSCE 4311 or equivalent.

**Description**

**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 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 on artificial neural networks, non-symbolic vs symbolic information learning systems. Unsupervised learning networks, supervised learning networks, neural network hardware. Evolutionary computations, genetic algorithms, evolutionary programming, genetic programming. Hybrid systems integrating classical AI techniques with biologically-based techniques, 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

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 585/5930 - Selected Topics in Computer Science (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.

**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.

**Cross-listed**
Same as ARTV 2113,FILM 2113.

**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 - 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.

Cross-listed
Same as ARTV 2200, FILM 2200.

When Offered
Offered in fall and spring.

DSGN 201/2201 - Design I (3 cr.)

Prerequisites
DSGN 2200 and DSGN 2113

Description
Based on a series of experimental visual exercises, this course investigates basic design principles like concepts development and its application in different mediums. Students will explore the fundamentals of graphic form, communicating visually, and integration of type through drawing, collage, and other experimental media.

DSGN 202/2202 - Design II: Logo and Corporate Identity (3 cr.)

Prerequisites
DSGN 2210 and DSGN 2250
Description
The development of an identity of brand through its logo and corporate identity is the aim of this course. It teaches students to think strategically about a company's image and mission. In this studio course students will work with real client briefs and experimental ideas.

**DSGN 210/2210 - Typography I (3 cr.)**

Prerequisites
DSGN 2200 and DSGN 2113

Description
This course is an introduction to and experimentation with different aspects of Latin and Arabic typography. It addresses letterforms 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.)**

Prerequisites
DSGN 2200

Description
Introduction to the basic operation of computers for designers and developing their skills on desktop programs like Illustrator and Photoshop.

**DSGN 315/3115 - History of Graphic Design in the Arab world (3 cr.)**
Prerequisites
DSGN 2113

Description
Exploring a relatively new field in the region, this course will explore the history of graphic design in the Arab world by looking at the rise of different newspapers, magazines and packaging design from the turn of the century until today.

**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 - Design III: Publication (3 cr.)**

Prerequisites
DSGN 2210 and DSGN 3250

Description
This course focuses on the different formats that a printed word can appear in on different items like brochures, catalogues, newspapers, magazines and books. Students are given briefs that push for exploration of type on different grids, as well as layouts, editing photos, structure, and space.

**DSGN 304/3204 - Design IV: Packaging (3 cr.)**

Prerequisites
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 - Design V: Retail Design (3 cr.)

Prerequisites
DSGN 2210 and DSGN 2250.

Description
In this course students develop one whole project in all of its applications. From a logo to in-store signage, students explore the application of a unified visual system across several media from print to on-line.

DSGN 313/3213 - Web Design (3 cr.)

Prerequisites
DSGN 2201

Description
In studio we will explore concepts and the design of branding in the web environment. After presentation of the basic programs and related means of web production, as well as the importation of sound, motion and image, each student will create and design the interface of a brand that exclusively exists on the web. Students will develop a branding strategy, identity design, the components of on-line standards and its digital manual format. The instructors will provide information on strategy, information narratives, hypertext, accessibility and system. Students will experiments with type, form color, layout, grid, hierarchy, sequence etc. and explore how these behave in an electronic interface. By the end of the course, each student will have produced a working prototype and interface web site for their brand.

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 typography through the study of essential typographic elements and principles while
discussing typographic functions and critical theoretical issues. Studies will include grid layout and page systems and typographic matching between Arabic and Latin typography.

**DSGN 330/3230 - Typography III (3 cr.)**

**Prerequisites**
DSGN 3220

**Description**
Technology and typography is explored in this course. Students will explore and understand type applications on different media from cell phones to home appliances to websites. The aim of this course is to equip students in applying typography in any media such as music, videos, web applications, film titles, etc.

**DSGN 335/3235 - Animation (3 cr.)**

**Prerequisites**
DSGN 3250

**Description**
Students are taught how to deal with shapes in motion, character and background animation using director or flash.

**DSGN 350/3250 - Digital Practices II (3 cr.)**

**Prerequisites**
DSGN 2250

**Description**
This course continues students learning in desktop software with a focus on in-design and the cross usage of the Adobe CS package with software like Illustrator Photoshop and Bridge.

**DSGN 360/3260 - Photography for Designers (3 cr.)**

**Prerequisites**
ARTV 2230

**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 400/4200 - Professional Practice (3 cr.)**

**Prerequisites**
Completion of all Major Courses.

**Description**
Off-campus experiential learning in Graphic Design. Students are encouraged to explore the market by interning for eight weeks at different international and Pan-Arab design houses, advertising agencies, web design companies, publishing houses, calligrapher studios, TV stations, printing presses, post production houses and animation firms.

**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**
Completion of all major courses.

**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 as assess the final project.

**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 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.

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.

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 storytelling, 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 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.)

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**

When Offered
Offered in fall and spring.

**Notes**
Students who take both MACT 1121 and ECON 2061 will be granted credit for only one of the two courses.

**ECON 218/2081 - Statistics for Economists (3 cr.)**

**Prerequisites**
MACT 2222.

**Description**
The course covers the general theory of estimation. Topics include: sampling distributions, testing hypotheses about the difference between two means, analysis of variance (ANOVA), correlation and simple regression analysis, nonparametric statistics including Chi-squared & Index numbers.
When Offered
Offered in fall and spring.

**ECON 224/2091 - Economic History (3 cr.)**

Description
Theories of economic evolution with a special focus on Europe. Includes analyses of technological change, property rights systems and economic growth, and income distribution. Examines the transition from feudalism to capitalism, first and second industrial revolutions, the 20th century Great Depression and the reconstruction of the world economies after World War II.

When Offered
Offered in fall and spring.

**ECON 302/3011 - Intermediate Microeconomic Theory (3 cr.)**

Prerequisites
ECON 2011 and ECON 3061

Description

When Offered
Offered in fall and spring.

**ECON 310/3013 - Public Finance (3 cr.)**

Prerequisites
ECON 2021 and ECON 2011

Description
Application of efficiency criteria to political decision making: allocation of resources to social goods, tax and subsidy correctives for externalities, minimizing excess burden of financing government activity. Equity criteria for tax systems and income distribution. Analysis of Egypt's public finances and evaluation of Egyptian public policy.
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 - Money and Banking (3 cr.)**

**Prerequisites**
Prerequisite: FINC 2101 plus ECON 2021 and ECON 2011

**Description**
This course emphasizes the role of central banks, monetary tools, the banking sector and financial markets in impacting domestic macroeconomic performance and the global economy. Topics include: monetary theory; central banking; management of the banking system; financial regulations; and the interaction between monetary policy, financial markets and macroeconomic performance. The course combines theoretical formalization with empirical investigations.

When Offered
Offered in fall and spring.

**ECON 348/3052 - Agricultural Economics (3 cr.)**

**Prerequisites**
ECON 2021 and ECON 2011

**Description**
This course is concerned with the application of economic theory to agricultural markets and food security with special reference to Egypt and other developing countries. Analysis will focus upon agricultural resource allocation, price determination, market
structures, water scarcity, commodity trading, and other topics within the context of an increasingly globalized framework of trade and financial institutions.

When Offered
Offered occasionally.

**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 320/3055 - The Digital Economy: Information Technology, Knowledge and Intellectual Property (3 cr.)**

Prerequisites
ECON 2021 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
ECON 2061
Description

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 the General Linear Regression Model. Topics include: departures from the basic assumptions of the general model: multicollinearity, autocorrelation, heteroskedasticity, errors in variables, dynamic systems and distributed lag models, the identification problem, estimation of structural equations. Assignments include applications to real world examples.

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 413/4012 - Cost-Benefit Analysis (3 cr.)**

Prerequisites
ECON 3011

Description
This course develops the theoretical tools and applied case study analysis to financial and economic project evaluation. Criteria for project feasibility, net worth of investment projects, cash flow discounting, and financial rates of return. Valuation, shadow pricing, and economic appraisal. Applications to real life projects.

When Offered
Offered in fall and spring.

**ECON 403/4031 - International Trade (3 cr.)**

Prerequisites
ECON 3021 and ECON 3011

Description

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 in the Middle East (3cr.)

Prerequisites
ECON 2021

Description
This course explores the application of key concepts relating to economic development and policy analysis to contemporary problems facing countries in the Middle East and North Africa. The course focus is upon thematic policy issues such as growth and structural change; macroeconomic adjustment, industrial development, food and agriculture policy, and trade and financial sector reform.

When Offered
Offered occasionally.

ECON 416/4061 - Mathematical Economics (3 cr.)

Prerequisites
ECON 3061

Description

When Offered
Offered in fall.
ECON 418/4081 - Econometric Methods (3 cr.)

Prerequisites
ECON 3081

Description

When Offered
Offered in fall.

ECON 418P/4082 - Practicum (1 cr.)

Description
This practicum is structured to run parallel with ECON 4082. Practical problems in economic model building. Formulation of static and dynamic models. Estimation of behavioral equations of illustrative and real models using econometric packages such as RATS, TSP, SORITEC, etc., with single-equation and simultaneous-equation methods. Testing hypotheses about economic theory. Calculation of forecasts.

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, sectoral 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 for the most recent challenges facing the Egyptian economy.

When Offered
Offered in fall and spring.

ECON 411/4099 - Seminar: Special Topics in Economics (3 cr.)

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
Completion of 15 credit hours.

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

When Offered
Offered in fall

**ECON 519/5213 - Project Evaluation (3 cr.)**

Prerequisites
ECON 5251 or ECON 3011

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 5211

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

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 5251 and ECON 5282 ) or ( ECON 3021 and ECON 3011 )

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 - Practicum (3 cr.)

Prerequisites
Completion of 3 core courses at least.

Description
It does not count for credit in the MA degree in Economics. A 200-hour assignment with a relevant development-related institution, to be completed over a 4-6 week period, providing exposure and work experience in a development setting. Students are required to prepare a 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

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 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 should be taken in the first 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 of education. 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 course is a pre-requisite for all other courses and must be taken in the first semester.
EDUC 531/5203 - Introduction to International & Comparative Education (3 cr.)

Prerequisites
EDUC 5201 and EDUC 5202

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.)

Prerequisites
EDUC 5201 and EDUC 5202.

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 analyze ways 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.)

Prerequisites
Completion of Core Courses.

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 585/5219 - Current Issues in International Education Development and Policy (3 cr.)**

**Description**
This course presents major education debates, practices, and challenges which policy planners throughout the world must deal with. The course addresses persistent and emerging themes, such as planning for nationwide educational reform; financing quality education (public and private); ensuring equitable quality education for all learners; gender and educational equity; lack of infrastructure; adult illiteracy; and the role of multilateral organizations in educational reform in developing countries. The course can be repeated up to two times under distinct topics.

**Notes**
Students may take the course more than once if the topic is different.

**EDUC 542/5221 - Transformational Leadership (3 cr.)**

**Description**
In this course students will investigate leadership theories; however, the focus will be to examine the elements of transformational leadership and explore how transformational leaders create successful school change and innovation. Students will analyze case studies and leadership styles. The course content and activities will encourage and promote students to be educational change agents. Students will study leadership traits, styles and 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.)**

**Prerequisites**
Completion of Core Courses.

**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.

**EDUC 573/5224 - Research-based Instructional Leadership (3 cr.)**

**Prerequisites**
Completion of Core Courses.

**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 583/5229 - Issues in Comparative Education for Educational Leaders (3 cr.)**

**Prerequisites**
Completion of Core Courses.

**Description**
This course presents MA candidates in the Educational Leadership concentration with major education debates, practices, and challenges which school administrators throughout the world face on a daily basis. The course addresses persistent and emerging themes, including: school administration and financing; quality control of educational program planning and implementation; ensuring provision of equitable education for all learners; developing a learning community at the school, especially through engaging all members in the school's vision; and involving the wider community in school activities, for mutual benefit.

Notes
Students may take the course more than once if the topic is different.

EDUC 552/5231 - The Potential of Emerging Technologies as Transformative Learning Tools (3 cr.)

Description
This course explores the potential of technology as a transformational tool to facilitate more powerful and era-appropriate ways of learning and teaching. The current educational challenges and changing needs of next generation students will be discussed with reference to technology initiatives and established standards. Students will engage with a variety of emerging technologies, assess their pedagogical potential, and design effective learning opportunities to utilize one or more of these technologies. They will also critically evaluate and synthesize research in this area. Finally, the implications of these technologies in terms of equity and diversity will be discussed. Underlying theoretical frameworks as well as design and implementation strategies are considered throughout the course.

EDUC 554/5232 - Reading and Writing in the Content Area Classroom (3 cr.)

Description
This course provides primary and secondary teachers with various theoretical constructs to understand learning, reading and writing within distinct academic discourse communities. Attention is focused on instructional strategies for incorporating writing and reading support in various content-based classrooms. Additionally, strategies for encouraging richer content-area learning are provided through the use of varied texts and writing assignments.

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 students 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 581/5239 - Current Issues in Teaching & Learning (3 cr.)**

**Description**
This course presents major education debates, practices, and challenges which teachers throughout the world face. The course addresses persistent and emerging themes, such as professionalization of teachers and on-going career preparation; integrating technology into instructional practice; formal and informal learning; the role of assessment in instruction; standards-based instruction; and the on-going process of building school-home relationships which can help enhance student learning. The course can be repeated up to two times under various distinct topics.

**Notes**
Students may take the course more than once if the topic is different.

**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 context both of learning theories and institutional missions. Students will conduct a research project that involves 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 perspective.

**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 begins with 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 recourse allocation, learning outcomes, student satisfaction, labor market satisfaction and other characteristics.

EDUC 561/5249 - Current Issues in Higher Education (3 cr.)

Description
This course provides an introduction to the higher education sector in a comparative international context, focusing on policy, institutional replication, global rankings, organizational structures, equity, and finance. Students will apply frameworks of comparative research on higher education, as well as a variety of approaches to the analysis of reform, policy, practice and outcomes. This course can be repeated up to two times under various special topics.

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 are assigned, assignments are required, and frequent consultations are held.

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.

EENG 210/2101 - Digital Logic Design (3 cr.)

Prerequisites
CSCE 1001. Concurrent with EENG 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, subtrac ters, multiplication and division circuits, memory types. Exposure to logic design automation software. Introduction to FPGAs and HDL.

Cross-listed
Same as PHYS 3214.

When Offered
Offered in fall, spring and summer.

EENG 215/2105 - Circuit Analysis I (3 cr.)

Prerequisites
PHYS 1021
Description
Ohm's law, Kirchhoff'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.

EENG 216/2106 - Circuit Analysis II (3 cr.)

Prerequisites
EENG 2105 and concurrent with MACT 2141 and EENG 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.

EENG 218L/2108L - Digital Logic Design Lab (1 cr.)

Prerequisites
Concurrent with EENG 2101

Description
The laboratory component will cover experiments in digital design and experiments illustrating material of course EENG 2101.

Cross-listed
Same as PHYS 3215.

When Offered
Offered in fall, spring and summer.
EENG 219L/2109L - Circuit Analysis Lab (1 cr.)

Prerequisites
Concurrent with EENG 2106

Description
Experiments illustrating material of course EENG 2106.

When Offered
Offered in fall and spring.

EENG 315/3105 - Electronics I: Basic Electronic Devices & Circuits (3 cr.)

Prerequisites
EENG 2106

Description
Devices and Basic Circuits: Introduction to Electronics, Operational Amplifiers, Diodes, Bipolar Junction Transistors (BJT's), Field Effect Transistors (FET's).

When Offered
Offered in fall and spring.

EENG 316/3106 - Electronics II: Analog Circuits (3 cr.)

Prerequisites
EENG 3105, concurrent with EENG 3109L.

Description

When Offered
Offered in fall and spring.

EENG 318/3108 - VLSI Design (3 cr.)

Prerequisites
EENG 2101 and EENG 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.

EENG 319L/3109L - Electronics Lab (1 cr.)

Prerequisites
Concurrent with EENG 3106.

Description
Experiments illustrating material of course EENG 3106.

When Offered
Offered in fall and spring.

EENG 320/3201 - Linear Systems Analysis (3 cr.)

Prerequisites
EENG 2106 and MACT 2141

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. Experiments are conducted using MATLAB in the computer lab to illustrate the material covered in the course.

When Offered
Offered in fall and spring.
EENG 321/3202 - Automatic Control (3 cr.)

Prerequisites
EENG 3201

Description
Principles of closed-loop feedback control systems, block diagrams, signal graphs, state variable to solution of free and forced response of linear systems, general feedback theory, transfer functions of components, Eigen-Value problems, criteria for designs, systems study in the domains, Nyquist criterion, Routh criterion, root locus theory and compensation methods. Several experiments are conducted in the Control Lab to illustrate material covered in the course.

When Offered
Offered in fall and spring.

EENG 341/3401 - Electromagnetic Theory (3 cr.)

Prerequisites
PHYS 1021 and MACT 2124

Description

Cross-listed
Same as PHYS 3023.

When Offered
Offered in fall and spring.

EENG 352/3502 - Computer Organization and Assembly Language Programming (3 cr.)

Prerequisites
CSCE 1101

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.

EENG 360/3601 - Power and Machines (3 cr.)

Prerequisites
EENG 2106 and EENG 3401

Description
Power system components, Electromagnetic fundamentals and magnetic circuits theory, basic concepts and operating characteristics of transformers, AC machine fundamentals, equivalent circuit and operating characteristics of synchronous machines (generators and motors), theory of operation and basic concepts of induction motors, transmission line parameters, transmission line models and terminal characteristics, power system representation, fault analysis and protection system elements.

When Offered
Offered in fall and spring.

EENG 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.
EENG 413/4103 - Testing of Digital Circuits (3 cr.)

Prerequisites
EENG 2101

Description

When Offered
Offered occasionally.

EENG 414/4104 - High Level Digital ASIC Design Using CAD (3 cr.)

Prerequisites
EENG 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.

EENG 415/4105 - Integrated Circuit Fabrication: Materials and Processes (3 cr.)

Prerequisites
EENG 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,
EENG 416/4106 - Advanced ASIC Design (3 cr.)

Prerequisites
EENG 4104

Description
This course covers advanced topics related to netlist synthesis, place & route, timing verification, clock tree insertion, power grid distribution, floorplanning of cell-based ASIC design. Other advanced verification techniques topics related to the design automation flow will be covered. Students will design a standard cell library using Verilog for their project.

When Offered
Offered occasionally.

EENG 420/4301 - Fundamentals of Communications I (3 cr.)

Prerequisites
EENG 3201, MACT 3224 and ENGR 3202, concurrent with EENG 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.

EENG 421/4302 - Fundamentals of Communications II (3 cr.)

Prerequisites
EENG 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; 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.

**EENG 404L/4304L - Photonics and Optical Communication Laboratory (1 cr.)**

**Prerequisites**
Concurrent with EENG 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.

**EENG 432/4306 - Computer Communication Networks (3 cr.)**

**Prerequisites**
EENG 4301.

**Description**
Practical and theoretical issues related to networking. Topics cover introduction to computer network architecture, OSI model, relevant protocols including data link layer, network layer and transport layer protocols, the ISDN network, the SS7 protocol, high-speed networks including BISDN, and ATM, congestion and control algorithms, quality of service guarantees for throughput and delay. Internet protocol IP, transport layer protocols TCP and UDP, routing and Ethernet, queuing and error correction. Local and wide area networks.

When Offered
Offered in fall and spring.

**EENG 433/4308 - Telecommunications Systems (3 cr.)**
Prerequisites
EENG 4301 and EENG 4306

Description

When Offered
Offered occasionally.

EENG 434/4310 - Optical Communication Systems (3 cr.)

Prerequisites
EENG 3401 and PHYS 2221, concurrent with EENG 4304L.

Description

When Offered
Offered occasionally.

EENG 436/4312 - Mobile Communication Systems (3 cr.)

Prerequisites
EENG 4302 and EENG 4306

Description

When Offered
Offered occasionally.
EENG 439L/4314L - Communications Lab (1 cr.)

Prerequisites
Concurrent with EENG 4301

Description
Experiments illustrating material of course EENG 4301.

When Offered
Offered in fall and spring.

EENG 442/4402 - Electromagnetic Waves (3 cr.)

Prerequisites
ENGR 1005, CHEM 1005 and EENG 3401.

Description

When Offered
Offered in fall and spring.

EENG 447/4407 - Microwave Systems (3 cr.)

Prerequisites
EENG 4402

Description

When Offered
Offered occasionally.
EENG 453/4503 - Microcontroller System Design (3 cr.)

Prerequisites
EENG 2101, EENG 3106, EENG 3502 and concurrent with EENG 4509L.

Description
Microcontroller architecture (Pic, 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.

EENG 455/4505 - Computer Architecture (3 cr.)

Prerequisites
EENG 2101, EENG 3502 concurrent with EENG 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.

EENG 456/4506 - Digital Control Systems (3 cr.)

Prerequisites
Prerequisite: EENG 2101 and EENG 3202 (for EENG students); PHYS 3214 and MENG 4756 (for MENG students).

Description
Advantages of using PLCs in industrial automation, Basic components of a PLC, Interfacing sensors and actuators to PLCs, Programming of PLCs by ladder logic, Internal markers, Timers, Counters, Conditional jumps and Master Control function, PLC
program design, PLC program development for control applications, Advanced Sequential Control Techniques, Data handling instructions, A/D and D/A PLC modules, Basic elements of DCS, Differences between DCS and SCADA, Foundation Field bus and Profibus.

When Offered
Offered occasionally.

**EENG 458L/4508L - Computer Architecture Lab (1 cr.)**

**Prerequisites**
Concurrent with EENG 4505

**Description**
The laboratory will cover experiments in computer architecture and hardware design and experiments illustrating material of Course EENG 4505.

**Cross-listed**
Same as CSCE 3302.

When Offered
Offered in fall and spring.

**EENG 459L/4509L - Microcontroller System Design Lab (1 cr.)**

**Prerequisites**
Concurrent with EENG 4503

**Description**
Experiments illustrating material of course EENG 4503.

When Offered
Offered in fall and spring.

**EENG 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 a 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.

EENG 480/4920 - Special Problems in Electronics Engineering (1-3 cr.)

Prerequisites
Prerequisite: consent of instructor

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.

EENG 494/4930 - Selected topics in Electronics Engineering (3 cr.)

Prerequisites
Prerequisite: senior standing.

Description
Course content will be selected each semester from current developments in the field of electronics engineering.

When Offered
Offered occasionally
EENG 497/4950 - Industrial Internship (1 cr.)

Prerequisites
Prerequisite: completion of 100 credit hours.

Description
Each student is required to be trained for 15 hours in the Mechanical Engineering workshops to study the fundamentals of manufacturing processes (forming, welding and machining). Each student is also 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 and spring.

EENG 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.

EENG 491/4981 - Senior Project II (2 cr.)

Prerequisites
EENG 4980

Description
A continuation of the capstone project.

When Offered
Offered in fall and spring.

EENG 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.

EENG 516/5216 - Analog Integrated Circuit Design (3 cr.)

Prerequisites
EENG 3106

Description

EENG 517/5217 - Digital Integrated Circuit Design (3 cr.)

Prerequisites
EENG 3105 and EENG 3106

Description
This course provides an introduction to the design of digital integrated circuits. Topics covered include: (1) The Diode (DC and Dynamic Behavior), (2) The MOSFET (DC and Dynamic Behavior as well as short channel effects), (3) The CMOS inverter (Static and Dynamic Behavior - Power/Speed Tradeoffs), (4) 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) and Low Power Circuit Techniques.

EENG 518/5218 - Advanced Integrated Circuit Design (3 cr.)
Prerequisites
EENG 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.

EENG 000/5219 - High-Performance Integrated Circuit Modeling (3 cr.)

Prerequisites
EENG 3108 or equivalent.

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, 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.

EENG 553/5223 - Fault-tolerant Computing and Reliability Modeling (3 cr.)

Prerequisites
EENG 4503

Description
Faults, errors, fault modeling, redundancy techniques, error detecting and correcting codes, self-checking circuits, reliability and availability modeling, performability.

EENG 525/5225 - Digital Signal Processing (3 cr.)
Prerequisites
EENG 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.

EENG 556/5226 - Networked Control Systems Design & Applications (3 cr.)

Prerequisites
EENG 3202 and EENG 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.

EENG 522/5230 - Stochastic Processes for Engineers (3 cr.)

Prerequisites
MACT 3224 or equivalent.

Description
Probability and stochastic processes with engineering applications. Topics include review of probability and sampling methods; modeling of random experiments; linear and nonlinear transformations of random vectors; discrete-time and continuous-time random processes including Markov processes; spectral analysis of random signals; estimation theory including Wiener and Kalman filtering. A simulation project on selected applications will be given.

EENG 520/5231 - Advanced Digital Communications (3 cr.)

Prerequisites
EENG 4302 and EENG 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.

**EENG 521/5233 - Wireless Communication Systems (3 cr.)**

**Prerequisites**
EENG 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.

**EENG 524/5234 - Enabling Technologies for High Date Rate Communications (3 cr.)**

**Prerequisites**
EENG 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.

**EENG 526/5236 - Information Theory and Coding (3 cr.)**

**Prerequisites**
EENG 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.

**EENG 530/5238 - Advanced Computer Networks (3 cr.)**

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Prerequisites
EENG 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.

EENG 541/5241 - Microwave Circuit Analysis and Design (3 cr.)

Prerequisites
EENG 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.

EENG 547/5247 - RF and Microwave Systems (3 cr.)

Prerequisites
EENG 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.

EENG 548/5248 - RF Integrated Circuit Design (3 cr.)

Prerequisites
EENG 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.
EENG 549/5249 - Antennas Design and Applications (3 cr.)

Prerequisites
EENG 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.

EENG 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.

EENG 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 and MOIS 5309.

EENG 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.

**EENG 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.

**EENG 580/5910 - Graduate Independent Study (1-3 cr.)**

**EENG 594/5930 - Advanced Topics in Electronics Engineering (3 cr.)**

Students are allowed to register for this course for a maximum of two times, if content changes.

**EENG 599/5980 - Thesis**

**EENG 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.

EENG 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.

EENG 625/6235 - Detection, Classification, and Estimation Theory (3 cr.)

Prerequisites
EENG 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.

EENG 694/6930 - Advanced Selected Topics in Electronics Engineering (3 cr.)

Prerequisites
Consent of instructor.

Description
Advanced topics selected from current developments in electronics engineering.
EENG 622/6931 - Advanced Topics in Wireless Communications (3 cr.)

Prerequisites
EENG 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.

EENG 699/6980 - Research Guidance Dissertation (3 cr.)

Description
Consultation on problems related to student thesis. To be taken 11 times for credit.

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.

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.

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 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 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 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.
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, and 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.
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 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 491/5191 - Field Work in Egyptological Method and Theory (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 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.

ELIN 98/0101 - Intermediate English (0 cr.)

ELIN 99/0102 - Advanced English (0 cr.)

ELIN 120/0301 - Intermediate English (for Graduates) (0 cr.)

ELIN 121/0302 - Advanced English (for Graduates) (0 cr.)

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 cooperation 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 rescissions, 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
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.

ENGL 100/0210 - Academic English for Freshmen (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 10 days (or the equivalent of 36 contact hours) 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. Freshmen 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 Freshmen 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 Freshmen 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.

**ENGR 101/1001 - Introduction to Engineering (1 cr.)**

**Description**

**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**
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, deprecation 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 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 511/5202 - Computational Methods in Engineering (3 cr.)

Description
Numerical solution of sets of algebraic and transcendental equations, eigen system analysis, numerical integration and

**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

**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 I (2 cr.)**

Description
Seminars on research topics, research methodology and thesis writing, and presentations given by invited speakers.

Cross-listed
Same as RCSS 5940.

**ENGR 591/5941 - Graduate Thesis Seminar II (1 cr.)**

Prerequisites
ENGR 5940
Description
Seminars on research topics given by invited speakers and on research plans given by students to discuss their thesis topics and the results they obtained in their work.

Cross-listed
Same as RCSS 5941.

**ENTR 203/2101 - Introduction to Entrepreneurship and Small Business Management (3 cr.)**

Description
This course is designed to provide the student with an introduction to the concept of entrepreneurship as well as the specificities of managing a small business compared to a large one. The student will develop a general understanding of entrepreneurship as an economic activity and the role it plays as a catalyst of economic growth and social development. The personal traits and behaviors, and the organizational characteristics associated with successful entrepreneurship will be analyzed and discussed. The student will also be introduced to different organizational aspects and managerial activities related to launching and managing a small business.

**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.)**

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
ENTR 2101, MKTG 2101, ENTR 3201 and ENTR 4102.

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.

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

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

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.)

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.

**EUST 504/5501 - European Union Law (3 cr.)**

Description
Introduction to the major institutions and decision making procedures of the European Union's constitutional structure as well as the foundational doctrines and processes developed by the EU judicial system.

Cross-listed
Same as LAW 5204.

**EUST 506/5502 - Seminar on Practical Diplomacy (Arranged with European embassies and institutions) (3 cr.)**

Description
This seminar is conducted with occasional seminar visits to local European embassies and institutions. In-class work includes study of local and international diplomatic processes, student presentations, and a final paper. All students prepare for visits and write reports. Students must be prepared to leave AUC early on days when visits are scheduled.

**EUST 508/5503 - Seminar on the European Union (3 cr.)**

Description
This seminar course includes occasional speakers from local European embassies and institutes. Topics may include constitutional, political, economic, social, cultural, and defense issues. Class-work includes preparation for student presentations on these and other current EU issues.

**EUST 511/5504 - Special Topics in Nineteenth and Twentieth Century European Studies (3 cr.)**

Description
Content differs according to topics.

Cross-listed
Same as HIST 5105
EUST 513/5505 - The European Systems of Human Rights Protection (3 cr.)

Description
Examination of the procedures and substantive law contained in conventions, treaties, reports, judgments, and other documents will be examined for a comprehensive understanding of the development of human rights law in Europe. These human rights systems are considered in relation to their origins in social and political movements and their subsequent effects on politics and society.

Cross-listed
Same as LAW 5213.

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 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.
Cross-listed
Same as ARTV 2113 ,DSGN 2113 .

**FILM 220/2120 - Introduction to Film (3 cr.)**

Description
An introduction to the art of cinema, covering basic film history, theory, aesthetics, and production. Dramatic narrative (fiction), documentary (non-fiction), and avant-grade subjects are analyzed in detail, and relevant films are screened in class to stimulate discussion.

When Offered
Offered in fall and spring.

Notes
Required for the Major and Minor in Film.

**FILM 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.

Cross-listed
Same as DSGN 2200 ,ARTV 2200 .

When Offered
Offered in fall and spring.

**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 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 - History of World Cinema (3 cr.)

Description
A survey of international narrative cinema, from the silent period to the present. Individual films, film movements and film genres will be studied, and important films from the respective periods will be screened in whole or in part.

When Offered
Offered in the fall or spring.

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 330/3130 - Film Theory and Criticism (3 cr.)

Prerequisites
FILM 2120 or consent of the Director of the Film Program.

Description
A historical study of the major theoretical approaches to motion picture art, including early analysis of film aesthetics, structure, and form, as well as modernist political critiques of cinema. Films will be screened class to facilitate understanding of the readings.

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 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 forms and conventions, drawing examples from Hollywood as well as a variety of world cinemas. Topics could include the Musical, Comedy, Horror, Film Noir, Western, Historical Epic genres, etc.

FILM 351/3251 - Digital Editing (3 cr.)

Prerequisites
FILM 2120 and FILM 2200

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 Major and Minor students.

**FILM 353/3253 - Digital Cinematography (3 cr.)**

**Prerequisites**
FILM 2120 and FILM 2200

**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.

**When Offered**
Offered at least once every year.

Notes
Priority of registration in this course is given to declared Film Major and Minor students.

**FILM 357/3257 - Screenwriting (3 cr.)**

**Prerequisites**
FILM 2120

**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 and television programs and other moving picture media.

**FILM 336/3306 - Sound for Picture Production (3 cr.)**

**Prerequisites**
MUSC 2300 and 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.)**

**Description**
The organization of the production, distribution and exhibition practices of various film industries. May include an examination of the relationship between a national film industry and other visual media; changing technologies and their impact on the medium; connections and intersections between the film industry and other economic industries and dynamics.

**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 450/4250 - Senior Film Project (3 cr.)**

**Prerequisites**
FILM 3251, FILM 3253 and 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 452/4352 - The Arab and Egyptian Film Industries: National and Global Perspectives (3 cr.)

Prerequisites
Fourth year level in the Film major or the consent of the Program Director.

Description
A study of the nature of the Arab and Egyptian Film industry. Emphasis will be on the evolution of the Arab motion picture industry in the twentieth century and how it is situated in contemporary popular culture. Other topics include Egyptian cinema's relationship to Hollywood, the audience for Egyptian and Arab films, the role of the state cinematic funding, distribution and production systems, the impact of new technologies, and how the structure of the Egyptian and Arab film industries compares with those of other countries.

Notes
This course may be repeated for credit.

FILM 456/4356 - Experiential Learning in Film (3 cr.)

Prerequisites
Fourth year level in the Film major or the consent of the Program Director.

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 employment, 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 to beginning the work. Students should also include an official letter from the host institution that 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 470/4370 - Advanced Seminar in Film Study and Research (3 cr.)

Prerequisites
Fourth year level in the Film Major or Minor, or consent of the Director of Film.

Description
The 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.

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.

**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.

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

Prerequisites
ACCT 2001, (ECON 2021 or ECON 2011) and MACT 1221 or MACT 2222.

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 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 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 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 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 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 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 470/4970 - Special Topics in Financial Management (3 cr.)**

Prerequisites
Prerequisite: Consent of Instructor.

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 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 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
The course shows how to understand important mathematical models used in finance today including: (1) Deterministic Cash Flow Streams, (2) Fixed Income Securities: duration and convexity, (3) Term structure of interest rates, (4) capital budgeting, dynamic cash flows, (5) Additional options topics, and how to use state of the art optimization and simulation software including: (1) The Excel Solver for Optimization, (2) RISK for Monte Carlo Simulation, (3) Precision Tree for Decision Tree analysis, (4) The GAMS algebraic modeling 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 (6 cr.)

Description
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.

Hours
Six credit hours to be taken in two consecutive semesters

FINC 590/5402 - Research Methodology (1 cr.)

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 EENG 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 512/5212 - Design of Renewable Energy Systems (3 cr.)

Prerequisites
MENG 3605 and MENG 4606.

Description

Cross-listed
Same as MENG 4663.

GREN 513/5213 - Solid and Hazardous Wastes Engineering (3 cr.)

Description

Cross-listed
Same as ENVE 5254 /CENG 4555.

GREN 514/5214 - Green Buildings (3 cr.)

Description

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 EENG 5273.

**GREN 523/5223 - Managing in a Dynamic Environment (3 cr.)**

**Description**
Managing in today's ever-changing dynamic environment is a challenge. To ensure competitiveness and sustainability, managers would acquire new skills and knowledge. This course covers topics such as management fundamentals, managing the local and global environment, emotional intelligence, organizational learning, ethical considerations, and value pluralism in management.

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 541/5241 - 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.

Cross-listed
Same as SOC/ANTH 5235.

When Offered
Offered in alternate years.

**GREN 542/5242 - 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.

Cross-listed
Same as SOC/ANTH 5275
GREN 543/5243 - 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.

Cross-listed
Same as SOC/ANTH 5240.

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 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.

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 - Approaches to Middle East/ North Africa Gender and Women's Studies (3 cr.)

Description
This course immerses students in the historical, philosophical and theoretical debates within the academic field of Middle East Gender and Women's Studies. Interdisciplinary approaches as well as varieties of theoretical positions are exposed and discussed critically. Acknowledging the entanglements of regions, scholarly debates and politically struggles, this course locates the Middle East/ North Africa region within its worldly context. Past foci have included "Women's Rights, Human Rights " "Critical Urbanism: Gender, Poverty, Violence," "Practices of Islamic Family Law" "Regulating Bodies."

When Offered
Offered in spring.

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. The 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.

Cross-listed
Same as LAW 5220.

When Offered
Offered every fall.

GWST 503/5103 - Histories and Theories of Gender and Development (3 cr.)

Description
The aim of this foundation seminar is to introduce students to the historical, theoretical and empirical perspectives and experiences that inform current programs and polices in the field of gender and development. The course is divided into four sub-modules each of which will present key concepts in the analysis of social relations between men and women in the context of development thinking. Each module will present these theoretical perspectives with reference to concrete empirical applications.
When Offered
Offered every fall.

**GWST 504/5104 - 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**
The primary goal of this course is to develop adequate tools for understanding the gendering of political economies in the contemporary world. The course provides a reading in the genealogies of capital in order to critically engage emergent political, economic and social forms.

**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 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.

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 International/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 299/2097 - 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 225/2701 - East Asian History

Description
Introduction to the cultural histories of China, Korea, and Japan from earliest times until the present, including political, social, intellectual and material culture.

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 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 360/3408 - Rise and Fall of Nazi Germany (3 cr.)

Prerequisites
HIST 2404

Description
This course explores the rise and fall of perhaps the most destructive regime in the history of Modern Europe. It traces the Nazi Party from its rise to power to downfall, exploring the politics and ideologies that come to define life in both Nazi Germany and Nazi occupied Europe. We will pay particular attention to the development of Nazi racial policies and the events that led to the Holocaust. Through the readings, writings, assignments and in class-projects, the student will learn to think critically about not only how and why the Nazis were able to come to power but also how the Nazis were able to put into motion their program of racial genocide across Europe.

HIST 309/3504 - History of American Political Thought (3 cr.)

Prerequisites
HIST 2501 or HIST 2502 or HIST 2019

Description
An examination of the major themes in American political thought and ideology from 1607 to the present with an emphasis on the ways in which conceptions of personal freedom, congregationalism, individualism, social Darwinism, civil liberties, civil rights, progressivism, liberalism, conservatism, populism, or anti-communism either reflected or influenced political action.

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 admission to the Honors Program.

**Description**
The course is part of a two-semester sequence, with the Honors section of HIST 4801 forming the first part of the sequence. 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 4801 and will be completed in HIST 4000.
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 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 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 511/5105 - Special Topics in Nineteenth and Twentieth Century European Studies (3 cr.)

Description
Content differs according to topics.

Cross-listed
Same as EUST 5504.

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.

INTB 301/3101 - Introduction to International Business (3 cr.)

Prerequisites
MKTG 2101 and MGMT 3201.

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 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 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.

**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 - Mass Media Writing (3 cr.)**

Description
Study and practice of basic writing, editing, and reporting techniques used in the international print media; newsroom practices to develop listening, reading, writing and editing skills.

**JRMC 202/2202 - Multimedia Writing (3 cr.)**

Prerequisites
JRMC 2201

Description
Cross-media study and practice of writing and reporting for print, broadcast, 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 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 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 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, JRMC 2203 and JRMC 3301 or consent of instructor.

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 3305

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.

Notes

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 3337

**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.

**Notes**

**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.

Notes

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.

Notes
IMC seniors only.

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 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 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
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 (JRMC 2201 and JRMC 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.

**JRMC 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.
JRMC 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 spring.

JRMC 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.

JRMC 540/5240 - Reporting Civil Society (3 cr.)

Prerequisites
JRMC 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.

JRMC 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 101/1010 - 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.

**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 (prerequisites can be waived by special permission of the Law department)

**Description**
The course will look at the major schools of legal theory in the United States 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.

**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.

**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.

**LAW 504/5204 - European Union Law (3 cr.)**
Prerequisites
LAW 5202 or LAW 5209 (Prerequisites can be waived by special permission of the Law department).

Description
Introduction to the major institutions and decision making procedures of the European Union's constitutional structure as well as the foundational doctrines and processes developed by the EU judicial system.

Cross-listed
Same as EUST 5501.

LAW 505/5205 - Islamic Law Reform (3 cr.)

Prerequisites
LAW 5202 or LAW 5209 (Prerequisites can be waived by special permission of the Law department).

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.

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.

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.

LAW 508/5208 - International Criminal Law (3 cr.)

Prerequisites
LAW 5209 and LAW 5210 (prerequisites can be waived by special permission of the Law Department).

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.

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.

LAW 510/5210 - Introduction to International Human Rights and Humanitarian Law (3 cr.)

Description
This gateway course provides an overview of the substance and some of the mechanisms of international human rights and humanitarian law. The course covers the doctrinal, institutional, methodological and theoretical bases of human rights law and international humanitarian law and offers an introduction to the substantive development of the corpus of human rights and humanitarian law, through the case-law of the international, regional, and domestic monitoring and judicial authorities on selected issues of substance or procedure (varying interpretations of given substantive political, social and economic rights, standards of evidence in human rights law, universal jurisdiction, definition of terrorism in human rights and humanitarian law, etc).

LAW 511/5211 - International Humanitarian Law (3 cr.)

Prerequisites
LAW 5209 and LAW 5210 (prerequisites can be waived by special permission of the Law Department).
Description
This course provides basic introduction to the field of international humanitarian law (IHL), otherwise known as the laws of war, the law or 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.

**LAW 512/5212 - Human Rights and the United Nations (3 cr.)**

**Prerequisites**
LAW 5209 and LAW 5210 . (Prerequisites can be waived by special permission of the Law department).

**Description**
The framework and evolution of international human rights law within the system established by the United Nations Organization examined in relation to its antecedents, establishing documents, processes of norm creation and application, and present methods and activities of monitoring within the UN system.

**LAW 513/5213 - The European System of Human Rights Protection (3 cr.)**

**Prerequisites**
LAW 5209 and LAW 5210 . (Prerequisites can be waived by special permission of the Law department).

**Description**
The procedures and substantive law contained in conventions, treaties, reports, judgments, and other documents will be examined for a comprehensive understanding of the development of human rights law in Europe.’ These human rights systems are considered in relation to their origins in social and political movements and their subsequent effects on politics and society.

**Cross-listed**
Same as EUST 5505.

**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
An overview of the dynamics of international human rights law in the Middle-East, through national, regional and universal mechanisms dealing with current human rights issues in the region. The course will cover a series of substantive themes of interest to the countries and people of the region with the help of legal cases and documents coming from the UN system, the African System, the Arab League, and national courts and institutions. The course will also examine the norms and institutions of international humanitarian law in their specific relationship to conflicts in the region.

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.

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 conventions 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.

LAW 517/5217 - Human Rights and Identity Groups (3 cr.)

Prerequisites
LAW 5209 and LAW 5210. (Prerequisites can be waived by special permission of the Law department).

Description
This course focuses attention on the use of identity groups as legal objects of special protection in international human rights law. Various concepts related to the protection of the rights of groups that have been identified as either "vulnerable" or historically discriminated against, such as women and children, are examined. Instruments and mechanisms as well as the conceptual framework for the protection of these groups (and other non-protected "vulnerable" groups) are considered in relation to their perceived vulnerabilities.

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 5201.

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.

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, appendices 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
Same as GWST 5102.

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.

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.

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.

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.
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.

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 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.

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., graded)

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.
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 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 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.

**MACT 100/1111 - Algebra and Trigonometry (3 cr.)**

Prerequisites
Prerequisites: Thanawyia 'Amma Arts or equivalent.

Description
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: Thanawyia 'Amma Science or MACT 1111.

Description

When Offered
Offered occasionally.

Notes
No credit for science majors

MACT 131/1121 - Calculus I (0/3)

Prerequisites
Prerequisite: Thanawiya, 'Amma Science or equivalent.

Description
Limits of one-variable functions, continuity and differentiability. Extrema and Curve sketching. Related rates. Linear approximation. Differentiation of Trigonometric functions. Applications of the derivative

When Offered
Offered in fall and spring.

Notes
This course is 0 credit hours for all engineering majors, computer science and physics majors. Otherwise it is 3 credit hours.

MACT 132/1122 - Calculus II (3 cr.)
Prerequisites
MACT 1121 or exemption.

Description

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

When Offered
Offered in fall and spring.

MACT 232/2124 - Calculus IV (3 cr.)

Prerequisites
MACT 2123

Description

When Offered
Offered in fall and spring.

MACT 200/2131 - Discrete Mathematics (3 cr.)

Prerequisites
MACT 1111 or equivalent.

Description

When Offered
Offered in fall and spring.

MACT 240/2132 - Linear Algebra (3 cr.)

Prerequisites
MACT 2123

Description
Diagonalization. Various applications.

When Offered
Offered in fall and spring.

**MACT 233/2141 - Differential Equations (3 cr.)**

**Prerequisites**
MACT 2123

**Description**

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. Gödel's completeness and incompleteness theorems, and some of the philosophico-mathematical problems in set theory, and alternative logics are discussed.

Cross-listed
Same as PHIL 5118.

When Offered
Offered occasionally.

**MACT 305/3142 - Introduction to PDE and Boundary-Value Problems (3 cr.)**

Prerequisites
MACT 2141

Description

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

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**

**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 2123 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.

MACT 321/3311 - Mathematics of Investment (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

When Offered
Offered once a year.

MACT 431/4126 - Real Analysis I (3 cr.)

Prerequisites
MACT 2131, MACT 2124 or consent of instructor.

Description

When Offered
Offered once a year.

MACT 432/4127 - Real Analysis II (3 cr.)

Prerequisites
MACT 4126
Description

When Offered
Offered occasionally.

MACT 403/4134 - Modern Algebra (3 cr.)

Prerequisites
MACT 2131, MACT 2132, or consent of instructor.

Description

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 2141 MACT 3211 or MACT 3224

Description
Introduction to stochastic process, discrete time Markov chains (DTMC). The Exponential distribution and Poisson process, continuous-time Markov chains (CTMC). Transient and limiting behavior for both DTMC and CTMC. Single and multi channels Markovian queueing models, network of queues. Applications in actuarial science, computer science and engineering.

When Offered
Offered once a year.

MACT 412/4213 - Mathematical Modeling (3 cr.)

Prerequisites
MACT 2132 and MACT 4212

Description
Introduction to the mathematical modeling. Deterministic models in discrete and continuous times using difference and differential equations. Probabilistic models in discrete and continuous times using discrete and continuous times Markov chains. Applications in actuarial science, biology, computer science, economics, engineering and environmental science.

When Offered
Offered once a year.

MACT 427/4231 - Applied Regression Methods (3 cr.)

Prerequisites
MACT 2132 and either MACT 3223 MACT 3224 or ECON 2081

Description

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

MACT 2132 and either MACT 3223, MACT 3224 or ECON 3081

Description


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, description of commodity and 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 4312

Description
Continuous time model, options, options on futures, Black-Scholes formulas, Black's formula, greeks and their calculation, implied volatility, mathematics of delta hedging and delta-gamma hedging, exotic options, normal and lognormal distributions, Brownian motion, geometric Brownian, stock price process under the physical and risk-neutral probability measures, stochastic differential equations, Black-Scholes equation, Ito's lemma, risk-neutral pricing in continuous time, continuous and discrete time interest rate models.

When Offered
Offered once a year.

MACT 423/4321 - Life Contingencies I (3 cr.)

Prerequisites
MACT 3211 and MACT 3311

Description
Mortality laws, future lifetimes, force of mortality, life table, fractional age assumptions, 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 - Life Contingencies II (3 cr.)

Prerequisites
MACT 4321

Description
Benefit reserve, representations of benefit reserve, recursive relationship, multiple life, joint life status, multiple life insurances and annuities, multiple decrement models, multiple decrement benefit, expense augmented models.

When Offered
Offered once a year.
MACT 407/4331 - Insurance Loss Models I (3cr.)

Prerequisites
MACT 3211

Description
Risk Theory: Loss/claim severity models, creating a new model by transformation inflation, insurance coverage modifications, policy limit, loss elimination ratio, deductibles, inflation, coinsurance, loss/claim frequency models, Poisson, geometric, negative binomial, (a,b,0) and (a,b,1) classes, aggregate loss models, compound distribution, recursive formula, impact of individual claim modifications.
Credibility Theory: mixture models and Bayesian estimation, discrete and continuous mixtures, prior distribution, marginal distribution, posterior distribution, predictive distribution, Bayesian premium, Buhlmann model, credibility premium, credibility factor.

When Offered
Offered once a year.

MACT 408/4332 - Insurance Loss Models II (3 cr.)

Prerequisites
MACT 3223 and MACT 4331

Description
Non-parametric estimation for complete data: empirical estimates, Nelson-Aalen estimates; Non-parametric estimation for left truncated and right censored data Kaplan-Meier product-limit estimates, Nelson-Aalen estimates, evaluation of estimators, confidence intervals for survival and cumulative hazard functions; Kernel density models; Parametric estimation: method of moments, percentile matching, maximum likelihood estimation, applications to loss data with deductible and limit; goodness-of-fit tests; Proportional hazards model: baseline hazard rate, individual hazard rate, partial likelihood function.

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
Permission of the Department Chair or the Director of Actuarial Science Program. Students seeking to take this course must meet with their academic advisor. Approval is based on their GPA in their previous two semesters and individual evaluation.

Description
A minimum of four weeks of training in industrial, commercial, educational or government establishments in Egypt or abroad. A detailed report of this practical experience is presented both in written form and orally, and is evaluated according to department rubrics.

When Offered
Offered in summer.

MACT 495/4980 - Senior Thesis (3 cr.)

Prerequisites
Senior standing.

Description
Methods used in obtaining and reporting research. Each student selects a topic in his/her field of interest. Under the supervision of a faculty member, he/she prepares an outline, assembles a bibliography, and makes a study plan to be followed in preparing the project. After completing the project, the student makes an oral presentation of his/her chosen topic. The written thesis is completed after criticism and suggestions.

When Offered
Offered occasionally.

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
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

When Offered
Offered in fall and spring.

**MENG 339/3209 - Fundamentals of Manufacturing Processes (3 cr.)**

Prerequisites
MENG 3207

Description

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 341/3441 - 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 344/3444 - 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 346/3446 - Engineering and Project Management (3 cr.)
Prerequisites
MACT 3224

Description

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 and MENG 2505

Description

When Offered
Offered in fall and spring.

MENG 356/3506 - Mechanical Design I (3 cr.)
Prerequisites
ENGR 2104 MENG 2505 and MENG 3505

Description

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

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

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 and MENG 3502.

Description

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

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**

**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

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

When Offered
Offered in spring.

MENG 429/4229 - Nanostructured Materials (3 cr.)

Prerequisites
MENG 3209

Description
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 441/4441 - Decision Support in Engineering Systems (3 cr.)

Prerequisites
MENG 3441 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 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 3209

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

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
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

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

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

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

When Offered
Offered in fall.

**MENG 412/4662 - Power Plant Technology (3 cr.)**

Prerequisites
MENG 4606 and MENG 3605

Description
When Offered
Offered in fall.

MENG 413/4663 - Design of Renewable Energy Systems (3 cr.)

Prerequisites
MENG 3605 and MENG 4606.

Description

Cross-listed
Same as GREN 5212.

When Offered
Offered in spring.

MENG 415/4665 - Internal Combustion Engines (3 cr.)

Prerequisites
MENG 3602 and MENG 3605

Description

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

When Offered
Offered in spring.

MENG 476/4756 - Automatic Control Systems (3 cr.)

Prerequisites
Senior standing and MENG 3705.

Description

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

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. Design, control and application of electromechanical systems, Integrated Mechatronics design project.

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 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
All ENGR courses and all 300 level MENG core courses.

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 521/5221 - Advanced Topics in Mechanical Behavior of Engineering Materials (3 cr.)

Description

MENG 522/5222 - Materials in Design and Manufacturing (3 cr.)

Description

MENG 523/5223 - Physical Metallurgy (3 cr.)

Description

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**

Cross-listed
Same as MENG 429.

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 553/5253 - Advanced Computer Aided Design (3 cr.)

Description
MENG 554/5254 - Advanced Stress Analysis in Design and Manufacturing (3 cr.)

Description

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

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 PHOENICS/FLUENT code, application to case studies.

**MENG 560/5270 - Applied Control, Vibration and Instrumentations (3 cr.)**

**Prerequisites**
Instructor Consent.

**Description**

**MENG 561/5271 - Robotics: Kinematics, Dynamics and Control (3 cr.)**

**Prerequisites**
Instructor Consent.

**Description**

Cross-listed
Same as RCSS 5201.

**MENG 562/5272 - Embedded Real Time Systems (3 cr.)**

**Prerequisites**
Instructor Consent.

**Description**

Cross-listed
Same as RCSS 5202.

**MENG 563/5273 - Modern Control Design (3 cr.)**

**Prerequisites**
Instructor consent.

**Description**

Cross-listed
Same as RCSS 5203.
MENG 564/5274 - Autonomous Robotics: Modeling, Navigation and Control (3 cr.)

Prerequisites
Instructor Consent.

Description

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.)
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 620/6270 - Nonlinear and Adaptive Control (3 cr.)**

**Prerequisites**
Consent of instructor.

**Description**

**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 5202.

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.

**MGMT 300/3101 - Business Environment and Ethics (3 cr.)**

**Prerequisites**
Any course in Business.

**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 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 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. Stress 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**

MGMT 3201

**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 - Human Resources Management (3 cr.)**

**Prerequisites**

MGMT 3201

**Description**

Presents the role of human resources in modern organizations. This includes topics such as human resource strategies, job analysis, manpower planning, recruitment and selection, interviewing techniques, training and development, performance appraisal, establishing pay plans incentives and new issues in the area of human resources 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.

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 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.

MGMT 480/4401 - Business Planning and Strategy (3 cr.)

Prerequisites
Prerequisite: Graduating Senior.

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 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.
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 & instructor consent.

**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 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.

**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 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.

MGMT 000/4999 - Internship and Career Development (3 cr.)

Prerequisites
Junior standing and instructor consent.

Description
This course offers business students an opportunity to present the work and learning they got from a practical internship. It also offers students valuable tips on how to link theoretical concepts to practice. In addition, students learn from each other's experiences and presentations.

MGMT 502/5202 - Managing in a Dynamic Environment (3 cr.)

Description
Managing in today's ever-changing dynamic environment is a challenge. To ensure competitiveness and sustainability, managers would acquire new skills and knowledge. This course covers topics such as management fundamentals, managing the local and global environment, emotional intelligence, organizational learning, ethical considerations, and value pluralism in management.

Cross-listed
Same as GREN 5223.

When Offered
Offered in fall and spring.

MGMT 503/5301 - Leading Change in Organizations (3 cr.)

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201, OPMG 5202 and MGMT 5307.
Description
Change in business is pervasive. It could come about as a result of the dynamics in the external environment of the company or as a result of the growth and transition from a small entrepreneurial firm to an organization with enlarged scale and scope. Managers need to be able to initiate, sustain and successfully lead the process of change in their organizations. Innovation and creativity are key enabling factors in this process. Processes of introducing change in business organizations, techniques and tools of introducing change for the purpose of increasing efficiency and effectiveness and enhancing value creation, as well as change strategies to meet environmental threats are some of the topics that are explored in this course.

When Offered
Offered in fall.

**MGMT 504/5302 - Human Capital Strategy (3 cr.)**

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201, OPMG 5202 and MGMT 5307.

Description
This course focuses on advanced study of dynamics of personality, primary group, organization and culture, the nature of conflict and motivation, interpersonal and group behavior, and critical analysis of behavior literature and its application to the field of management.

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
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307 MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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 507/5305 - Global Business Strategy (3 cr.)

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307 MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

Description
This course brings the tools and information gained in prior courses in international business to bear on managerial problems in various international and Middle Eastern environments. The course makes extensive use of cases which covers different types of global business strategies.

When Offered
Offered occasionally.

MGMT 509/5306 - Leadership (3 cr.)

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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.)

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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 EENG 5274 /GREN 5204.

When Offered
Offered in fall and spring.

MGMT 511/5308 - Strategic Management of Innovation (3 cr.)

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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 EENG 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 MOIS 5309 and EENG 5272.

**MGMT 000/5310 - Business Consultancy (3 cr.)**

**Prerequisites**
All MBA foundation courses and consent of instructor.

**Description**
This course aims to equip Business, Accounting and Economics students with 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 consulting solutions professionally
- Write and publish high-quality case studies
- Learn how to crack cases in a case interview
MGMT 570/5370 - Selected Topics in Management (3 cr.)

Prerequisites
ACCT 5201 , FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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.

MGMT 508/5401 - Strategic Management (3 cr.)

Prerequisites
Consent of instructor.

Description
This is the capstone course for the MBA program. The course covers alternative models of strategy development and the process of formulating, implementing, and evaluating business strategies. Reaction of business firms to environmental changes, and threats are emphasized.

When Offered
Offered in fall and spring.

Notes
This is the capstone course for the MBA program.
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 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 405/3201 - Marketing Research (3 cr.)

Prerequisites
MKTG 2101 and MACT 1221 or MACT 2222.

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 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 410/3202 - Consumer-Buyer Behavior (3 cr.)

Prerequisites
MKTG 2101
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 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 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 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 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 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 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 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 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 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 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**
Prerequisite: Consent of Instructor.

**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 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
ACCT 5201, FINC 5201, FINC 5202, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201, OPMG 5202 and MGMT 5307.

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 522/5302 - Marketing Channel Strategies (3 cr.)

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.
Description
This course emphasizes the means by which distribution relationships can be effectively managed. This includes manufacturers, wholesales, retailers, and other intermediaries. Particular attention is given to examining the behavioral dimensions of channel relations, the roles of channel members, their use of power, and the conflicts that may arise among them. Case studies are commonly used for illustrative and analytical purposes.

When Offered
Offered Occasionally.

**MKTG 523/5303 - Sales Force Management (3 cr.)**

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

Description
This course focuses on the strategic and tactical aspects of sales force management. The course is concerned with how to manage a sales force rather than with how to sell with the objective of maximizing the return to the organization. The emphasis in this course is on business-to-business rather than business-to-consumer relationships. Topics covered include salesperson effectiveness, deployment, motivation, organizational design, compensation, and evaluation.

When Offered
Offered occasionally.

**MKTG 524/5304 - Global Marketing (3 cr.)**

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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 5307 - Strategic Brand Management (3 cr.)

Prerequisites
All MBA foundation courses.

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**
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

**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.

**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 & 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 & 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 & 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 2101

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 - Systems Integration (3 cr.)

Prerequisites
MOIS 2101

Description
This course emphasizes the value of integration between information systems in modern organizations. This is achieved by
having different computing systems and software applications are linked in seamless physical and/or functional integration. The main objective of the course is to provide students with clear understanding of the issues involved in systems integration. In this course, the concepts of developing information systems will be stressed while keeping the focus on strategies and methods for merging a set of interdependent systems together. The course will explore variety of tools and techniques for systems integration while at the same time tackling management best practices for system integration.

**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. Participating students will be required to select a project topic in MOIS according to their subject of interest and the availability of advisors. Subject areas include but are not limited to human resources, finance, marketing, electronic commerce and accounting. Students should submit a plan followed by progress reports and finally deliver the 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 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.

MOIS 508/5201 - Information Technology in Business (3 cr.)

Description
The aim of this course is to highlight how Information technology has transformed many of our society's sectors (including media, financial services, and retailing, among others) and the Way these technologies have changed not only the Way We produce services (i.e., off-shoring, outsourcing and their latest extension, cloud computing) but also the services We offer (in virtual Worlds, online advertising, long tail products and services, and even social networking). The course is as an introductory course on information technologies and may serve as a foundation on Which students can explore more advanced technology concepts that can improve the business &/or to start an entrepreneurship to explore new markets.

When Offered
Offered in fall and spring.

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

Prerequisites
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
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201, OPMG 5202 and MGMT 5307.

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
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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 555/5305 - Information Technology Strategy and Entrepreneurship (3 cr.)

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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 517/5309 - Technology and Innovation Management (3 cr.)

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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 and EENG 5272.

**MOIS 570/5370 - Advanced Topics (Next Generation Technologies) (3 cr.)**

**Prerequisites**
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

**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.

**MRS 504/5104 - 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 Migrants (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 the spring

MRS 507/5200 - Introduction to Migration and Refugee Studies (3 cr.)

Description
This course provides a set of interdisciplinary conceptual tools to make sense of the complex methodological, ethical and logistical concerns surrounding population mobility. It draws on a range of theoretical approaches from history, political science, economics and sociology. This course provides an introduction to the current global refugee and forced migration situation and a focus on the Middle East and North Africa. Most people who have been violently uprooted call for attention of state, intergovernmental and non-governmental actors who may supply humanitarian assistance or be concerned about the violations of their rights. The policies and practices of these actors who together are referred to as the humanitarian "regime" are analyzed throughout the course. While all forcibly uprooted peoples face similar challenges to survival, be they refugees, "development oustees", climate-displaces, IDPs, victims of famine, war and persecution, or returnees, the different causes of their displacement and their "locations", lead to different national and international policies and humanitarians responses. Major topics of this course comprise: forced migration studies, globalization, theoretical perspectives, asylum, conflicts, war, ethnicity and forced migration, development induced displacement and resettlement, environmental and climate change, migration regimes, humanitarianism, and citizenship.

Cross-listed
Same as SOC/ANTH 5200.
MRS 518/5201 - 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 500/5202 - 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 501/5203 - 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 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, ethnocratic 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 280-281/1800-1801 - Applied Private Instruction (1 cr.)**

Prerequisites
Concurrent: Students in MUSC 1800 must register concurrently in MUSC 1805, or achieve a passing grade on the placement exam. Students who have taken MUSC 1800 should register for MUSC 1801; those who have completed MUSC 2800 should register for MUSC 2801. MUSC 283 may be repeated for credit indefinitely. Music majors would normally register for MUSC 4800 after completing MUSC 2801.

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.

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 1800-1801, 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 doroob (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 doroob in simple and compound meters. Students will practice dictation as well as aural skills.

MUSC 262-362-462/2620-2621-2622 - Arab Music Ensemble (1 cr.)

Prerequisites
must be taken concurrently with MUSC 3250

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
MUSC 2622 may be repeated for credit.

Notes
Rehearsal will lead to a concert performance of the music prepared.

MUSC 263-363-463/2630-2631-2632 - Guitar Ensemble (1 cr.)

Prerequisites
There are no pre-requisites for MUSC 2630. Students who have taken MUSC 2630 should register for MUSC 3631; those who have completed MUSC 3631 register for MUSC 4632. MUSC 4632 may be repeated for credit indefinitely.

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.

MUSC 264-364-464/2640-2641-2642 - Chamber Music Ensembles (1 cr.)

Prerequisites
Permission of the Director of the Music Program. Students who have taken MUSC 2640 should register for MUSC 2641; those who have completed MUSC 2641 register for MUSC 2642. MUSC 2642 may be repeated for credit indefinitely.

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 percussion 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 for the final examination. A lab fee will be assessed for each semester of instruction.

**MUSC 265-365-465/2650-2651-2652 - Rehearsal/Performance Practicum (1 cr.)**

**Prerequisites**
Prerequisite: consent of music faculty (required prior to registration).

**Description**
2652 may be repeated for credit.

**Notes**
A significant contribution to departmental concerts and recitals, or membership in the Cairo Choral Society, or other appropriate organizations approved by the Director of the Music Program.

**MUSC 266-366-466/2660-2661-2662 - 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**
2662 may be repeated for credit.

**Notes**
Rehearsal will lead to a concert performance of the music prepared.

**MUSC 267-367-467/2670-2671-2672 - Cairo Choral Society (1 cr.)**
Prerequisites
Permission of the instructor. Students who have taken MUSC 2670 should register for MUSC 2671; those who have completed MUSC 2671 register for MUSC 2671. MUSC 2671 may be repeated for credit indefinitely.

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 a professional orchestra (the Cairo Festival Orchestra) and soloists at various venues in Cairo. 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.)

MUSC 282-283/2800-2801 - Applied Private Instruction (1 cr.)

Prerequisites
MUSC 1800-1801 . Students who have completed MUSC 1801 register for MUSC 2800, and those who have completed MUSC 2800 register for MUSC 2801. MUSC 2801 may be repeated for credit indefinitely. Music majors would normally register for MUSC 4800 after completing MUSC 2801.

Description
Private lessons in voice or an instrument. Twelve one-hour lessons in the semester. Students are expected to practice a minimum of two hours 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.

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 284-285-286/2850-2851-2852 - Private Instruction for Piano Proficiency (1 cr.each)

Prerequisites
There are no pre-requisites for MUSC 2850. Students who have taken MUSC 2850 should register for MUSC 2851; students who have register for MUSC 2851 should register for MUSC 2852. Concurrent : Students in MUSC 2850 with no prior experience, or who cannot read music, MUST register concurrently in MUSC 1805.

Description
Private lessons in piano, intended for music 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.

Notes

1. Students registering in this course for the first time should enroll in MUSC 2850. 2. Students in MUSC 2850 with no prior experience, or who cannot read music, MUST register concurrently in MUSC 1805. 3. 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 1800-1801 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 Muzik), 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 2300 and 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 3400

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 mediants 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 480-481-482-483/4800-4801-4802-4803 - Advanced Applied Private Instruction (3 cr.)

Prerequisites
MUSC 2801. Students who have taken a semester of MUSC 4800 should register for MUSC 4801; those who have completed MUSC 4801 register for MUSC 4802, and those who have completed MUSC 4802 register for MUSC 4803. MUSC 4803 may be
repeated for credit indefinitely.

Description
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.

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 501/5201 - 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 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 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 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 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 - Electronic Transport in Semiconductors (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 531/5231 - 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 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 NANOubes/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, etc...). 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 patterns 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 EENG 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 EENG 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 590/5940 - Graduate Thesis Seminars I (2 cr.)

Description
Seminar on research topics, research methodology and thesis writing. The seminars given by invited speakers include topics on the economic impact of nanoscale sciences and nanotechnology, nano-industry and nano-entrepreneurship.

NANO 591/5941 - Graduate Thesis Seminar II (1 cr.)

Prerequisites
NANO 5940

Description
Seminars on research topics given by invited speakers that includes health and environmental impact of nanotechnology. In addition, seminars are given by the enrolled students on their research work.
NANO 599/5980 - Research Guidance Thesis (3 cr.)

Prerequisites
NANO 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.

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
Cross-listed
CHEM 6240

NANO 642/6242 - Nanocatalysis (3 cr.)

Description

NANO 699/6980 - Research Guidance Dissertation (3 cr.)

Description
Consultation on problems related to student thesis. To be taken 11 times for credit.

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

Prerequisites
OPMG 3201.

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 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 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 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 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 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 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
ACCT 5201 , FINC 5201 , FINC 5202, MGMT 5201, MKTG 5201, MOIS 5201, OPMG 5201, OPMG 5202 and MGMT 5307.

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
ACCT 5201, FINC 5201, FINC 5202, MGMT 5201, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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 531/5304 - Stochastic Models in Managerial Decision Making (3 cr.)**

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

Description
This course presents a normative approach to making decisions in one's personal and professional life. The first half of the course introduces the fundamentals of decision analysis: probabilistic modeling, preference modeling and the Markov process, decision tree construction and rollback, the value of imperfect and perfect information. The second half of the course stresses how decision analysis is used in real-world practice. Topics include sensitivity analyses, influence diagrams, stochastic dominance, probabilistic encoding and tornado diagrams and Analytical Hierarchy Process (AHP).

When Offered
Offered occasionally.

**OPMG 532/5305 - Operations Strategy (3 cr.)**

Prerequisites
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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
ACCT 5201, FINC 5201, FINC 5202, MGMT 5307, MGMT 5202, MKTG 5201, MOIS 5201, OPMG 5201 and OPMG 5202.

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.

**PENG 200/2011 - Introduction to Petroleum Geology (2 cr.)**

Prerequisites
CHEM 1005

Description
Basic concepts of Geology; Uniformatization, 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.

**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.

**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.

PENG 219/2413 - Fundamentals of Surveying (1 cr.)

Prerequisites
MACT 1122

Description
Principles of plane surveying, methods of measuring distances, angles and difference in heights (levels); traverse computations, earthwork computations-Surveying Fundamentals, Survey Mathematics, Introduction to Leveling Heights Contouring, Area and Volume Computations.

When Offered
Offered in fall or spring.

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.

PENG 301/3011 - Petroleum Geology and Exploration (3cr.)

Prerequisites
PENG 2011

Description
Introduction to Petroleum Geology and Engineering; History of Petroleum Geology, Oil & Gas Accumulation, Origin (Chemical, Biological, and Physical); Source Rocks, Migration, Accumulation, Structural geology; Types of Traps (Structural, Stratigraphic, Hydrodynamic and combination Traps), Timing and preservation of Traps, Porosity, Permeability and Sturations; Subsurface Geology and Mapping; Well Sitting (Duties of Wellsite Geologist, Introduction to Well Logging and Formation Testing), Oil and Gas Exploration (Seismic, Gravity and Magnetic Methods), Exploration Risk and Analysis; Recommended Field Trips.

When Offered
Offered in fall or spring.

**PENG 302/3021 - Reservoir Rock Properties (3 cr.)**

**Prerequisites**
PENG 3011 and ENGR 2122.

**Description**
Core retrieving, handling and preparation, measurements of the Rock Porosity, permeability, saturation, electric properties, compressibility, and rock mechanics, surface tension, wettability, capillary pressure, relative permeability, formation damage, evaluation and remediation, flow units, concept and definition.

When Offered
Offered in spring.

**PENG 303/3022 - Core Lab (1 cr.)**

**Prerequisites**
PENG 3021 or concurrent.

**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.

When Offered
Offered in spring or fall.

**PENG 311/3111 - Drilling Engineering I (3 cr.)**

**Prerequisites**
PENG 3021.
Description
Properties of Reservoirs; Subsurface Pressure & Temperature; Conventional & Current Drilling Techniques; Drilling Fluids; Drilling Hazards & Safety; Hydraulics of Rotary Circulation & Penetration Rates; Casing; Cementing; Well Head Equipment, well planning and control, basic rig components, drilling bits, hole stability and problems, vertical and directional hole drilling

When Offered
Offered in fall and spring.

PENG 313/3112 - Drilling Engineering I Lab (1 cr.)

Prerequisites
PENG 3111 or concurrently.

Description
This drilling lab will cover the following; lab safety, introduction to drilling machinery simulator, drilling Controls, drilling Operations & guidelines, data acquisition systems, hydraulics, blow out preventers (BOP), rate of penetration against drilling parameters and drilling well control. In addition, the students will be introduced to the state of the art drilling design software and well planning, well design, rig types, components, selection, drilling oil well, drilling bits, dull classification, hole problems, well control, well surveying, directional drilling and cost estimation

When Offered
Offered in fall or spring.

PENG 305/3211 - Reservoir Fluids (2 cr. + 1 cr.)

Prerequisites
PENG 3021 or concurrent.

Description
Petroleum fluid properties, gas behavior, application of deviation factor to ideal gas law, fundamentals of phase behavior: bubble point and dew point curves, retrograde, characterizing the reservoir fluid, properties of reservoir fluids: formation volume factor, viscosity, solution gas-oil ratio, API gravity, specific gravity; and estimating gas, oil, and water properties from correlations, equations of state to predict PVT properties, applications of numerical methods and software, lab is to demonstrate PVT experiments and emphasize the concepts of petroleum fluid behavior under reservoir and surface conditions.

PENG 331/3213 - Reservoir Engineering (3 cr.)
Prerequisites
PENG 3211

Description

When Offered
Offered in fall.

**PENG 333/3221 - Well Testing (3 cr.)**

Prerequisites
PENG 3213

Description
Overview of the Diffusivity Equation for Well Test Analysis, Well Test Analysis (Build up and Draw down well testing); Variable Rate Testing; Well Interference Testing; Gas Well Testing, Design of Well Tests, drillstem (DST) test, multiple-well test, pressure derivative analysis.

When Offered
Offered in spring

**PENG 334/3222 - Well Testing Lab (1 cr.)**

Prerequisites
PENG 3221 or concurrently.

Description
Data Analysis and Modeling Exercises using the state of the art well testing software.

When Offered
Offered in spring.

**PENG 320/3223 - Well Logging (2cr. + 1cr.)**
Prerequisites
PENG 3111 or concurrent.

Description
Methods of Well Logging, Basic Relationship of Well Logging, Spontaneous Potential Logs, The Resistivity Logs, Porosity Logs, Gamma Ray Log, Lithology logs, Well Log Interpretation Techniques, Lab exercise using the Electrical Properties System (EPS) equipment to simulate well logging tools measurement and obtain resistivity and formation factor from core plug. Also, the students will be introduced to the state of the art well logging interpretation software to perform exercises, logging objectives, basic petrophysical relationships, calipers, dipmeters, pressure and temperature logs, porosity determination, fluid saturation and Archie equation, cross plotting techniques, permeability relationships, reserve estimation, correlation between well logging and core data, nuclear magnetic resonance, latest techniques (LWD, logging on bit and geosteering), integrated formation evaluation, recommended logging program, introduction to cased-hole logging and case study.

When Offered
Offered in fall.

PENG 351/3225 - Natural Gas Engineering (3 cr.)

Prerequisites
PENG 3213.

Description
Phase Behavior of Multicomponent Systems; Differential and Flash Vaporization, gas reservoir deliverability, material-balance calculations and decline curve analysis, gas flow measurement, dehydration and gas sweetening processes, hydrate control.

When Offered
Offered in fall or spring.

PENG 321/3310 - Well Completion and Workover (3 cr.)

Prerequisites
PENG 3111 and PENG 3420 or concurrent.

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
Offered in fall.

**PENG 322/3311 - Oil and Gas Production-I (2cr. + 1cr. lab)**

**Prerequisites**
PENG 3310

**Description**
Well drawdown and Inflow Performance Relationship Models for Oil and Gas Wells; Evaluation of Near Wellbore Completion Effects including Formation Damage and Acidizing; Vertical and Horizontal multiphase Flow Regimes and Correlations; Choke and Overall Naturally Flowing Well Performance; Artificial lifting Methods Applicability and limitations, Gas Lift; Rod Pumping, Electric Submersible Pumping; progressive Cavity Pumps and Hydraulic Pumping Basics of Operation, Design and Sizing; Nodal and System Analysis of Oil and Gas Wells Using the State of the Art Software applications.

When Offered
Offered in spring.

**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 323/3412 - Production-II: Surface Facilities (2 cr.)**

**Prerequisites**
PENG 3311

**Description**
Production system components and utilities; Fluid properties; Manifolds and gathering systems onshore and offshore; Flowlines design considerations; Gathering systems ; trunk lines; Pigging operations; Oil, gas and water separation; Oil emulsion
dehydration and desalting; Water treatment for disposal and reinjection; Gas handling operations; pumping systems; Storage tanks; Oil measurement; Custody transfer units; Operational problems.

**PENG 363/3413 - Heat Transfer (3cr.)**

**Prerequisites**
PHYS 1011 and PENG 3411

**Description**

**When Offered**
Offered in spring

**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.

**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.
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.

PENG 411/4121 - Drilling Engineering II (3 cr.)

Prerequisites
PENG 3111 and PENG 3213

Description
Controlled drilling, Drilling Hazards & Safety, Horizontal Drilling; Multilateral Drilling, Drilling Optimization; Hole Problems; Modern Drilling Techniques; Well Control, Offshore Drilling, principles of directional drilling engineering, new drilling technologies, well survey, MWD and LWD tools, state of the art directional drilling technology (horizontal, multilateral, relief wells), different directional trajectory using basic calculations, software for well trajectory.

When Offered
Offered in fall

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 461/4221 - Reservoir Economics, Management, & Risk Analysis (3 cr.)**

**Prerequisites**
PENG 3311 and ENGR 3222

**Description**
Analysis of investment projects, reserves, depletion, regional and global legislation and taxation regulations, management functions focusing on planning, organizing, leading and controlling, production forecasts and reserves estimation, human resources development and people management; incentives, industrial risk assessment and management in terms of hazard, spill control, dose response, exposure, risk and uncertainty, and characterization.

**When Offered**
Offered in spring.

**PENG 471/4223 - Reservoir Simulation and Modeling (2 cr. + 1 cr.)**

**Prerequisites**
ENGR 3202 and PENG 3221

**Description**
Reservoir simulation fundamentals, Reservoir modeling approach, Reservoir modeling types, Model design concepts, Single well model, Sector model, Cross-sectional model, Full-field model, Data required for a simulation study, Static Model, Initialization phase, History matching, Prediction phase, Interpreting simulation results, Performance prediction, Reservoir optimization based on economic analysis, Case studies and exercises using reservoir simulation software. Dynamic analysis using Petrel reservoir engineering. Set up simulation case in Petrel and Eclipse, gridding, fluid model (PVT), well design, well flow controls, history match analysis, and volume calculation.

**When Offered**
Offered in fall.

**PENG 412/4311 - Enhanced Oil Recovery (3 cr.)**

**Prerequisites**
PENG 3213
Description
Fundamentals of enhanced oil recovery; Immiscible displacement, fractional flow and frontal advance; Overview of water flooding, patterns, mobility ratio and Recovery Efficiencies; water flooding reservoir heterogeneity, Stiles Method, Dykstra-parsons method, Craig-Geffen & Morse Method; polymer flooding, surfactant flooding, miscible gas flooding and thermal EOR, microbial EOR, technical challenges and futures techniques

When Offered
Offered in spring.

PENG 451/4313 - Petroleum and Gas Transmission and Storage (3 cr.)

Prerequisites
PENG 3311 and PENG 3420

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 422/4321 - Petrochemicals (3 cr.)

Prerequisites
PENG 3420

Description
Ethylene and propylene production, petrochemical products, thermoplastics, thermosetting resins, fertilizers from natural gas, gas to liquid processes, equipment design and calculations.

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.

**PENG 462/4421 - Renewable and Alternative Energy (3 cr.)**

**Prerequisites**
PENG 3415 and PENG 3421

**Description**

**When Offered**
Offered in fall or spring.

**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.

**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.

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. Biologica Oxygen Demand, Health and Safety, Oil spills and disasters, selected Case Studies.

When Offered
Offered every other semester.

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.

PENG 475/4428 - Greenhouse Technology and Emission Reduction (3cr.)

Prerequisites
PENG 2411, PENG 3415 and PENG 3420

Description
Technologies employed to reduce CO2, CH4, 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 CO2; Emissions from nuclear power; Reforming; Sulphur and sulphur
scrubbers; Climate changes and greenhouse gases; Energy efficiency in combating emissions NOFA (non-fossil fuel agreements) Kyoto and beyond.

When Offered
Offered fall or spring.

**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.

**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 (3 cr.)**

**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**
Prerequisite: Completion of 110 credits including 18 credits in PENG.

**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**
Prerequisite: Senior standing.

**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.
PHDE 691/6291 - Advanced Research Seminar (1 cr.)

Prerequisites
Graduate Seminar I (BIOT 5940, CHEM 5940, CSCE 5940, ENGR 5940, NANO 5940, RCSS 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:
  o Reports submitted at the end of each class.
  o 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 691/6291 - Advanced Research Seminar (1 cr.)

Prerequisites
Graduate Seminar I (BIOT 5940, CHEM 5940, CSCE 5940, ENGR 5940, NANO 5940, RCSS 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:
  o Reports submitted at the end of each class.
  o 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 601/6201 - 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 the fall.

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.

PHIL 100/1010 - Reading Philosophy (3 cr.)

Description
In this course we read philosophy in class, and therefore read it together. This classroom experience is learning to read in a new way, a careful way, the way of philosophy. Reading together, we open ourselves to understanding also in a new way. This course will not only prepare students for PHIL 2100, but also for any other course in philosophy that is based on the capacity to read, to interpret, and then to write philosophy.

When Offered
Offered occasionally.

PHIL 199/1099 - Selected Topics for Core Curriculum (3 cr.)

Description
Course addressing broad intellectual concerns and accessible to all students, irrespective to major.
PHIL 221/2010 - Informal Logic (3 cr.)

Description
Informal logic 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.

When Offered
Offered in alternate years.

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 224/2111 - Self and Society (3 cr.)

Description
What is self? What do we mean by 'consciousness' or 'personal identity'? Is the self a social being, or is it an entity within society that stands apart from it? Through selected readings drawn from the meeting-points and confrontations between philosophy and fields such as psychology, anthropology and sociology, this course investigates the nature of the self and its place within that plurality of selves we call society.

When Offered
Offered in alternate years.

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.)

When Offered
Offered occasionally.

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 234/2114 - Philosophy of the Social Sciences (3 cr.)

Description
The social sciences do not consist simply of the application of the methodology of modern natural science to the study of society, but instead are grounded in philosophy, both historically and thematically. This course presents the basic philosophy and presuppositions from which the social sciences operate. The course is especially for students who major or minor in a social science and who need a philosophic background as a context in which the social sciences can be properly understood.
PHIL 238/2115 - World Philosophy (3 cr.)

Description
The goal of this course is to introduce students to the wider context of philosophy beyond the West. Philosophical issues and methodologies will be discussed as they have been addressed by classical philosophical texts and eminent philosophers of Eastern traditions.
This course will offer an advanced introduction to philosophical thinking using this broader historical scope. Topics covered may include issues of ethics and action, knowledge and awareness, reality, truth, and value.

PHIL 242/2116 - Philosophical Anthropology (3 cr.)

Description
In this course we engage and explore various philosophical accounts of human nature. What are the unique features of the human being? Ever since Aristotle defined man as a rational animal, as the animal with language, or as a political animal, there have been various attempts at defining what is specifically human. Other philosophers have emphasized, in addition to rationality and an interest in public life, the religious dimension of human beings. These considerations lead to further questions: What is the good life, and what role do reason and passion play in it? Are human beings essentially selfish, or are we 'hard-wired' for altruism? This course comes to grips with these fundamental philosophical issues from a variety of places and periods.

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.

When Offered
Offered occasionally.
PHIL 312/3001 - Ancient Philosophy (3 cr.)

Prerequisites
Prerequisite: Two philosophy courses or consent of instructor.

Description
This course explores some philosophical systems and issues characteristic of the earliest period of philosophy, especially fourth-century BC Greece. Typical figures discussed might include: Thales, Anaxagoras, Heraclitus, Empedocles, Parmenides, Plato and Aristotle; and also later figures from the Stoic, Epicurean and Neoplatonic traditions. Topics may include: early natural philosophy, the riddle of non-being, theories of intelligible form, the good-life theories of knowledge, and the nature of the human soul.

When Offered
Offered every year.

PHIL 313/3002 - Medieval Philosophy (3 cr.)

Prerequisites
Two philosophy courses or consent of instructor.

Description
This course explores some philosophical systems and issues characteristic of the period commonly called the "Middle Ages", from 500 CE to 1500 CE. Typical figures discussed might include: Augustine, Boethius, al-Farabi, Ibn Sina, Anselm, Maimonides, Ibn Rushd, Aquinas, Al-Ghazali, John Duns Scotus, William Ockham, and Suarez. Topics may include: reason and faith, divine command ethics, truth and meaning, theories of human nature, occasionalism, virtues and the soul, the problem of universals, free will, and illumination and knowledge.

When Offered
Offered every year.

PHIL 314/3003 - Modern Philosophy (3 cr.)

Prerequisites
Two philosophy courses or consent of instructor.

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 316/3004 - Twentieth Century Philosophy (3 cr.)**

Prerequisites
Two philosophy courses or consent of instructor.

Description
The twentieth century has been marked above all by a focus on issues of language and the constitution of meaning. This course will examine representative thinkers drawn from one or both of the traditions of analytic and continental philosophy.

When Offered
Offered every year.

**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.

When Offered
Offered in spring.

**PHIL 315/3011 - Nineteenth Century Philosophy (3 cr.)**

Prerequisites
Two philosophy courses or consent of instructor.

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.
When Offered
Offered occasionally.

**PHIL 318/3012 - Theory of Knowledge (3 cr.)**

**Prerequisites**
Two philosophy courses or consent of instructor.

**Description**
What is the nature of knowledge? How can we know? How is science possible? Is knowledge innate or acquired? These are some of the questions that are examined in the context of selected classical as well as contemporary texts.

When Offered
Offered in alternate years.

**PHIL 319/3013 - Development and Responsibility (3 cr.)**

**Description**
Western Civilization has gone to great lengths to 'develop' the 'underdeveloped world'. This course is a critical review of practices and goals of international development. By concentrating on ethical considerations within the various relevant fields, such as business, engineering and environmental protection, the students explore the mutual responsibilities in this cooperative enterprise.

When Offered
Offered in alternate years.

**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.

When Offered
Offered occasionally.
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.)**

**Prerequisites**
Two philosophy courses or consent of instructor.

**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.

**When Offered**
Offered occasionally.

**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.

When Offered
Offered in alternate years.

**PHIL 405/4100 - Independent Study in Philosophy (1-3 cr.)**

Prerequisites
Three philosophy courses and consent of instructor

Description
Independent research projects in Philosophy.

**PHIL 402/5111 - Metaphysics (3 cr.)**

Prerequisites
Senior level, graduate level, or consent of instructor.

Description
This course deals with questions as to the ultimate reality of the world, e.g., why is there something rather than nothing? Profound metaphysical questions posed by ancient, modern, and contemporary philosophers will be discussed. Issues may include Aristotle's Being qua Being, Leibniz' Principle of Sufficient Reason, and Heidegger's Analysis of Being.

When Offered
Offered occasionally.

**PHIL 502/5111 - Metaphysics (3 cr.)**

Description
This course deals with questions as to the ultimate reality of the world, e.g., why is there something rather than nothing? Profound metaphysical questions posed by ancient, modern, and contemporary philosophers will be discussed. Issues may include Aristotle's Being qua Being, Leibniz' Principle of Sufficient Reason, and Heidegger's Analysis of Being.

When Offered
Offered occasionally.
PHIL 410/5112 - Advanced Seminar in Aesthetics (3 cr.)

Prerequisites
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 510/5112 - Advanced Seminar in Aesthetics (3 cr.)

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 317/5113 - Current Trends in Philosophy (3 cr.)

Prerequisites
Two philosophy courses or consent of instructor.

Description
This course covers key philosophical themes found in books published since the year 2000. While the popular imagination still regards Derrida and Foucault as the cutting edge in continental philosophy, different and even opposed trends have arisen over the course of the past decade. By the end of the semester, students should feel comfortable with major themes of philosophical debate going on at this very moment.

When Offered
Offered occasionally.

PHIL 517/5113 - Current Trends in Philosophy (3 cr.)
Description
This course covers key philosophical themes found in books published since the year 2000. While the popular imagination still regards Derrida and Foucault as the cutting edge in continental philosophy, different and even opposing trends have arisen over the course of the past decade. By the end of the semester, students should feel comfortable with major themes of philosophical debate going on at this very moment.

When Offered
Offered occasionally.

**PHIL 418/5114 - Philosophical Masterpieces (3 cr.)**

Prerequisites
Senior level, graduate level, or consent of instructor.

Description
This course will be an in-depth study of a single great work of philosophy and its place in the history of ideas.

When Offered
Offered in alternate years.

Repeatable
May be repeated for credit if the content changes

**PHIL 518/5114 - Philosophical Masterpieces (3 cr.)**

Description
This course will be an in-depth study of a single great work of philosophy and its place in the history of ideas.

When Offered
Offered in alternate years.

Repeatable
May be repeated for credit if the content changes.

**PHIL 420/5115 - Philosophical Figures (3 cr.)**

Prerequisites
Senior level, graduate level, or consent of instructor.

Description
This course is an in-depth study of one great philosophical figure. It is an opportunity to explore the philosophy of the thinker as a whole concentrating on his/her place in the history of ideas and in history itself.

When Offered
Offered in alternate years.

Repeatable
May be repeated for credit if content changes.

PHIL 520/5115 - Philosophical Figures (3 cr.)

Description
This course is an in-depth study of one great philosophical figure. It is an opportunity to explore the philosophy of the thinker as a whole concentrating on his/her place in the history of ideas and in history itself.

PHIL 330/5116 - Advanced Ethics (3 cr.)

Prerequisites
Two philosophy courses or consent of instructor.

Description
This course will explore the theoretical underpinnings of ethical judgments and behavior. It will involve a more complex set of readings than the Introduction to Ethics and apply ethical theories to particular issues.

When Offered
Offered in alternate years.

PHIL 530/5116 - Advanced Ethics (3 cr.)

Description
This course will explore the theoretical underpinnings of ethical judgments and behavior. It will involve a more complex set of readings than the Introduction to Ethics and apply ethical theories to particular issues.

PHIL 360/5117 - Philosophy of Language and Communication (3 cr.)
Prerequisites
Prerequisite: Two philosophy or consent of instructor.

Description
Language is the basis of learning, understanding and communication. Therefore, a detailed study of language (oral, physical and written) is necessary for any true understanding of self and society. This course investigates such topics as the nature of sign systems, the problems of meaning, reference, sense and interpretation, the place of rhetoric and the methods of communicative practice.

When Offered
Offered in alternate years.

PHIL 560/5117 - Philosophy of Language and Communication (3 cr.)

Description
Language is the basis of learning, understanding and communication. Therefore, a detailed study of language (oral, physical and written) is necessary for any true understanding of self and society. This course investigates such topics as the nature of sign systems, the problems of meaning, reference, sense and interpretation, the place of rhetoric and the methods of communicative practice.

PHIL 362/5118 - Formal and Mathematical Logic (3 cr.)

Prerequisites
PHIL 2010 or MACT 2131 or permission of the instructor.

Description
This course is an introduction to the ideas and methods of mathematical logic. The basis of predicate calculus (first order logic) will be presented in some details. More advanced topics such as Goedel's completeness and incompleteness theorems, some of the philosophico-mathematical problems in set theory and alternative logics will be discussed.

Cross-listed
Same as MACT 3133.

When Offered
Offered occasionally.

PHIL 562/5118 - Formal and Mathematical Logic (3 cr.)
Description
This course is an introduction to the ideas and methods of mathematical logic. The basis of predicate calculus (first order logic) will be presented in some details. More advanced topics such as Gödel's completeness and incompleteness theorems, some of the philosophico-mathematical problems in set theory and alternative logics will be discussed.

PHIL 458-558/5119 - Advanced Seminar in Political Philosophy (3 cr.)

Prerequisites
Senior level, graduate level, or consent of instructor.

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 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.

When Offered
Offered occasionally.

Repeatable
May be repeated for credit if content changes.

PHIL 503/5199 - Selected Topics in Philosophy (3 cr.)

Description
According to special interest of faculty and students.
When Offered
Offered occasionally.

Repeatable
May be repeated for credit if content changes.

PHIL 500/5201 - Classical Western 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). Because it provides valuable background material for PHIL 5202, the course will generally run in the Fall Semester.

PHIL 501/5202 - 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 Suhrwardi 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. Because PHIL 5201 provides valuable material for PHIL 5202, the latter will generally run in the Spring Semester.

PHIL 504/5203 - 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 505/5204 - 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 and Merleau-Ponty, may also be discussed.

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
Prerequisites: Thaniya Amma MACT or Science, or IGCSE O-level physics, or German Abitur, or French Baccalaureate, or International Baccalaureate, or PHYS 1001 .MACT 1121 or concurrent enrollment. Concurrent enrollment with PHYS 1012

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.
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 and 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 215/2211 - Introduction to Electronics (3 cr.)**

Prerequisites
PHYS 1021 and PHYS 2212 concurrent.

Description
Foundation of circuit analysis, AC theory, introduction to semiconductor devices, amplifiers, feedback oscillators.

When Offered
Offered in fall, spring and summer.

**PHYS 221L/2212 - Electronics Laboratory I (2 cr.)**
Prerequisites
Prerequisite: 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.

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 279/2241 - Computational Methods in Physics (2 cr. + 1 cr.)**

Prerequisites
CSCE 1001 and MACT 2123.

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 312/3013 - Theoretical Mechanics (3 cr.)**

Prerequisites
PHYS 2041 and MACT 2141

Description
Vector and tensor analysis, statics, kinematics, and dynamics of a particle and system of particles, rigid and deformable bodies; rotating coordinate systems, Lagrange's and Hamilton's equations with applications.

When Offered
Offered in fall.

**PHYS 316/3023 - Electromagnetic Theory (3 cr.)**

Prerequisites
PHYS 1021, MACT 2124
Description

Cross-listed
Same as EENG 3401.

When Offered
Offered in spring.

**PHYS 311/3031 - Thermodynamics and Statistical Mechanics (3 cr.)**

Prerequisites
PHYS 2041 and MACT 2141

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 319/3214 - Digital Logic Design (3 cr.)**

Prerequisites
CSCE 1001. Concurrent with PHYS 3215
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.

Cross-listed
Same as EENG 2101.

When Offered
Offered in fall, spring and summer.

**PHYS 309L/3215 - Digital Logic Design Laboratory (1 cr.)**

Prerequisites
Concurrent with PHYS 3214

Description
The laboratory will cover experiments in digital design and experiments illustrating material of course PHYS 3214.

Cross-listed
Same as EENG 2108L.

When Offered
Offered in fall, spring and summer.

**PHYS 327/3216 - Operational Amplifiers and Applications (3 cr.)**

Prerequisites
PHYS 2211 concurrent with PHYS 3217

Description
Differential amplifiers, operational amplifiers, open-loop characteristics, inverting and noninverting amplifiers, comparators, signal generators, op amps with diodes, differential instrumentation and bridge amplifiers, bias, offsets and drift, band width, slew rate noise and frequency compensation, active filters, IC timers, power supplies and power amplifiers.

When Offered
Offered in spring.
PHYS 307L/3217 - Electronics Laboratory II (1 cr.)

Prerequisites
Concurrent with PHYS 3216

Description
Basic experiments in instrumentation electronics.

When Offered
Offered in spring.

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 325/3231 - Introduction to Solid-State Physics (3 cr.)

Prerequisites
PHYS 2041

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 322L/3232 - Solid-State Physics Lab (2 cr.)
Prerequisites
PHYS 3231

Description
Experiments in solid-state physics and semiconductor devices.

When Offered
Offered in fall and spring.

**PHYS 315/3251 - Modern Sensors (3 cr.)**

Prerequisites
PHYS 2211, PHYS 2212. Concurrent with PHYS 3252

Description
Physical principles of sensing, sensors characteristics, micro-fabrication technology, theory of operation of the following sensors: Infrared sensors, acceleration and angular rate sensors, occupancy and motion detectors, pressure sensors, flow sensors, radiation detectors, error analysis of experimental data and design of experiments.

When Offered
Offered in fall.

**PHYS 305L/3252 - Modern Sensors Laboratory (1 cr.)**

Prerequisites
Concurrent with PHYS 3251

Description
Experiments in instrumentation illustrating material covered in PHYS 3251.

When Offered
Offered in fall.

**PHYS 333/3261 - Introduction to Applied Geophysics (3 cr.)**

Prerequisites
PHYS 2221 and PHYS 3251 or concurrent.
Description
Introduction to dynamic Earth; magnetic and gravimetric (potential), geoelectric and seismic methods to determine the physical properties, structure and dynamics of the Earth; seismic instruments and sources.

When Offered
Offered in spring.

**PHYS 318/3271 - Instrumentation Systems and Control (3 cr.)**

Prerequisites
MACT 2141

Description
Linearity, Laplace transform, step and impulse response, block diagrams, signal graphs, state variables, feedback control, transfer functions of system components, criteria for design, stability analysis, Nyquist and Routh criteria, root locus method.

When Offered
Offered in fall.

**PHYS 421/4042 - Quantum Mechanics (3 cr.)**

Prerequisites
PHYS 2041 and MACT 3142.

Description
Statistical interpretation of the wave function, time independent Schrodinger equation, stationary states, observables, eigenfunctions and eigenvalues, Dirac notation, Schrodinger equation in spherical coordinates, H-atom, angular momentum and sping, identical particles, time independent perturbation theory.

When Offered
Offered in spring.

**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

When Offered
Offered in fall.

**PHYS 404L/4225 - Photonics and Optical Communication Laboratory (1 cr.)**

Prerequisites
PHYS 2222 or consent of instructor.

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 412/4233 - Semiconductor Physics (3 cr.)**

Prerequisites
PHYS 3231

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 - Semiconductor Technology Lab (2 cr.)**

Prerequisites
PHYS 2211 and PHYS 2212

Description
Experiments in semiconductor and electronics technology.

When Offered
Offered in fall and spring.

**PHYS 407L/4272 - Process Instrumentation and Digital Control Laboratory (1 cr.)**

Prerequisites
PHYS 4274 concurrent.

Description
Experiments on process measurement, digital process control and programmable logic controllers.

When Offered
Offered in spring.

**PHYS 409L/4273 - Computerized Instrumentation Laboratory (1 cr.)**

Prerequisites
Concurrent with PHYS 4276

Description
Experiments in computerized instruments illustrating material covered in PHYS 429.

When Offered
Offered in spring.
PHYS 417/4274 - Process Instrumentation (3 cr.)

**Prerequisites**
PHYS 2211 and PHYS 4272 concurrent.

**Description**
Basic concepts in process measurement and control; process controllers; Final control devices; Typical applications; Programmable logic controllers; Distributed control systems; Process safety and alarming.

**When Offered**
Offered in spring.

PHYS 427/4275 - Analytical Techniques in Instrumentation (3 cr: 2 cr. lecture, 1 cr. lab)

**Prerequisites**
PHYS 2211 and PHYS 2212.

**Description**
UV and visible light absorption instruments, nuclear magnetic resonance instruments, electron-spin resonance spectroscopy; x-ray instruments; atomic absorption spectrometry (a case study), thermal analysis, gas chromatography, infrared spectroscopy, electron microscopy. Lab activities include: conducting experiments using analog recorders and data acquisition systems, methods to upgrade old analog instruments, in addition to student projects in the area of instrumentation.

**When Offered**
Offered in fall.

PHYS 429/4276 - Computerized Instrumentation (3 cr.)

**Prerequisites**
PHYS 3214 or consent of instructor. Concurrent with PHYS 4273

**Description**
When Offered
Offered in spring.

**PHYS 416/4281 - Experimental Methods in Undergraduate Research (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 426/4291 - Industrial Physics (3 cr.)**

Prerequisites
Prerequisites: Junior standing. Consent of instructor.

Description
Vacuum technology, pumps, manometers and gauges. Application of vacuum technology in research and industry. Handling of industrial gases; gas separation, purification and gas analysis; physics in industry, sensors in industrial environments.

When Offered
Offered in spring

Notes
Students field trips to several factories and manufacturing firms.

**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 chosen according to special interest, such as temperature physics, vacuum physics, solid-state electronics, electronics and communications.

**When Offered**
Offered occasionally.

**Repeatable**
May be repeated for credit more than once if content changes.

**PHYS 401/4980 - Senior Thesis and Seminar (3 cr.)**

**Prerequisites**
Senior standing.

**Description**
Methods used in obtaining and reporting the results of research. Each student selects a topic in his/her field of interest under the supervision of a faculty member, prepares an outline, assembles a bibliography, and makes a study plan to be followed in preparing his project. After finishing the project, each participant then makes an oral presentation of his/her chosen topic. A written thesis has to be completed after criticism and suggestions.

**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 (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 - Passive Microwave Circuits (3 cr.)**

Prerequisites
PHYS 3023 or equivalent.

Description
Transmission line theory, Different types of planar transmission lines, Empirical and quasistatic solution of planar lines, Network parameters and their relationships, Matching circuits based on lumped elements/transformers/tuning stubs, Lossy and lossless power dividers, Different types of directions couplers, Microstrip antenna elements and arrays, Electromagnetic simulation of different microwave circuits, Optimization of microwave 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 5201.

When Offered
Offered in fall and spring.

**PHYS 501/5061 - Mathematical Physics (3 cr.)**

Prerequisites
MACT 2141 or equivalent.

Description

When Offered
Offered in fall.
PHYS 510/5235 - Introduction To Solids (3 cr.)

Prerequisites
PHYS 3231 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 - Electronic Transport in Semiconductor (3 cr.)

Prerequisites
PHYS 2211 and PHYS 3231 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 - Theory of Solids (3 cr.)
Prerequisites
PHYS 3231 or equivalent.

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.
Cross-listed
Same as PHYS 6930.

When Offered
Offered in fall and spring.

**PHYS 590/5940 - Graduate Seminar I (1 cr.)**

Prerequisites
Seminars of research topics given by invited speakers. The student must register for this course prior to submitting a thesis topic.

When Offered
Offered in fall.

**PHYS 591/5941 - Graduate Seminar II (1 cr.)**

Prerequisites
PHYS 5940

Description
Presentations and discussions of results obtained by the graduate students during research work.

When Offered
Offered in 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 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

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.

Cross-listed
Same as PHYS 5930.

When Offered
Offered in fall and spring.

**POLS 101/1001 - Introduction to Political Science (3 cr.)**

Prerequisites
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
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 1000
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 1000, 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 301-302/3201-3202 - History of Political Theory (3 cr. per semester)

Prerequisites
RHET 1000 and POLS 1001 or POLS 2003

Description
Analysis of the thought of the major contributors, from Plato to the present. Fall semester (301): ancient and medieval political philosophy and the modern break with traditions. Spring semester (302): main currents of modern thought.

When Offered
POLs 3202 Is not Offered in the fall semester.

POLs 313/3401 - Introduction to Comparative Politics (3 cr.)

Prerequisites
RHET 1000 and 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 1000 and 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 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 1000 and 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 1000 and 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.

**POL 324/3424 - Comparative Government and Politics in Contemporary Eastern Europe and Russia (3 cr.)**

**Prerequisites**
RHET 1000 and 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.

**POL 325/3425 - Government and Politics of Egypt (3 cr.)**

**Prerequisites**
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.

**POL 354/3454 - Political and Social Thought in the Modern Arab World (3 cr.)**

**Prerequisites**
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 1000 and 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 1000, POLS 1001 or POLS 2003 and ECON 2021

**Description**
Analysis of interconnections between politics and economics, political authority and the market, power and wealth. Survey of main schools of thought in political economy, their evolution, convergence and divergence. Empirical issues essential to the understanding of the interaction between politics and economics in today's world will be included.

**POLS 351/3551 - Theory and History of Political Economy (3 cr.)**

**Prerequisites**
RHET 1000

**Description**
Traces the history of political economy and its major schools, covers how different schools conceptualize the mutual relationships between the economy and politics. Relates these schools to the development of capitalism and the process of globalization.

**POLS 320/3620 - International Relations (3 cr.)**
Prerequisites
RHET 1000 , POLS 1001 or POLS 2003 and POLS 2404

Description
The nature of politics among sovereign states: approaches and basic concepts, national power, the balance of power, nationalism and imperialism, instruments and goals of national policy, real or ideal limitation on international anarchy. Emphasis on international law and the United Nations, selected topics in contemporary international political history.

When Offered
Offered in fall and spring.

POLS 400/4000 - The Discipline and Critical Social Theory (3 cr.)

Prerequisites
Honors Status, POLS 3201-3202

Description
This course is the capstone seminar for the Department of Political Science's Honors Program. The course familiarizes students with the genealogy of the discipline of political science, and their place in it, introduces them to a range of authors, texts and ideas associated with critical social theory and prepares them to write their major research project. The course is only open to students enrolled in the honors program.

POLS 430/4030 - Seminar: Special Topics in Political Science for Undergraduates (3 cr.)

Prerequisites
RHET 2010 and 6 credit hrs 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 2010 and 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.

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 pre-requisites for POLS 4099 is being enrolled in the Honors Program and accumulating the requisite credits in the prescribed courses, including, but not limited to, POLS 4000 and POLS 4104

Description
This course provides students enrolled in the department's Honors Program the opportunity to write an original research thesis with faculty supervision.
POLS 404/4104 - Political Science Methods (3 cr.)

Prerequisites
RHET 2010 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.

Description
This course will survey 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 3201-3202

Description
The 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 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 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 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 2010 and 6 credit hrs at 300 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 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 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 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 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 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 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 2010 and one of POLS 3408 POLS 3423 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 2010 and 6 credit hrs. at 300 level in Political Science.

**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 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 2010 , POLS 1001 and 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 2010  and 6 credit hrs at 300 level in Political Science.

**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 2010  and 6 credit hrs. of Social Science.
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 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 - The Political Economy of Egypt (3 cr.)

Prerequisites
RHET 2010, POLS 3510 and POLS 3550

Description
The course focuses on the political factors that shaped the economy, the polity and society at large. In this class, we will try to understand the dynamics of internal and international power relations that shaped the history of modern development, the factors of policy making, the role of the state and the role of external factors.

POLS 413/4513 - International Financial Institutions (3 cr.)

Prerequisites
RHET 2010, 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 2010, POLS 3510 and POLS 3550
Description
The focus of this seminar is on the mechanisms that influence poverty. Some of the major issues are: the socio-economic and political characterization of the poor; the role of the state in poverty alleviation; the impact of globalization on poverty and the best policies to reduce poverty.

**POLS 424/4524 - Political Economy of the Middle East and North Africa (3 cr.)**

Prerequisites
RHET 2010, 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 2010, POLS 3620 and POLS 3550

Description
The dialectics of the relationship between market and state. Types of international actors and the international division of labor; old and new. Theory of international regimes and the evolution of mechanisms of international trade and finance. Transformation of the global political economy and its impact on patterns of hegemony/marginalization in the contemporary world.

**POLS 442/4542 - Environmental Politics (3 cr.)**

Prerequisites
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 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 460/4560 - Development Studies Seminar (3 cr.)**

Prerequisites
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 405/4605 - International Politics in the Middle East (3 cr.)**

Prerequisites
RHET 2010, POLS 3408 and POLS 3620.

Description
This seminar seeks to examine 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 409/4609 - Seminar: International Organization (3 cr.)**

Prerequisites
RHET 2010 and POLS 3620

Description
This seminar examines the structure and evolution international organizations, both intergovernmental (IO's) and non-
governmental (NGO's), 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 - International Security (3 cr.)

Prerequisites
RHET 2010 and POLS 3620.

Description
Discusses the major theories of war and peace. Encompasses a study of international crisis, conflict, war, and strategies for managing conflicts. Covers critical security studies to understand the challenges of the assumptions underpinning traditional security studies. Diverse topics including environmental security, global human security, and international terrorism will be studied with a view of focusing on the changing nature of international security.

POLS 411/4611 - Contemporary Foreign Policies (3 cr.)

Prerequisites
RHET 2010 and POLS 3620.

Description
Investigates the processes involved in foreign policy decision-making. Focus will be on understanding the contexts, constraints and influences which foreign policy decision-makers have to deal with, 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 2010 and POLS 3620.

Description
Main themes of Egyptian foreign policy from 1952 including: Egypt's relations with the great powers; inter-Arab relationships and policy including unity experiments, the inter-Arab arena including the Arab League, and the Gulf Cooperation Council; effects on foreign policy of the Arab-Israeli conflict; relations with the Non-Aligned Movement, the Islamic Conference, the Organization of African Unity; policy concerns of the national interest including Nile waters and the Suez Canal.
POLS 415/4615 - U.S. Foreign Policy (3 cr.)

Prerequisites
RHET 2010 and POLS 3620

Description
Examines major issues and processes of U.S. foreign policy considered historically focusing on the post World War II era. Processes of policy formulation and values manifested in U.S. foreign policy are explored in the context of specific issue areas such as the Cold War, the end of the Cold War, the Western Alliance, and development aid and assistance to Latin America, Africa, and Asia.

POLS 440/4640 - Seminar: Special Topics in International Relations for Undergraduates (3 cr.)

Prerequisites
RHET 2010 and POLS 3620

Description
A special issue or theme in international relations investigated 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.

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 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**
A critical review of the theories, models, and methodologies relevant to the study of political development, especially in the Third World.
When Offered
Offered in fall and spring.

**POLS 503/5203 - International Relations Theory (3 cr.)**

Description
Critical review of major theories and concepts in international relations, and 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
This course seeks to provide students with a critical understanding of political science methods, the ability to read statistical materials, and to use advanced quantitative and qualitative research methods. 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 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.

**POL 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.

**POL 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.

**POL 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.

**POL 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 and the Middle East (3 cr.)

Prerequisites
POLS 5201 or POLS 5202 and POLS 5235 or POLS 5240

Description
Polity, economy, and society considered as interconnected areas for research in comparative politics; the impasse debate about theory in Middle East politics explored in relation to comparative work on other areas and analysis of representative studies; consideration of materials relevant for studying the Middle East; 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 584/5284 - Practicum: Internship or Research (3 cr.)**

Prerequisites
At least eighteen hours of master's degree work and permission of course convener.

Description
Internship for four to six months in an organization pursuing development activities, or active involvement on an institutional research project having a development emphasis. The work is assessed on the basis of a written report and discussion.

**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 (3 cr.)**

Description
This special seminar for the development specialization offers practical skills integral for working in the development field. The approach will be thematic and students will be introduced to the latest in techniques relevant to the field. A critique of the various approaches will be encouraged. Students will be assessed by a variety of practical exercises, essays and research projects.

**POLS 599/5299 - Research Guidance and Thesis (no cr.)**

**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 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 505/5121 - Institutions, Democratization, and Public Policy (3 cr.)**

Description
Review of theoretical and philosophical underpinnings of the state, institutions and public policy; explores dynamic relationships among state, society and economy. Introduction to political theory, institutional theory and public policy theory, from theories of who governs and how to the policy process. Extensive use of case studies to explore how institutions shape political life, policy, reform, and the democratic transition.

When Offered
Offered in spring.

**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 - Non-profit Management (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.

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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 (3 cr.)**

Description
The course approaches the topic of gender in public policy in three ways. We begin by exploring frameworks for thinking about both gender differences and public policy. We then examine a series of policy issues that have gendered outcomes such as access to social protection, education and employment. Finally, we consider the representation of women in the making of public policy, looking at the participation of women in electoral politics and government machinery.

**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 - International Intervention and Conflict Management (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 - Issues in regional security in the Middle East and Africa (3 cr.)**

Description
This course is about comparable and other issues of regional security in the Middle East and Africa. 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 - Cooperation for Development in the Multilateral System (3 cr.)

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 - Comparative Bilateral Cooperation Policies 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 535/5157 - Multilateral Cooperation for Development at the Country Level: Issues and Practice (3 cr.)

Description
This course is about the programs at the country level put in place by multilateral organizations to support public administrations in developing countries carry out their development functions. It will review primary issues of development faced by these countries. The course will then examine the design and implementation of programs of a number of organizations that meet the priorities and needs of partner developing countries. The course will examine examples of programs of specific organizations such as the World Bank, UNDP, ILO FAO and UNESCO.

When Offered
Offered in alternate years.

PPAD 542/5159 - Islam and Global Affairs (3 cr.)
Description
This proposed seminar will offer an in-depth analysis of the role of Islam in the world system in the post-9/11 era both as an alternative perspective on global governance and global security, as well as actors in the system. It will be organized into four parts. The first part analyzes the Islamic worldview as derived from its fundamental sources, the Qur'an and the Sunna; subsequent classical perspectives; and modern academic and theoretical formulations of international relations. The second part examines the emergence of Islam in the World system: from ummah to nation-states; Muslims encounter with colonialism and the rise of anti-colonialism; transnational Muslim Organizations; and Islam in the West. The third part explores transnational Islamic movements, such as the Tabligh-i-Jama'at, the Muslim Brothers, the Qaida and global jihadist. The last part investigates Islam and global security; the interaction between Islam and contemporary geopolitical issues, including globalization, terrorism, Muslim nuclear option and the Arab spring and the rise of Islamists.

PPAD 543/5160 - War, Peace and Conflict Resolution in Islam (3 cr.)

Description
This proposed seminar will examine in-depth the theory and practice of war, peace and conflict resolution in Islam. The course is divided into four parts. The first explores the place of Islam in the contemporary world and its impact on global security. The second part examines the Islamic traditions on peace and war. It looks into Muslim conceptions of peace and the main ideas of contemporary Muslim theologians of nonviolence. This section also examines the various Islamic theories on war and Jihad, the just war theory and Islamic conduct of war, the Islamic ethics of weapons of mass destruction, and Islamic views on martyrdom and suicide bombing. The third part investigates US global strategy and the Muslim world and on Muslim responses. The last part examines the practical ideas and steps toward formulating a model for Islamic conflict resolution and peacebuilding. It covers the role of education, women and building skills for peacemaking.

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 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 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 Analysis and Program Evaluation (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 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 peacekeeping, humanitarian relief and military occupation. The course also considers contemporary strategy challenges such as insurgency, terrorism, non-violent resistance and civil military relations.

**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.

**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.)

Prerequisites
PSYC 1000 , sophomore or junior standing and permission of the instructor.

Description
Topics will vary depending on contemporary trends in the field of psychology.

When Offered
Offered occasionally.

Repeatable
May be repeated for credit if content changes.

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 and spring.

**PSYC 330/3003 - Community Psychology (3 cr.)**

**Prerequisites**
PSYC 1000 or permission of instructor.
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.

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 occasionally.

**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.

**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 occasionally.
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 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.

**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. Requirements may include library research, data collection, data entry, statistical analysis, qualitative analysis, and assistance in planning or conducting 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 414/4014 - Child Psychology (3 cr.)
Prerequisites
PSYC 3040 or permission of instructor.

Description
Child psychology familiarizes students with contemporary theoretical and practical knowledge of child development. The theoretical level involves theories of child development, with a special emphasis on children with special cognitive, emotional and medical needs. The practical level requires students' involvement in the field by providing them with supervised applied experience in dealing with children with various special needs such as disability, childhood illnesses, and child abuse and neglect.

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 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**
Prerequisites: junior or senior standing and 15 hours of psychology, or permission of instructor.

**Description**
Places recent developments in psychology in a broad perspective. Emphasizes how new movements in psychology reflect both psychology's past and the influence of related fields such as the cognitive and neurosciences.

When Offered
Offered in spring.

**PSYC 442/4062 - Clinical Psychology (3 cr.)**

**Prerequisites**
PSYC 3270, PSYC 3420 and PSYC 3800 or permission of instructor.

**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 occasionally.

**PSYC 430/4063 - Advanced Community Psychology (3 cr.)**

**Prerequisites**
PSYC 1000, PSYC 3003 and permission of instructor.

**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.

**PSYC 400/4099 - Selected Topics in Psychology (3 cr.)**

**Prerequisites**
Prerequisite: junior or senior standing, and permission of the instructor.

**Description**
Topics to be chosen according to specific interest, for example: learning theory, conflict and stress, psycholinguistics, ethnopsychology.

**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 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 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 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 520/5216 - 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 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
assessments 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 some of the most important psychological assessment tools, including personality and intelligence testing, clinical interviewing, and behavioral observation. Students examine strengths and limitations of tests and how to administer, score and interpret them. Students learn how to write integrated reports that can inform treatment. The course integrates hands-on experience conducting assessments, with supervised experience in report writing. Multicultural and ethical issues 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 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 596/5263 - 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 580/5264 - Practicum I in Counseling Psychology (3 cr.)**

Prerequisites
PSYC 5200 PSYC 5210 PSYC 5291 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 540/5270 - Community and Group Interventions (3 cr.)**

**Description**
This course provides an overview of the concepts and applications of group interventions in community and counseling contexts. Principles of group work will be reviewed, including systemic thinking, group dynamics and cohesion, professional tasks and challenges, and stages of group development.

**PSYC 581/5274 - Practicum II in Counseling Psychology (3 cr.)**

**Prerequisites**
PSYC 5200 PSYC 5210 PSYC 5291 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. documentation such as record keeping and report writing.

**PSYC 586/5276 - Practicum I in Community Psychology (3 cr.)**

**Prerequisites**
Approval of Advisor.

**Description**
Introductory practicum in which students apply community psychology principles and methods in community settings with the support of individual and group supervision. Specialized skills will be gained at various levels of ecological analysis with an emphasis on ethical and professional practices, and may include consultation, prevention, community assessment or intervention, program evaluation, or public policy development.

**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 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 587/5286 - Practicum II in Community Psychology (3 cr.)

Prerequisites
Approval of Advisor.

Description
Advanced practicum in which students apply community psychology principles and methods in community settings with the support of individual and group supervision. Specialized skills will be gained at various levels of ecological analysis with an emphasis on ethical and professional practices, and may include consultation, prevention, community assessment or intervention, program evaluation, or public policy development.

PSYC 504/5291 - 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 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.

RCSS 501/5201 - Robotics: Kinematics, Dynamics and Control (3 cr.)
Description

Cross-listed
Same as MENG 5271.

RCSS 502/5202 - Embedded Real Time Systems (3 cr.)

Description

Cross-listed
Same as MENG 5272.

RCSS 503/5203 - Modern Control Design (3 cr.)

Description

Cross-listed
Same as MENG 5273.

RCSS 504/5204 - Applied Estimation (3 cr.)
Description

RCSS 521/5221 - Intelligent and Autonomous Robotic Systems (3 cr.)
Description

Cross-listed
Same as MENG 5274.

RCSS 522/5222 - Mechatronics Innovations and Experimental Robotics (3 cr.)
Description

RCSS 523/5223 - Bioinspired Robotics and Multi Robotic Systems (3 cr.)
Description
RCSS 524/5224 - Robotics and Intelligent Automated Manufacturing (3 cr.)

Description

RCSS 531/5231 - Teleoperation, Haptic Systems and Collaborative Control (3 cr.)

Description

RCSS 532/5232 - Robust and Optimal Control (3 cr.)

Description

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,

Cross-listed
Same as MENG 6270.

**RCSS 534/5234 - Networked Control Systems: Design and Applications (3 cr.)**

**Prerequisites**
EENG 3202 and EENG 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 EENG 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

RCSS 544/5244 - Sensors, Perception and Smart Systems (3 cr.)

Description

RCSS 545/5245 - Advanced Artificial Intelligence (3 cr.)

Description

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 590/5940 - Graduate Thesis Seminar I (2 cr.)**

Description
Seminar on research topics, research methodology and thesis writing. The seminars given by invited speakers include topics on the sustainable development and economic impact of RCSS and relevant technology, Industrial needs and the evolution of RCSS and advanced research.

Cross-listed
Same as ENGR 5940.

**RCSS 591/5941 - Graduate Thesis Seminar II (1 cr.)**

Prerequisites
RCSS 5940

Description
Seminars on research topics given by invited speakers that include ongoing development in the area of RCSS interdisciplinary field. In addition, seminars are given by the enrolled students on their research work.

Cross-listed
Same as ENGR 5941.

**RCSS 593/5980 - Capstone Project (3 cr.)**

Description
Students are required to attend the library and the writing modules of RCSS 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
RCSS 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.

**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 concurrent with CORE 1010.

Description
This semester, after performing an extensive review of the literature on an area of interest, you will choose an area of study that requires you to gather data to support a hypothesis. The topic should be one that lends itself to research. You are encouraged to pursue an area that is related to your major or another of personal interest.

Notes
RHET 1020 replaces RHET 201/2010 - Research Writing (3 cr.) for students beginning the Freshman Program in fall 2013 and later.

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 120/1200 - Research Writing (3 cr.)

**RHET 299/2099 - Selected Topics (3 cr.)**

Prerequisites
RHET 1000

Description
Course addressing broad intellectual concerns and accessible to all students irrespective of major.

When Offered
Offered occasionally.

**RHET 225/2220 - Public Speaking (3 cr.)**
Prerequisites
RHET 2010 or its equivalent.

Description
Public Speaking is a course designed to provide both a practical introduction to the fundamental principles of speaking in public and a forum for practicing public speaking skills. Through a variety of instructional strategies - discussion, class workshops, readings, lectures, and presentations - students learn the processes by which effective speeches are conceived, prepared, and delivered.

RHET 399/3099 - Selected Topics (3 cr.)

Prerequisites
RHET 2010 or 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 2010 or equivalent.

Description
This course focuses on the writing and critique of personal narratives, reflecting upon students' places as individuals within the larger contexts of family, country, and/or region. They will learn fundamentals of narrative life writing, understand the crafts of writing and revising, and consider their life stories in the wider context of cultural theory. Students will learn and practice advanced discussion techniques in workshop, when narratives are critiqued by instructor and peers.

RHET 340/3120 - Life Narratives: Reading as Writers (3 cr.)

Prerequisites
RHET 2010 or equivalent.

Description
This reading-intensive course will introduce students to the field of autobiographical and biographical literature known as life writing. Students will analyze writing strategies in 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.
RHET 341/3130 - Travel Writing (3 cr.)

Prerequisites
RHET 2010 or equivalent.

Description
In this course, students will become familiar with the genre of travel writing, and 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-à-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 2010 or 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.)

Description
As a workshop with a significant critical component, this course focuses on developing students' mastery of language through the writing of poetry. That writing is grounded with an examination of poetry's rhetorical and cultural impact. Students in this course will write a series of poems in response to weekly assignments, analyze the work of poets from both the West and the Middle East, and complete a final portfolio that shows significant revision and careful analytical thinking about the poems themselves as well as their place within the genre.

RHET 390/3160 - Fiction writing (3 cr.)

Description
This course focuses on the craft and discipline of fiction writing. Students will study writers in the Arab and Western literary tradition, and from that study, they will learn the fundamentals of various rhetorical strategies in fiction, understand how to transform small ideas from daily life into fiction, and consider how their cultural background affects how they tell stories. 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 2010 or equivalent; junior standing or instructor approval.

**Description**
This course focuses on the methods of persuasion that business professionals and administrators of organizations use to shape messages for professional and public audiences. Rhetorical analyses of various workplace document genres are followed by application of knowledge and skills to produce effective and appropriate business messages. Students will conduct research on topics of interest to the business community, and present findings in the form of proposals, formal reports, and oral presentations.

**When Offered**
Offered in fall, spring and occasionally in the summer.

**RHET 321/3230 - Technical Communication (3 cr.)**

**Prerequisites**
RHET 2010 or equivalent; junior standing or instructor approval; science and engineering majors or instructor approval.

**Description**
This course develops the knowledge and skills to produce technical documents that meet professional and ethical standards required by technical fields and professions. It focuses on both the rhetorical and workplace problems that are addressed by writers, such as audience, exigency and purpose, and workplace constraints. Throughout the course, students will analyze and discuss recent areas of concern in the field technical communication, as well as produce documents in various technical genres, including proposals and formal reports.

**When Offered**
Offered in fall, spring and occasionally in summer.

**RHET 332/3240 - Presentation and Persuasion in Business (3 cr.)**

**Prerequisites**
RHET 2010 or equivalent.

**Description**
This course acquaints students with both the presentation and interpersonal communication skills required in business-related, professional situations. It addresses both the composition and the delivery of professional speeches, such as sales presentations,
convention addresses, job bids, as well as the interpersonal skills necessary for the successful conduct of business discourse, in particular negotiation contexts.

**RHET 334/3250 - Digital Rhetoric (3 cr.)**

**Prerequisites**
RHET 2010 or equivalent.

**Description**
This is a course in the rhetorical analysis of the relatively new but increasingly important genres that comprise the various practices of E-Writing, including: blogging, wiki-development, networked writing, hypertext, social networking and other manifestations of the digital age. Students will study and work with various digital environments with attention to their evolving possibilities and constraints.

**RHET 310/3310 - Effective Rhetoric: Discourse and Power (3 cr.)**

**Prerequisites**
RHET 2010 or its equivalent.

**Description**
This course guides students through key texts in rhetorical theory to give them not only a foundational knowledge of major questions, concepts and debates in the field but also to provide them with the language and tools to critically analyze a variety of texts, whether these texts be visual, oral, or written. Students will reflect on, through various writing assignments, the intellectual, social, and political contributions of rhetoric to the study of human communication.

**RHET 322/3320 - Writing in the Social Sciences (3 cr.)**

**Prerequisites**
RHET 2010 or equivalent; consent of instructor, consent of Chair/Associate Chair, junior or senior standing.

**Description**
This course focuses on writing in the student's discipline. Particular attention is paid to the conventions of professional writing and citation, as well as a variety of approaches to delivering discipline-specific information to diverse audiences. Also included are advanced research, public writing and public presentations.

**RHET 323/3330 - Changing Words, Changing Worlds (3 cr.)**

**Prerequisites**
RHET 2010 or equivalent.
Description
Changing Words, Changing Worlds engages students with contemporary discourse within the humanities. It takes as its point of departure a seminal work that frames our understanding and concepts within the humanities relating how this key text acts as a trajectory creating a paradigm shift and permeating into other fields, such as Marx's Manifesto of the Communist Party. By analyzing the interplay between language and ideas, students will be able to relate to how discourse within one area of the humanities is infiltrated becoming a reference point for other fields.

RHET 325/3340 - The Rhetoric of Argument in the Humanities and Social Sciences (3 cr.)

Prerequisites
RHET 2010 or equivalent.

Description
This course engages students in the study of argumentation, its theory and practice. Students will employ instruments for identifying differences of opinion, analyzing and evaluating explicit and implicit standpoints of argument, and presenting arguments in oral and written discourse.

RHET 330/3350 - Writing and Cognition (3 cr.)

Prerequisites
RHET 2010 or equivalent.

Description
This course takes an interdisciplinary approach to the phenomenon of writing by examining the cultural values embedded in writing and the cognitive claims about the relationship between thought and language, and by surveying the ways written expression has been used as a tool for reconstructing perception, memory, self and society. These issues will be approached through reading and writing together, and through experimenting with assumptions and hypotheses about what happens when people write. Class readings come from history, philosophy, cognitive psychology, composition studies, and literature.

RHET 460/4060 - Independent Study (1-3 cr.)

Prerequisites
Pre-requisites: Consent of Instructor, Consent of Chair/Associate Chair, Junior or Senior Standing.

Description
In exceptional circumstances, students, in consultation with a faculty member and with approval of the Chair/Associate Chair, 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**
At least one 300-level RHET course and/or instructor permission solicited through a project proposal.

**Description**
Students in this course will complete a substantial portion of a long writing project while analyzing and modeling approaches to manuscripts. Each student will design and generate a different project, so projects 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.). Students will engage in the process of writing a manuscript through utilizing genre analysis and class workshops. Students in a number of writing contexts and disciplines, as well as Rhetoric and Writing Minors, are encouraged to take this capstone course.

**RHET 410/4260 - Writing for Project Funding (3 cr.)**

**Prerequisites**
RHET 2010 or 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 2010 or equivalent; B in 300 or 400-level RHET course.

**Description**
This capstone course immerses students into an applied, real-world writing experience that helps them transition from academic writing to work-place writing, as well as provides in-class guidance and reflection. Students select one of three tracks of internship experience – professional business writing, literary writing and publishing, or technical writing for non-profits.

**RHET 490/4280 - Advanced Scientific and Technical Writing (3 cr.)**

**Prerequisites**
RHET 2010 or equivalent. Engineering and Science Majors only; junior or senior standing.
Description
This course develops advanced scientific and technical communication skills for both academic and practical environments. It features the IMRAD method of report writing, oral and visual presentation skills for senior projects, literature reviews for scientists and engineers, technical reports for the workplace, and technical documents that represent organizations to the public.

RHET 400/4360 - Writing and Editing for Publication (3 cr.)

Prerequisites
RHET 2010 or equivalent.

Description
This course develops the skills to produce effective articles and presentations with a focus on journal submission requirements, journal review and publication processes. Provides training in the integration of information technology for presentations, and in primary and secondary research methods.

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
Fostering a basic understanding of the physical environment and the nature of forces at work that shape our dynamic planet, this course provides an introduction to the material, origin, history, internal structure of the earth and the presently accepted system unifying plate tectonics, continental drift and sea floor spreading. The economic contribution of geology to development with an emphasis on Egypt is included.

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.

**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 interdisciplinary 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 from the United States. The medium for this shared experience will be videoconferences held over the internet with university classes in the U.S. This semester, we will hold thirteen videoconferences with classes from different American institutions. 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 the substantive theme of the course. 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.

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.

**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, Ethnicity, and Class (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 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
Prerequisites: Students must have taken SOC 2101, no exceptions

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.

Cross-listed
Same as ANTH 3035.
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 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 - Third World 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.
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 and spring.

Repeatable
May be repeated for credit if content changes

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.

Notes
Students in these majors may petition preferably before registration to have the course included in their major requirements.
**SOC/ANTH 507/5200 - Introduction to Forced Migration and Refugee Studies (3 cr.)**

**Prerequisites**
Prerequisite: Graduate standing or advanced undergraduate standing and permission of instructor.

**Description**
This course examines the changing political, social, and legal contexts within which people become forced migrants or refugees. Of particular concern are policies which generate, regulate, and protect the movement of forced migrants, the interaction between national governments and the United Nations High Commissioner for Refugees, the psychological aspect of refugee status, and the social and cultural organization of refugee and migrant communities, including notably gender aspects and the role of children. This course is required of all students seeking the diploma in Forced Migration and Refugee Studies.

**Cross-listed**
Same as MRS 5200.

**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 of 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, ethnocratic 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.

Cross-listed
Same as GREN 5241.

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.

Cross-listed
Same as GREN 5243.

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.

Cross-listed
Same as GREN 5242.

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 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.

**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 350/2101 - Survey of Dramatic Literature (3 cr.)

Description
A study of major periods and distinctive styles and genres of drama from the Greeks to pre-Ibsen nineteenth century drama.

When Offered
Offered in alternate falls.
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. 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 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. 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 351/3101 - History of the Theatre I : Greek to Renaissance (3 cr.)**

**Description**
A survey of the history of theatre production, organizational, staging, architectural, scenic, and costuming conventions from the Greeks to the Renaissance. The course is taught in a combination of lecture and media presentations.

**When Offered**
To be offered in alternation with THTR 3102 every other spring.

**THTR 000/3102 - History of the Theatre II: Restoration to 21st Century (3 cr.)**

**Description**
A survey of the history of theatre production, organizational, staging, architectural, scenic, and costuming conventions from the Restoration to the 21st century. The course focuses on the relationship between theatre and the societies which produce it. The course is taught in a combination of lecture and media presentations.

**When Offered**
To be offered in alternation with THTR 3101 every other Spring

**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 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.
THTR 360/3501 - Playwriting I (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 occasionally in winter or summer session.

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 460/4101 - Modern and Contemporary Drama (3 cr.)**

**Description**
An exploration of the drama of the modern age and of its most influential movements through the study of mainly European
drama in the period from Ibsen to the present.

When Offered
Offered in alternate falls.

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 (3 cr.)
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 it's 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 2101 THTR 4101 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.

**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.

**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 in summer.

**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 5237 and TVDJ 5241.

**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.