Courses

ACCT 201 - Financial Accounting

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.

(3 cr.)

ACCT 202 - Managerial Accounting

Introduction to management accounting in terms of modern cost accounting and budgetary systems. The course emphasizes management uses of accounting information in the planning and controlling of business operations in the manufacturing and services sectors.

Prerequisites
ACCT 201

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.

(3 cr.)

ACCT 301 - Intermediate Accounting I

An in-depth coverage of accounting valuation processes, accounting income measurement, and disclosure issues in financial reports.

Prerequisites
ACCT 201 and MACT 112

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 - Intermediate Accounting II

A continuation of Intermediate Accounting I (ACCT 302), focusing on the liabilities and equity sections in various types of ownership.

Prerequisites
ACCT 301

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 - Advanced Accounting

Specialized topics in partnership accounting, agency and branch accounting, mergers and acquisitions, consolidated statements, fiduciary accounting, fund and non-profit accounting.

Prerequisites
ACCT 302

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 - Cost Accounting

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.

Prerequisites
ACCT 202

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 - Auditing**

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.

**Prerequisites**
ACCT 302

**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.

(3 cr.)

**ACCT 306 - Principles of Taxation**

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.

**Prerequisites**
ACCT 302 and MGMT 311.

**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.

(3 cr.)

**ACCT 401 - Contemporary Issues in Auditing**

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.

**Prerequisites**
ACCT 305

**When Offered**
Offered in spring.

(3 cr.)
ACCT 402 - Special Topics in Tax Accounting

Practical and theoretical training in the more common and important provisions of the tax codes. Tax case research and preparation are emphasized.

Prerequisites
ACCT 306

When Offered
Offered in spring.

(3 cr.)

ACCT 403 - Contemporary Issues in Accounting

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.

Prerequisites
Graduating Senior.

When Offered
Offered in fall and spring.

(3 cr.)

ACCT 470 - Special Topics in Accounting

Considers selected topics of current relevance in Accounting.

Prerequisites
Prerequisite: Consent of Instructor.

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.

(3 cr.)

ACCT 475 - Independent Study in Accounting

Guided readings, research, and discussions on specific selected topic in Accounting.

Prerequisites
Prerequisites: Senior standing and consent of ACCT unit head and chair.

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 - Financial Reporting and Analysis

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.
(3 cr.)

ACCT 502 - Managerial Accounting for Decision Making

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.

Prerequisites
ACCT 501

When Offered
Offered in fall and spring
(3 cr.)

AENG 222 - Architecture: Art or Engineering

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.

Cross-listed
Same as ARTV 222.
(3 cr.)

AENG 234 - Human Aspects in Architectural Design

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
**AENG 250 - Foundations of 3-Dimensional Design**

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.

**Cross-listed**
Same as ARTV 250.

**Hours**
Four-hour studio period.

3 cr.

**AENG 251 - Introduction to Architectural Design**

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.

**Prerequisites**
AENG 273 and ARTV 221.

**Hours**
One-hour class period and three-hours studio period.

**When Offered**
Offered in fall and spring.

(3 cr.)

**AENG 268 - Surveying for Architects**

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.

**Prerequisites**
MACT 132

**Hours**
Three-hour lab period.

(1 cr.)
AENG 273 - Digital Representation Tools for Architects

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.

Prerequisites
ENGR 115

Hours
One-hour class period and three-hour lab period.

When Offered
Offered in fall and spring.

(2 cr.)

AENG 321 - Introduction to Architectural Engineering

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.

Prerequisites
CENG 215

When Offered
Offered in fall and spring.

Notes
(Two-hours lecture period and three-hour lab period)

(3 cr.)

AENG 323 - Construction Materials and Quality Control


Prerequisites
ENGR 229

Hours
Two one-hour class periods and three-hour lab period.

When Offered
Offered in fall and spring.

(3 cr.)

AENG 326 - Environmental Control Systems and Sustainable Design
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.

**Prerequisites**
PHYS 111, MACT 132 and AENG 251

**Hours**
Three-hour studio period and three-hour lab period.

**Repeatable**
Offered in fall and spring.

**(3 cr.)**

**AENG 351 - Architectural Design Studio I**

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.

**Prerequisites**
AENG 234 and AENG 251

**Hours**
Six-hour studio period.

**When Offered**
Offered in fall and spring.

**(4 cr.)**

**AENG 352 - Architectural Design Studio II**

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.

**Prerequisites**
ARTV 314, AENG 250 and AENG 351

**Hours**
Six-hour studio period.

**When Offered**
Offered in fall and spring.

**(4 cr.)**

**AENG 368 - Housing Design and Geographic Information Systems**
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.

**Prerequisites**
AENG 268 and AENG 351

**Hours**
Three-hour studio period and three hour lab period.

**When Offered**
Offered in fall and spring.

(3 cr.)

**AENG 420 - Design of Interior Spaces**


**Prerequisites**
CENG 215 or AENG 273

**Hours**
One-hour lecture and three-hour Studio.

**When Offered**
Offered in fall and spring.

(3 cr.)

**AENG 426 - Building Service Systems and Building Systems Integration**

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.

**Prerequisites**
AENG 326

**Hours**
Two-hour class period and three-hour lab period.

(3 cr.)

**AENG 428 - Detail Design and Finishes in Buildings**


**Prerequisites**
CENG 423
AENG 429 - Design Development and Construction Documents


Prerequisites
AENG 428

AENG 441 - Professional Practice, Design Management and Codes


Prerequisites
AENG 251 and CENG 441

AENG 453 - Architectural Design Studio III

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 hands-on experience on the sustainable design and waste management is a requirement.

Prerequisites
AENG 326 and AENG 352.

Hours
AENG 454 - Architectural Design Studio IV

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.

Prerequisites
AENG 453 and CENG 306

Hours
Six-hour studio period.

When Offered
Offered in fall and spring.

(4 cr.)

AENG 455 - Architectural Design Studio V

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.

Prerequisites
AENG 426, AENG 454 and AENG 473

Hours
Six-hour studio period.

When Offered
Offered in fall and spring.

(4 cr.)

AENG 456 - Architectural Design Studio VI

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.

Prerequisites
AENG 455, AENG 468, ARIC 205 and EGPT 203

Hours
Six-hour studio period.

(4 cr.)

AENG 468 - Urban Design and Landscape Architecture


Prerequisites

AENG 368

Hours

One-hour class period and three-hour studio period.

When Offered

Offered in fall and spring.

(3 cr.)

AENG 473 - Digital Design Studio and Workshop


Prerequisites

AENG 251

Hours

Three-hour studio period and three-hour lab period.

When Offered

Offered in fall and spring.

(3 cr.)

AENG 480 - Special Problems in Architectural Engineering

Independent study in various problem areas of construction may be assigned to individual students or groups. Readings assigned and frequent consultations held

Prerequisites

Prerequisite: consent of instructor and department chair on the basis of a well-defined proposal.

When Offered

Offered in fall and spring.

Repeatable

May be repeated for credit if content changes.

(1-3 cr.)
AENG 490 - Senior Project I

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.

Prerequisites
AENG 455

Hours
Three-hour studio period.

When Offered
Offered in fall and spring
(2 cr.)

AENG 491 - Senior Project II

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.

Prerequisites
AENG 420, AENG 456, AENG 490

Hours
Eight-hour studio period.

When Offered
Offered in fall and spring.
(5 cr.)

AENG 494 - Selected Topics in Architectural Engineering

Specialized topics in Architectural engineering will be selected and presented.

Prerequisites
Prerequisite: senior standing.

When Offered
Offered in fall and spring.
(3 cr.)

AENG 496 - Internship in Construction Projects

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.

Prerequisites
CENG 423

When Offered
Offered in fall.
(0 cr.)
AENG 497 - Internship in Technical Drawing and Design

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.

Prerequisites
AENG 429

When Offered
Offered in fall and spring.
(1 cr.)

ALIN 101-102-103-104 - Elementary Modern Standard Arabic

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.

(3 cr. each)

ALIN 105-106 - Elementary Listening

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.

(2-3 cr. each)

ALIN 111-112-113 - Elementary Colloquial Arabic
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.

(3-4 cr. each)

**ALIN 121-122 - Elementary Writing**

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.

(2-3 cr. each)

**ALIN 131-132 - Elementary Printed Media**

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.

(2-3 cr. each)

**ALIN 133-134 - Elementary Aural Media**

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.
Prerequisites
ALIN 131.

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.

(2-3 cr. each)

ALIN 171-172 - Readings in the Qur'an

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.

(2-4 cr. each)

ALIN 191-192 - Supervised Studies

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

(1-4 cr. each)

ALIN 201-202-203-204 - Intermediate Modern Standard Arabic

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.

(3 cr. each)

ALIN 205-206 - Intermediate Grammar

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.

(2-3 cr. each)

ALIN 207-208 - Intermediate Spoken Modern Standard Arabic (MSA)

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.

(2-3 cr. each)

ALIN 209-210 - Intermediate Listening and Speaking

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.

(2-3 cr. each)

**ALIN 211-212 - Intermediate Colloquial Arabic**

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.

(3-4 cr. each)

**ALIN 221-222 - Intermediate Writing**

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.

(2-3 cr. each)

**ALIN 223-224 - Intermediate Business Writing**

Introduces the Arabic used in business and commerce, focusing on the technical terms and formulas common to these fields. Includes bills, invoices, checks, memos, orders, applications, recruitment and product advertisement, complaints, etc.

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.

(2 cr. each)

**ALIN 225-226 - Intermediate Reading and Writing**

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.

(3 cr. each)

**ALIN 231-232 - Intermediate Printed Media**

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.

(2-3 cr. each)

**ALIN 233-234 - Intermediate Aural Media**

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.
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.

(2-3 cr. each)

**ALIN 241-242 - Intermediate Translation**

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.

(2-3 cr. each)

**ALIN 251 - Readings in the Modern Arabic Short Story**

Introduces students to the genre through the reading of some representative works.

*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.

(2-3 cr.)

**ALIN 252 - Readings in Modern Arabic Literature**

Selections from a variety of prose writings.

*Hours*

Course meets three or five 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.

(2-3 cr.)

**ALIN 271-272 - Readings in the Qur'an**

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.

(2-3 cr. each)

**ALIN 281-282 - Political Texts**

**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.

(2-3 cr. each)

**ALIN 283 - Readings in Economics**

Acquaints students with the terminology and style of economic texts through the reading and discussion of selected articles on Egyptian and international economic issues.

**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.

(2 cr. each)
**ALIN 284 - Introduction to Egyptian Culture - Intermediate**

Develops language through further understanding of culture. Introduces different aspects of Egyptian culture, with emphasis on customs, traditions, family, the role of religion in society, women and social strata. Medium of instruction is combination of both intermediate Modern Standard and Egyptian Spoken Arabic. Uses authentic material whether recorded or written to encourage discussion.

**Prerequisites**
Prerequisite: Intermediate level in Arabic or consent of program director.

**Hours**
Class meets 3 or 5 hours per week.

**When Offered**
Offered in fall and spring.

(2-3 cr.)

**ALIN 291-292 - Supervised Studies**

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.

**Repeatability**
May be repeated for credit when content changes

(1-4 cr. each)

**ALIN 301-302 - Advanced Modern Standard Arabic**

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.

(3 cr. each)

**ALIN 305-306 - Advanced Arabic Grammar**
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.

(2-3 cr. each)

**ALIN 307-308 - Advanced Spoken Modern Standard Arabic (MSA)**

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.

(2-3 cr. each)

**ALIN 309-310 - Advanced Listening and Speaking**

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

**Prerequisites**
ALIN 209-210 or consent of instructor.

**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.

(2-3 cr. each)

**ALIN 311-312 - Advanced Colloquial Arabic**
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.

(3-4 cr. each)

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**ALIN 321-322 - Advanced Writing**

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.

(2-3 cr. each)

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**ALIN 323-324 - Advanced Business Writing**

Explores writing for sophisticated business and commercial situations. Includes agenda and minutes, tax declarations, contracts, by-laws, etc.

**Prerequisites**
ALIN 223.ALIN 224

**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.

(2 cr. each)

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**ALIN 325-326 - Advanced Reading and Writing**
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.

**Prerequisites**
ALIN 225-226 or consent of instructor.

**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.

(3 cr. each)

**ALIN 331-332 - Advanced Printed Media**

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.

(2-3 cr. each)

**ALIN 333-334 - Advanced Aural Media**

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.

(2-3 cr. each)

**ALIN 341-342 - Advanced Translation**
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.

(2-3 cr. each)

### ALIN 351 - Readings in the Modern Arabic Short Story

Covers the historical development of style and thought among modern short story writers. Acquaints students with the influence of social factors on the works discussed.

**Hours**
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.

(3 cr.)

### ALIN 352 - Readings in Modern Arabic Literature

Selections from a variety of prose writings: short stories, novels, plays, and poetry by writers from different Arab countries.

**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.

(3 cr.)

### ALIN 353-354 - Readings in the Modern Arabic Novel

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.
ALIN 361-362 - Modern Arabic Texts

Exposes students to a wide selection of modern non-fiction, increasing their range of vocabulary and acquainting them with the style of the essay.

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.

(3 cr. each)

ALIN 365-366 - Classical and/or Medieval Texts

Introduces students to the vocabulary and style of classical and/or medieval Arabic. 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.

(3 cr. each)

ALIN 371-372 - Qur'anic Studies

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.

(3 cr. each)

**ALIN 381-382 - Political Texts**

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.

(3 cr. each)

**ALIN 383 - Readings in Economics**

Exposes students to a wider variety of texts. Focuses on discussion and analysis of the readings.

**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.

(3 cr. each)

**ALIN 384 - Introduction to Egyptian Culture - Advanced**

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.

**Prerequisites**

Prerequisite: Advanced level in Arabic or consent of program director.

**Hours**

Class meets 3 or 5 hours per week.

**When Offered**

Offered in fall and spring.

(2-3 cr.)
**ALIN 386-387 - Modern Egyptian History**

An introduction to Egyptian history, from Muhammad Ali, the founder of modern Egypt, until the present time.

**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.

(3 cr. each)

**ALIN 391-392 - Supervised Studies**

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

(1-4 cr. each)

**ALIS 101-102-103-104 - Elementary Modern Standard Arabic**

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.

(2-3 cr. each)

**ALIS 111-112-113 - Elementary Colloquial Arabic**

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.

(2-4 cr. each)

**ALIS 121-122 - Elementary Writing**
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.
(1-3 cr. each)

**ALIS 131-132 - Elementary Printed Media**

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.
(1-3 cr. each)

**ALIS 171-172 - Readings in the Qur’an**

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.
(1 cr. each)

**ALIS 191-192 - Supervised Studies**

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.
(1-4 cr. each)

**ALIS 201-202-203-204 - Intermediate Modern Standard Arabic**

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.
(2-3 cr. each)

**ALIS 211-212 - Intermediate Colloquial Arabic**

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.
(2-4 cr. each)
ALIS 221-222 - Intermediate Writing

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. (1-3 cr. each)

ALIS 231-232 - Intermediate Printed Media

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. (1-3 cr. each)

ALIS 233-234 - Intermediate Aural Media

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. (1-3 cr. each)

ALIS 241-242 - Intermediate Translation

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. (1 cr. each)

ALIS 252 - Readings in Modern Arabic Literature

Selections from a variety of prose writings. Course meets three hours per week. (1 cr.)

ALIS 271-272 - Readings in the Qur’an

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. (1-3 cr. each)
ALIS 291-292 - Supervised Studies

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.
(1-4 cr. each)

ALIS 301-302 - Advanced Modern Standard Arabic

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.
(2-3 cr. each)

ALIS 311-312 - Advanced Colloquial Arabic

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.
(2-3 cr. each)

ALIS 321-322 - Advanced Writing

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.
(1-3 cr. each)

ALIS 331-332 - Advanced Printed Media

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.
(1-3 cr. each)

ALIS 333-334 - Advanced Aural Media

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.
(1-3 cr. each)
ALIS 341-342 - Advanced Translation

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.
(1 cr. each)

ALIS 352 - Readings in Modern Arabic Literature

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.
(1 cr.)

ALIS 391-392 - Supervised Studies

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.
(1-4 cr. each)

ALNG 101-102-103 - Elementary Arabic

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.

(3 cr. each per semester)

ALNG 109-110 - Introduction to Colloquial Arabic

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.

(3 cr. each per semester)

ALNG 111-112 - Accelerated Elementary Modern Standard Arabic

ALNG 111 covers material of ALNG 101 and ALNG 102, while ALNG 112 covers the materials of ALNG 103 and ALNG 201. 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.

(6 cr. each per semester)

ALNG 199 - Selected Topics

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.

(3 cr. per semester)

ALNG 201-202-203 - Intermediate Arabic

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.

Prerequisites
ALNG 103 or placement examination.

When Offered
Offered in fall, spring, summer and winter.

Notes
Noncredit for Thanawiyya Amma holders

(3 cr. each per semester)

ALNG 204-205 - Intermediate Modern Standard Arabic
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.

**Prerequisites**
ALNG 203 or placement examination.

**When Offered**
Offered in fall, winter, spring and summer.

**Notes**
Noncredit for Thanawiyya Amma holders.

(3 cr. each per semester)

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**ALNG 206 - Arabic of the News Media**

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.

**Prerequisites**
ALNG 201.

**When Offered**
Offered in fall and spring.

**Notes**
Noncredit for Thanawiyya Amma holders

(3 cr. per semester)

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**ALNG 210 - Intermediate Egyptian Colloquial Arabic**

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.

**Prerequisites**
ALNG 110, ALNG 109-110

**When Offered**
Offered in fall, winter, spring and summer.

**Notes**
Non credit for students from the Arab countries and Thanawiyya Amma holders.

(3 cr. per semester)

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**ALNG 211-212 - Accelerated Intermediate Modern Standard Arabic**

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 211 covers material of ALNG 202 and ALNG 203, while ALNG 212 covers the materials of ALNG 204 and ALNG 205. Two-semester sequence. Registration requires permission of the ALNG Director. Each
course meets ten hours per week.

**Prerequisites**
ALNG 201 or placement examination.

**When Offered**
Offered in fall and spring.

**Notes**
Noncredit for Thanawiyya Amma holders.

(6 cr. each per semester)

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**ALNG 299 - Selected Topics**

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.

(3 cr. per semester)

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**ALNG 301-302 - Advanced Modern Standard Arabic I**

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.

**Prerequisites**
ALNG 205.

**When Offered**
Offered in fall and spring

**Notes**
Noncredit for Thanawiyya Amma holders.

(3 cr. each per semester)

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**ALNG 303-304 - Advanced Modern Standard Arabic II**

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.

**Prerequisites**
ALNG 302 or ALNG 311.
**ALNG 305 - Independent Study**

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.

**Prerequisites**
Any 200 level Arabic language course.

**When Offered**
Offered upon request.

**Notes**
Non-credit for Thanawiyya Amma holders.

(3 cr. per semester)

**ALNG 306 - Advanced Arabic of the News Media**

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.

**Prerequisites**
ALNG 206

**When Offered**
Offered in fall and spring.

**Notes**
Non-credit for Thanawiyya Amma holders.

(3 cr. per semester)

**ALNG 311-312 - Accelerated Advanced Modern Standard Arabic**

The courses aim at preparing advanced, non-native speaking students for upper-division or graduate-level work in the Arabic language. ALNG 311 covers material of ALNG 301 and ALNG 302, while ALNG 312 covers the materials of ALNG 303 and ALNG 304. 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.

(6 cr. each per semester)
ALNG 399 - Selected Topics

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.

(3 cr. per semester)

ALNG 413-414 - Arabic Syntax (Nahw)

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.

(3 cr. per semester)

ALNG 415 - Arabic Morphology (Sarf) and Prosody (‘Arud)

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.

(3 cr.)

ALNG 425 - Linguistics of Arabic

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.

(3 cr.)

ALNG 426 - The Phonetics of Arabic
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.
(3 cr.)

**ALWT 221 - From Reading to Writing: Intermediate Level:**

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 and spring.

3 credits

**ALWT 321 - From Reading to Writing: High Intermediate Level:**

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 and spring.

Notes
The level of material taught is higher than those taught in ALWT 221 but following the same guidelines.

3 credits

**ALWT 420 - From Reading to Writing: Advanced Level:**

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.

Prerequisites
Prerequisite: Score 85 or more in the Arabic Writing Placement Exam or have taken either 221 or 321.

When Offered
Offered in the fall and spring.

3 credits

**ALWT 421 - Professional Media Writing:**

The course bridges the communication gap between language course work and information-transfer needs of media. The course trains the student to write major forms of media writing, including correspondence, memoranda, reports and
the like.

**Prerequisites**
Prerequisite: Score 85 or more in the Arabic Writing Placement Exam or have taken either 221 or 321.

**When Offered**
Offered in the fall.
3 credits

**ALWT 422 - Professional Business Writing:**

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.

**Prerequisites**
Prerequisite: Score 85 or more in the Arabic Writing Placement Exam or have taken either 221 or 321.

**When Offered**
Offered in the fall and spring.
3 credits

**ALWT 423 - Professional Diplomatic Writing:**

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.

**Prerequisites**
Prerequisite: Score 85 or more in the Arabic Writing Placement Exam or have taken either 221 or 321.

**When Offered**
Offered in the fall and spring.
3 credits

**ALWT 462 - Professional Translation in Business:**

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.

**Prerequisites**
ALWT 420 or consent of instructor.

**When Offered**
Offered in the fall and spring.
3 credits

**ALWT 463 - Diplomatic Professional Translation:**

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.

**Prerequisites**
ALWT 420 or consent of instructor.

**When Offered**
Offered in the fall and spring.
3 credits

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**ALWT 521 - Professional T.V. Script Writing:**

This course is a continuation of ALWT 421. This course trains students to write T.V. scripts. It makes them practice interviewing and commenting in Modern Standard Arabic helps them to acquire further knowledge of the various TV language characteristics; go deeper into the issue of culture-bound language in relation to the level of language, and develop a command of a number of techniques for Arabic TV reporting.

**Prerequisites**
ALWT 421 or consent of instructor.

**When Offered**
Offered in the spring.
3 credits

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**AMST 199 - Selected Topics for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.
(3 cr.)

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**AMST 299 - Selected Topics for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**Prerequisites**
RHET 101
(3 cr.)

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**AMST 301 - The US Role in Shaping the World Financial and Trading Systems**

The course will look at the role of the U.S. in shaping the world monetary, financial and trading systems. And, in addressing their evolution, the course will focus on how the U.S. power has evolved within notably the post second world war period. The course is also about understanding the functioning of the Bretton Woods institutions and WTO in the world economic system and the position of developing countries therein.

(3 cr.)

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**AMST 310 - American Literature to 1900**
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**
Cross-listed with ECLT 310.
(3 cr.)

**AMST 311 - Modern American Literature**

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**
Cross-listed with ECLT 311.
(3 cr.)

**ANTH 199 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.
(3 cr.)

**ANTH 202 - Cultural Anthropology**

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.
(3 cr.)

**ANTH 210 - Arab Society**

**Prerequisites**
RHET 201 or concurrent.

**Cross-listed**
Same as SOC 210.

**When Offered**
Offered in fall and spring.

**Repeatable**
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.
(3 cr.)

**ANTH 240 - Introduction to Community Development**

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 PSYC/SOC 240.

*When Offered*
Offered in fall.
(3 cr.)

**ANTH 299 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

*When Offered*
Offered occasionally.
(3 cr.)

**ANTH 302 - Kin and Family in a Global World**

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.

*Prerequisites*
Three hours of Social Sciences.

*When Offered*
Offered in alternate years.
(3 cr.)

**ANTH 303 - Social Movements**

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.

*Prerequisites*
Three hours of Social Sciences.

*Cross-listed*
Same as SOC 303
**ANTH 309 - History of Social Theory**

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.

**Prerequisites**
Prerequisites: 9 hours of social sciences and junior or senior standing, or consent of instructor.

**Cross-listed**
Same as SOC 309

**When Offered**
Offered in fall.

(3 cr.)

**ANTH 310 - Contemporary Sociological Theory**

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.

**Prerequisites**
ANTH 309 or consent of instructor.

**Cross-listed**
Same as SOC 310.

**When Offered**
Offered in spring.

(3 cr.)

**ANTH 311 - Contemporary Anthropological Theory**

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.

**Prerequisites**
ANTH 309 or consent of instructor.

**When Offered**
Offered in spring.

(3 cr.)

**ANTH 312 - Peoples and Cultures of the Middle East and North Africa**
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.

**Prerequisites**
3 hours of Social Sciences.

**When Offered**
Offered in fall and spring.

(3 cr.)

**ANTH 320 - States, Capital and Rural Lives**

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.

**Prerequisites**
Three hours of Social Sciences.

**When Offered**
Offered in alternate years.

(3 cr.)

**ANTH 321 - The Urban Experience**

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?

**Prerequisites**
Three hours of Social Sciences.

**Cross-listed**
Same as SOC 321.

**When Offered**
Offered in spring.

(3 cr.)

**ANTH 332 - Social Constructions of Difference: Race, Ethnicity, and Class**

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.

**Prerequisites**
Three hours of Social Sciences.

**Cross-listed**
ANTH 340 - Participatory Action Research in Community Settings

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.

Prerequisites
ANTH 240 or consent of the instructor.

Cross-listed
Same as PSYC/SOC 340.

When Offered
Offered in spring.

(3 cr.)

ANTH 341 - Anthropology and Film

The history and practice of film in anthropology; film as ethnography; comparison of films and analytical ethnographies. Additional Mandatory Lab Sessions for Film Screening.

Prerequisites
Three hours of Social Sciences.

Cross-listed
Same as FILM 341.

When Offered
Offered occasionally.

(3 cr.)

ANTH 352 - Language in Culture

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.

Prerequisites
Three hours of Social Sciences.

Cross-listed
Same as LING 352.

When Offered
Offered occasionally.

(3 cr.)

ANTH 360 - Gender, Power and Social Change
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.

**Prerequisites**

Three hours of Social Sciences.

**When Offered**

Offered in alternate years.

(3 cr.)

**ANTH 370 - Environmental Issues in Egypt**

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.

**Prerequisites**

Three hours of Social Sciences.

**Cross-listed**

Same as SOC 370.

**When Offered**

Offered in alternate years.

(3 cr.)

**ANTH 372 - Applied Anthropology**

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.

**Prerequisites**

Three hours of Social Sciences.

**When Offered**

Offered in alternate years.

(3 cr.)

**ANTH 380 - Fieldwork Methods**

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.

**Prerequisites**

ANTH 202 and 6 credit hours of social sciences.

**When Offered**

Offered in fall and spring.

(3 cr.)
**ANTH 382 - Peoples and Cultures of Sub-Saharan Africa**

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.

**Prerequisites**
Three hours of Social Sciences.

**When Offered**
Offered in alternate years.

(3 cr.)

**ANTH 384 - Peoples and Cultures of Latin America**

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.

**Prerequisites**
Three hours of Social Sciences.

**When Offered**
Offered in alternate years.

(3 cr.)

**ANTH 386 - Peoples and Cultures of Asia**

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.

**Prerequisites**
Three hours of Social Sciences.

**When Offered**
Offered in alternate years.

(3 cr.)

**ANTH 390 - Selected People and Culture Areas**

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.

**Prerequisites**
Three hours of Social Sciences.

**When Offered**
Offered occasionally.

**Repeatable**
May be taken for credit more than once if content changes.

(3 cr.)
**ANTH 400 - Selected Topics in Anthropology**

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.

**Prerequisites**
Prerequisites: 9 hours of social sciences, and junior or senior standing.

**When Offered**
Offered occasionally

**Repeatable**
May be taken for credit more than once if content changes.

(3 cr.)

**ANTH 402 - Independent Study**

In exceptional circumstances some senior majors with departmental approval may arrange to study beyond the regular course offerings.

**Prerequisites**
Prerequisites: a minimum B average, consent of the instructor, and approval by the unit head and the department chair.

**When Offered**
Offered in fall and spring.

**Repeatable**
May be repeated for credit more than once if content changes.

(1-3 cr.)

**ANTH 407 - Psychological Anthropology**

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.

**Prerequisites**
Three hours of Anthropology, 6 hours of Social Sciences, and junior or senior standing.

**Cross-listed**
Same as PSYC 407.

**When Offered**
Offered occasionally.

(3 cr.)

**ANTH 422 - Religion in a Global World**

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.

**Prerequisites**
Prerequisites: 9 hours of social sciences and junior or senior standing.

**Cross-listed**
Same as SOC 422 and EGPT 546.
ANTH 425 - Women, Islam and the State

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.

**Prerequisites**
9 hours of Social Sciences and Junior or Senior standing.

**When Offered**
Offered annually.

(3 cr.)

ANTH 440-441 - Practicum in Community Development

Two semester, nine month field experience in an approved international development agency, local NGO or other professional setting approved by faculty supervisor. Supervised by a professional and faculty supervisor.

**Prerequisites**
ANTH 240 ANTH 340

**Cross-listed**
Same as SOC/PSYC 440-441.

**When Offered**
Offered in fall (440) and spring (441).

(6 cr.)

ANTH 445 - Selected Topics in Coptic Studies

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, EGPT, HIST, SOC 445.

**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.

(3 cr.)
ANTH 450 - Third World Development

Contemporary theories of development as they apply to and illuminate the problems of development in underdeveloped countries. The approach will be interdisciplinary.

Prerequisites
Prerequisites: 9 hours of social sciences and junior or senior standing.

Cross-listed
Same as SOC 450.

When Offered
Offered in fall and spring.

(3 cr.)

ANTH 455 - Seminar in African Studies

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.

Prerequisites
9 hours of Social Sciences and Junior or Senior standing.

Cross-listed
Same as SOC 455.

When Offered
Offered occasionally.

(3 cr.)

ANTH 460 - Development Studies Seminar

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.

Prerequisites
Prerequisites: 12 hours of social science.

Cross-listed
Same as ECON/POLS/SOC 460.

When Offered
Offered occasionally.

(3 cr.)

ANTH 462 - Economic Anthropology

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.

**Prerequisites**

Prerequisites: 9 hours of social sciences and junior or senior standing.

**When Offered**

Offered in alternate years.

(3 cr.)

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**ANTH 492 - Political Anthropology**

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.

**Prerequisites**

9 hours of Social Sciences and Junior or Senior standing.

**When Offered**

Offered in alternate years.

(3 cr.)

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**ANTH 495 - Senior Seminar**

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.

**Prerequisites**

Senior standing and SOC 381 or ANTH 380 or 12 hours of Social Sciences.

**Cross-listed**

Same as SOC 495.

**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.

(3 cr.)

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**ARIC 100 - Arabs and Muslims Encountering the Other**

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.

(3 cr.)
ARIC 101 - Children's Literature and Cultural Representations

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.

(3 cr.)

ARIC 199 - Selected Topic for Core Curriculum

Selected topic in Arab Islamic history for the core curriculum.

(3cr.)

ARIC 201 - Introduction to Classical Arabic Literature

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.

(3 cr.)

ARIC 202 - Introduction to Modern Arabic Literature

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.

(3 cr.)

ARIC 203 - Classical Arabic Literature in Translation

An introduction to the classical Arabic literary tradition through readings of major texts.

When Offered
Offered in fall and spring.

Notes
ARIC 204 - Modern Arabic Literature in Translation

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.

(3 cr.)

ARIC 205 - Islamic Architecture, from the Beginnings to the Present Day

An overview of Islamic architecture from Spain to India from the 7th century to the present. Major examples of religious and secular architecture, including mosques, madrasas, palaces and caravanserais.

(3 cr.)

ARIC 206 - Art and Architecture of the City of Cairo

The artistic heritage of Fustat - Cairo from 641 A.D. to the present, with emphasis on its urban and architectural development.

When Offered
Offered in the fall and spring.

Notes
Classwork is supplemented by six to eight field trips on Saturday mornings.

(3 cr.)

ARIC 246 - Survey of Arab History

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 246.

When Offered
Offered in fall and spring.

(3 cr.)
**ARIC 270-271 - Introduction to Islamic Art and Architecture**

Important works in architecture and decorative arts from the seventh century AD to the Ottoman period; artistic achievements of Muslim Spain, North Africa, Syria, Mesopotamia, Iran, and Turkey. ARIC 270 up to 1200 AD onwards.

**Prerequisites**
Prerequisite for ARIC 271: ARIC 270, or ARIC 206.

**When Offered**
Both parts offered each semester.

(3 cr. per semester)

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**ARIC 299 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**Prerequisites**
RHET 101

**When Offered**
Offered occasionally.

(3 cr.)

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**ARIC 305 - Arabic Literature and Gender**

Investigates the construction of gender, both masculine and feminine, through readings in a variety of Arabic discourses.

**When Offered**
Offered in fall.

**Notes**
Taught in Arabic.

(3 cr.)

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**ARIC 306 - Arabic Literature and Film**

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.

**Notes**
Taught in Arabic.

(3 cr.)
ARIC 307 - The Writer and the State

Explores the nature of the relationship between writers and authority, in allegiance or in opposition.

When Offered
Offered in spring.

Notes
Taught in Arabic

(3 cr.)

ARIC 308 - Colloquial and Folk Literature

Arabic colloquial and folk literature through the study of various genres.

When Offered
Offered in spring.

Notes
Taught in Arabic

(3 cr.)

ARIC 309 - Selected Themes and Topics in Arabic Literature

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

(3 cr.)

ARIC 310 - Selected Themes and Topics in Arabic Literature in Translation

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 and spring.

Repeatable
May be repeated once for credit if content changes

Notes
Taught in English, with assigned texts in English translation

(3 cr.)
ARIC 314 - The Arabic Novel

Study of different trends in the Arabic novel. In-depth reading of major modern Arab novelists.

When Offered
Offered in alternate years.

Notes
Taught in Arabic.

(3 cr.)

ARIC 315 - Arabic Drama

Study of Arabic drama through readings of major texts.

When Offered
Offered in alternate years.

Notes
Taught in Arabic.

(3 cr.)

ARIC 316 - The Arabic Short Story

Study of the short story as a genre in modern Arabic literature. In-depth reading of major short story writers.

When Offered
Offered in alternate years.

Notes
Taught in Arabic.

(3 cr.)

ARIC 319 - Islamic Spain and North Africa (711-1492 A.D.)

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 319.

(3 cr.)

ARIC 320 - Introduction to Sufism
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.
(3 cr.)

ARIC 321 - Social and Cultural History of the Middle East, 600-1800 A.D.

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.
(3 cr.)

ARIC 322 - Land, Trade and Power: a History of Economic Relations in the Middle East, 600-1800 A.D.

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.
(3 cr.)

ARIC 323 - Marriage and the Family in the Medieval and Early Modern Middle East

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.
(3 cr.)

ARIC 324 - Non-Muslim Communities in the Muslim World

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.
ARIC 325 - On The Fringes of Society: Marginals in History

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.
(3 cr.)

ARIC 335 - An Introduction to Islam

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.
(3 cr.)

ARIC 336 - Studies in Ibn Khaldun

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.
(3 cr.)

ARIC 337 - Shi'i Muslims in History

This course focuses on the historical roles of Shi'i Muslims from the seventh century to the present. The aim of the course is to familiarize the student with the major Shi'i discourses as they evolved in specific historical contexts. While emphasis will be on the historical development of Twelver Shi'ism, other important groups such as the Isma'iliyya and the Zaydiyya will also receive due consideration.

(3 cr.)

ARIC 343 - Birth of Muslim Community and Rise of the Arab Caliphates
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 343.

**When Offered**
Offered in fall.
(3 cr.)

**ARIC 344 - Caliphs and Sultans in the Age of Crusades and Mongols**

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 344.

**When Offered**
Offered in alternate years.
(3 cr.)

**ARIC 345 - Gunpowder Empires: Ottomans, Safavids and Mughols**

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 345.

**When Offered**
Offered in fall.
(3 cr.)

**ARIC 353 - Muslim Political Thought**

The development of political theory in Muslim civilization. Analysis of leading schools and individuals.

**Prerequisites**
ARIC 246 or consent of instructor.

**When Offered**
Offered in Fall and Spring.

**Notes**
Source readings in Arabic or in translation.

(3 cr.)

**ARIC 354 - Islamic Philosophy**

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.
Prerequisites
ARIC 246 or ARIC 343 or consent of instructor.

Cross-listed
Same as PHIL 354.

When Offered
Offered occasionally.
(3cr.)

ARIC 355 - State and Society in the Middle East, 1699-1914

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 355.

When Offered
Offered once a year.
(3 cr.)

ARIC 356 - State and Society in the Middle East, 1906-present

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 356.

When Offered
Offered in fall and spring.
(3 cr.)

ARIC 357 - Selected topic in Middle East History

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 357.

When Offered
Offered occasionally.
(3 cr.)

ARIC 368 - The Art of the Book in the Islamic World

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.
Prerequisites
ARIC 270 or 271.

When Offered
Offered in alternate years
(3 cr.)

ARIC 369 - Islamic Pottery

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.

Prerequisites
ARIC 270 or 271.

When Offered
Offered in alternate years.
(3 cr.)

ARIC 370 - Pre-Islamic Influences on Islamic Art and Architecture

Near Eastern art forms during 200-634 AD. Byzantium, the Mediterranean, Arabia, Syria, and the Copts, Persia and Central Asia, their legacy.

Prerequisites
ARIC 271.

When Offered
Offered in alternate years.
(3 cr.)

ARIC 371-372 - Islamic Architecture in Egypt and Syria

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.

Prerequisites
ARIC 271.

When Offered
371 offered in fall, 372 offered in spring.
(3 cr. per semester)

ARIC 400 - Independent Study

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.

(1-3 cr.)

**ARIC 401 - Senior Seminar in Arabic Texts**

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.

**Repeatable**
May be repeated once for credit if content changes

**Notes**
Taught in Arabic

(3 cr.)

**ARIC 402 - Senior Seminar in Arabic Literature in Translation**

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 spring.

**Repeatable**
May be repeated once for credit if content changes

**Notes**
Taught in English, with assigned texts in English translation.

(3 cr.)

**ARIC 403 - Arabic Literary Criticism**

Arabic critical theory from the classical to the modern period.

**When Offered**
Offered in alternate years.

**Notes**
Taught in Arabic.

(3 cr.)

**ARIC 404 - Sira, Hadith, and Tafsir**

The growth of the biographical literature on the Prophet and its relation to the literature of Hadith and Qur'anic exegesis.
When Offered
Offered in fall.

Notes
Taught in Arabic unless otherwise stated

(3 cr.)

ARIC 417 - Special Studies in Arabic Texts

Special readings in Arabic texts for those majors in Arabic Studies who are attending a course taught in English and who must read the assigned texts in Arabic to fulfil the requirements of their specialization.

Repeatable
May be repeated once for credit if content changes.

(3 cr.)

ARIC 435 - Studies in the Qur'an

The greatest work in Arabic and its influence on Arabic literature and Islamic institutions, with emphasis on methods of interpretation and their development.

Prerequisites
Prerequisite: consent of instructor.

When Offered
Offered in fall.

(3 cr.)

ARIC 439 - Islamic Law

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.

Prerequisites
Prerequisite: consent of instructor.

When Offered
Offered in fall and spring.

(3 cr.)

ARIC 440 - Arabic Historical Literature

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.

(3 cr.)
ARIC 445 - Selected Topics in Coptic Studies

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, EGPT, HIST, SOC 445.

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.

(3 cr.)

ARIC 451 - Islamic Institutions

Examination of the principal social, legal, and political institutions in medieval Islam, especially those subsumed under shari’ a.

Prerequisites
ARIC 343 or ARIC 246 or consent of instructor.

When Offered
Offered in fall.

(3 cr.)

ARIC 454 - Modern Movements in Islam

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.

Prerequisites
HIST 355 or HIST 356 or equivalent background

Cross-listed
Same as HIST 454.

When Offered
Offered once a year.

(3 cr.)

ARIC 460 - Selected Topics in Middle Eastern History, 600-1800 AD

Prerequisites
Prerequisite: appropriate course(s) from ARIC 343-345 series or consent of instructor

Cross-listed
Same as HIST 460.

**When Offered**
Offered in fall and spring.

**Repeatable**
May be repeated for credit when content changes
(3 cr.)

ARIC 462 - Selected Topics in the History of the Modern Middle East

**Prerequisites**
ARIC 355 or ARIC 356, whichever is appropriate or consent of instructor.

**Cross-listed**
Same as HIST 462.

**When Offered**
Offered occasionally

**Repeatable**
May be repeated for credit when content changes
(3 cr.)

ARIC 463 - Selected Topics in the History of Islamic Thought and Institutions

**Prerequisites**
Prerequisite: consent of instructor.

**Cross-listed**
Same as HIST 463.

**When Offered**
Offered in spring.

**Repeatable**
May be repeated for credit when content changes.
(3 cr.)

ARIC 464 - Islamic Art and Architecture in India and Pakistan

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.

**Prerequisites**
ARIC 465-466 or consent of instructor.

**When Offered**
Offered occasionally.
(3 cr.)

ARIC 465-466 - Islamic Architecture in Turkey, Persia and Central Asia
First semester: Ghaznavids, Seljuks, and Mongols. Second semester: Timurids, Safavids, and Ottomans

**Prerequisites**
ARIC 270.

**When Offered**
Offered in alternate years.
(3 cr.)

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**ARIC 467 - Islamic Architecture in Spain and North Africa**

Religious and secular architecture and decoration of Islamic Spain and North Africa; discussion of formative impulses from Byzantium and Umayyad Syria.

**Prerequisites**
ARIC 270.

**When Offered**
Offered occasionally.
(3 cr.)

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**ARIC 477-478 - Islamic Decorative Arts**

Wood carving, ivory, metals, textiles, glass, and carpets of the Islamic world; ornamental elements in common; materials, objects and design.

**Prerequisites**
ARIC 271.

**When Offered**
Offered in alternate years.
(3 cr. per semester)

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**ARIC 504 - Seminar on a Selected Work or Author in Classical Arabic Literature**

**When Offered**
Offered occasionally.

**Repeatable**
May be repeated for credit when content changes.
(3 cr.)

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**ARIC 507 - Seminar on Modern Arabic Literature: Nineteenth Century**

Aspects of Arabic literature in the nineteenth century.

**When Offered**
Offered in alternate years.
(3 cr.)
ARIC 508 - Seminar on Modern Arabic Literature: Twentieth Century

Aspects of Arabic literature in the Twentieth century.

When Offered
Offered in alternate years.
(3 cr.)

ARIC 510-511 - Special Studies in Classical Arabic Literature

Reading and papers on selected topics; attendance at a course of undergraduate lectures may be required.

Prerequisites
Prerequisite: consent of instructor.

When Offered
510 offered in fall, 511 offered in spring.

Repeatable
May be repeated for credit when content changes.
(3 cr.)

ARIC 512-513 - Special Studies in Modern Arabic Literature

Reading and papers on selected topics; attendance at a course of undergraduate lectures may be required.

Prerequisites
Prerequisite: consent of instructor.

When Offered
512 offered in fall, 513 offered in spring.

Repeatable
May be repeated for credit when content changes.
(3 cr.)

ARIC 514 - Bibliography and Manuscript Study

Techniques of working with Arabic manuscripts and scripts, editing, bibliographical study.

When Offered
Offered occasionally.
(3 cr.)

ARIC 521-522 - Special Studies in Islamic Thought and Institutions

Special readings and papers by graduate students who are attending a course of undergraduate lectures.

Prerequisites
Prerequisite: consent of instructor.

When Offered
521 offered in fall, 522 offered in spring.

Repeatable
May be repeated for credit when content changes.
(3 cr.)

**ARIC 524 - Seminar on Selected Topics in Qur’anic Studies**

Selected topics in Qur’anic Studies: e.g. history of the text or specific theme in the Qur’an (gender issued, 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.

**Prerequisites**
ARIC 335 or consent of instructor.

**When Offered**
Offered annually.
(3 cr.)

**ARIC 525 - Seminar on Selected Topics in Sira or Hadith**

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.

**Prerequisites**
ARIC 335 or consent of instructor.

**When Offered**
Offered annually.
(3 cr.)

**ARIC 526 - Seminar on Selected Topics in Islamic Law and Legal Theory**

Selected topics in Islamic law; e.g. its history, methodologies, specific Islamic legal or political theories (including international relation, minorities, human rights), administration of criminal justice, court systems, reforms in the modern times, principles of jurisprudence (Usul al Fiqh), the concept of social interests, 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.

**Prerequisites**
ARIC 335 or consent of instructor.

**When Offered**
Offered annually.
(3 cr.)

**ARIC 527 - Selected Topics in Islamic Theology, Sufism or Philosophy**
Selected topics focusing on one of the three important areas of Islamic thought (theology, Sufism or philosophy); e.g. 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, including new interpretations of theological questions. This course offers an examination of the principal 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.

**Prerequisites**

ARIC 335 or consent of instructor.

**When Offered**

Offered annually.

(3 cr.)

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**ARIC 528 - Selected Topics in Islamic Studies**

Selected Topics in Islamic Studies.

**Prerequisites**

Pre-requisite: Consent of instructor.

**When Offered**

Offered in spring.

**Repeatable**

May be repeated for credit when content changes.

(3 cr.)

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**ARIC 529 - World Religions and the Study of Religion**

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.

**Prerequisites**

Prerequisite: Enrollment in Islamic Studies MA Program.

**Cross-listed**

Same as CREL 529.

(3 cr.)

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**ARIC 530 - Seminar on a Selected Topic in Medieval Arab/Islamic History, 600-1800 A.D.**

**Prerequisites**

Prerequisite: consent of instructor.

**When Offered**

Offered occasionally

**Repeatable**

May be repeated for credit when content changes.

**Notes**

Selected topics in Medieval Arab/Islamic history, 600-1800 A.D.

(3 cr.)
ARIC 542 - Seminar on the Nineteenth-Century Middle East

Readings, discussion, and research.
Cross-listed
Same as HIST 542.
When Offered
Offered in fall.
(3 cr.)

ARIC 543 - Seminar on the Twentieth-Century Middle East

Readings, discussion, and research.
Cross-listed
Same as HIST 543.
When Offered
Offered in spring.
(3 cr.)

ARIC 560 - 561 - Special Studies in Middle Eastern History

Special readings for graduate students who are also attending a course of undergraduate lectures.
Prerequisites
Prerequisite: consent of instructor.
When Offered
560 offered in fall, 561 offered in spring.
Repeatable
May be repeated for credit when content changes.
(3 cr.)

ARIC 572 - Fieldwork in Islamic Architecture

Archaeological methodology; examination of monuments and sites.
When Offered
Offered occasionally.
Repeatable
May be repeated for credit when content changes.
(3 cr.)

ARIC 573 - Seminar on the Architecture of a Selected Period

When Offered
Offered occasionally.
Repeatable
May be repeated for credit when content changes.
(3 cr.)

ARIC 575-576 - Special Studies in Islamic Art and Architecture

Reading and papers on selected topics by graduate students who also attend a course of undergraduate lectures.
Prerequisites
Prerequisite: consent of instructor.
When Offered
575 offered in fall, 576 offered in spring.
Repeatable
May be repeated for credit when content changes.
(3 cr.)

ARIC 580 - Independent Study and Readings

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.
Prerequisites
Prerequisite: consent of unit.
When Offered
Offered occasionally.
(3 cr.)

ARIC 599 - Research Guidance and Thesis

When Offered
Offered in fall and spring.
(no cr.)

ARTV 199 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.
When Offered
Offered occasionally.
(3 cr.)

ARTV 200 - Analogue and Digital Practices
This course introduces students to the basic skills in various traditional and contemporary mediums: screen printing, digital photography, digital imaging, video and sound editing. The aim is to offer hands-on basic skills in analogue and digital practices including film, visual arts and graphic design.

**Cross-listed**
Same as DSGN 200 and FILM 200.

**When Offered**
Offered in fall and spring.

**Notes**
*Registration in this course is contingent upon consent of the director of the program

(3 cr.)

**ARTV 201 - Introduction to Drawing**

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.

**Prerequisites**
ARTV 200
(3 cr.)

**ARTV 202 - Introduction to Painting**

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.

**Prerequisites**
ARTV 201
(3 cr.)

**ARTV 203 - Introduction to sculpture/Installation**

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.

**Prerequisites**
ARTV 200
(3 cr.)

**ARTV 204 - Introduction to Time-Based Media**
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.

(3 cr.)

ARTV 205 - Introduction to Alternative Practices

Introduces students to alternative practices in contemporary art with an 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.

(3 cr.)

ARTV 213 - Introduction to Visual Cultures

Introduces students to the study of visual cultures in such arenas as film and video, photography, painting and sculpture, the built environment, advertising and fashion, and social media/internet. Students will learn how to analyze visual materials across media, interpret meanings, and gain experience in applying critical concepts to these understandings.

Cross-listed
Same as DSGN 213 and FILM 213.

(3 cr.)

ARTV 221 - Technical Drawing for Designers

The focus of this course is to introduce students to the requisite skills of free-hand manual drawing for designers. The course is composed of three primary modules covering the conceptual, technical and media related aspects of free-hand drawing as part of the design process, from first conceptualization and diagramming to drawing from observation through final rendering and representation.

(3 cr.)

ARTV 222 - Architecture: Art or Engineering

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.

Cross-listed
Same as AENG 222.

When Offered
Offered in fall or spring.

(3 cr.)
ARTV 230 - Introduction to Digital Photography

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.

(3 cr.)

ARTV 250 - Fundamentals of 3-Dimensional Design

Basic concept 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.

Cross-listed
Same as AENG 250.

Hours
Four-hour studio period.

(3 cr.)

ARTV 299 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

Prerequisites
RHET 101.

When Offered
Offered occasionally.

(3 cr.)

ARTV 311 - Art Studio I

A cross-disciplinary introduction to the basics of visual, conceptual and theoretical language as they relate to multiple types of contemporary studio practices. Concepts/ideas are examined through diverse approaches of painting, drawing, sound, installation/sculpture, video, digital media and alternative practices. A combination of lectures, tutorials, critical reports, and studio practice.

Prerequisites
ARTV 201 or ARTV 202.

(3 cr.)

ARTV 312 - Art Studio II
A practical examination of visual, conceptual and theoretical language, concepts and ideas. Continuation of Art Studio I.

Prerequisites
ARTV 311
(3 cr.)

ARTV 314 - Modern and Contemporary Architecture
An introduction to the historical development of twentieth-century architecture in the western tradition, including its social, technological, and conceptual aspects. Special emphasis is placed upon studying individual architects, buildings, and theoretical writings.
When Offered
Offered in fall and spring.
(3 cr.)

ARTV 315 - Art Theory
An in-depth study of artistic practices after 1945, including new media art, performance, internet and installation art, among the more traditional forms of art production, such as painting, sculpture, and photography. The course will address the ways in which these media have transformed the production, reception, and interpretation of art. This course is structured around certain themes, and is theoretical in orientation.
Prerequisites
ARTV 213
(3 cr.)

ARTV 316 - Coptic Art and Architecture
The course offer interdisciplinary undergraduate course to student majoring in either arts or architecture, as the theme of the course covers the study of architectural forms and elements of Coptic churches, construction and roofing systems, as well as portraits, iconography, wall painting, decorative patterns, wood and stone carving.

(3 cr.)

ARTV 370 - Selected Topics in Art
In-depth examination of specific topics in the studio arts or art history.
Prerequisites
Determined by instructor.
When Offered
Offered in fall and spring.
Repeatable
ARTV 402 - Independent Study

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.

Prerequisites
ARTV 311 or ARTV 312.

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.

(1-3 cr.)

ARTV 410 - Contemporary issues in Arab Art

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.

(3 cr.)

ARTV 411 - Studio III

Advanced art studio. Continuation of Art Studio II.

Prerequisites
ARTV 312

(3 cr.)

ARTV 412 - Studio IV

Advanced art studio. Continuation of Art Studio III.

Prerequisites
ARTV 411

(3 cr.)
ARTV 469 - Senior Project (A)

An introduction to the essentials of the creativity process. Through practical assignments, students will gain a clear idea of their own artistic vision. Writing and portfolio assignments as well as visits from professional practicing artists will prepare students for the final senior projects (ARTV470) and for subsequent professional life.

Prerequisites
ARTV 312

When Offered
Offered in fall only.
(3 cr.)

ARTV 470 - Senior Project (B)

Students will research, develop, and exhibit a final body of work that expresses a thorough conceptual and technical process. Writing, professional practice, and career planning will also be emphasized. This course is the equivalent of a “thesis” or a “capstone” class.

Prerequisites
ARTV 469
(3 cr.)

BIOL 102 - Essentials of Environmental Biology

This course examines basic biology principles as they relate to environmental problems and their solutions. Ecological problems and their underlying current environmental dilemmas will be considered. Depletion and pollution of natural resources and their biological consequences are also studied.

Prerequisites
Prerequisite: non-science majors only

When Offered
Offered in fall.
(3 cr.)

BIOL 103 - Introductory Biology

It covers the general aspects of biology including life manifestations and needs, the cell as a unit of life, its structure and function, dynamics of energy utilization and assembly into tissues and organs, physiological processes, and ecological relations.

Prerequisites
Prerequisite: non-science majors only.

When Offered
Offered in fall, spring and summer

Notes
This is a basic biology course for non-science majors. Students taking BIOL 103 may not take BIOL 104
BIOL 104 - The Unity of Life

Introduction to principles of biology, organic and inorganic molecules, membranes and internal structures of cells, photosynthesis, respiration, DNA structure and function, genetic engineering, and the different tissues and organ systems. Laboratories introduce the student to basic principles of plant and animal structure and function and builds on the principles of inheritance to the structure and function of tissues and organ systems.

When Offered
Offered in fall, spring and summer.

Notes
This course is designed for science majors, but can be taken by anyone interested in studying biology in more depth than Biology 103. It may not be taken by students who have taken BIOL 103 for credit

(3 cr. + 1 cr. lab)

BIOL 105 - Diversity of Life

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 Biology 103.

(3 cr. + 1 cr. lab)

BIOL 130 - Current Health Issues

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.

(4 cr.)

BIOL 199 - Selected Topic for Core Curriculum
Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

When Offered
Offered occasionally.

(3 cr.)

**BIOL 204 - Principles of Systematics**

Principles of classification, identification, nomenclature, cladistics, and descriptions of protista, plants, and animals. The taxa of higher levels of selected organisms. Laboratory involves the comparative approach using both specimens and field observations of selected species of plants and animals.

Prerequisites
BIOL 105

When Offered
Offered in fall.

Notes
Field trips are required.

(3 cr. + 1 cr. lab)

**BIOL 210 - Evolution**

A study of the history and principles of organic evolution. The evidence for evolution, mechanisms of evolution and population genetics are emphasized.

When Offered
Offered in fall.

(3 cr.)

**BIOL 211 - Cell Biology**

This course is an evolutionary survey of cell specialization of microbes, fungi, plants, and animals. It includes the correlation of microanatomical structures with cellular function and differentiation, teratology, and histology. Laboratories include the identification of basic cell structures and inclusions, tissues and organs, and microscopic preparations.

Prerequisites
BIOL 104 and CHEM 203 or corequisite.

(3 cr. + 1 cr. lab)

**BIOL 214 - General Botany**

Structure and function of nonvascular and vascular plants. Includes in-depth studies of photosynthesis, metabolism, reproduction, development, physiology, internal transport, evolution, and ecology of plants. Laboratory includes examination of herbaria specimens, growth-chamber experimentation and desert plant ecology and adaptation.

Prerequisites
BIOL 104 and BIOL 105
When Offered
Offered in spring.
(3 cr. + 1 cr. lab)

BIOL 215 - Biophysics

Principles and concepts in the physical analysis of life processes. Fundamental physical and physicochemical treatment of various kinetic processes underlying the normal function of biological systems. Includes mechanics, hydrodynamics, electricity, optics and nuclear physics.
Prerequisites
PHYS 111 and PHYS 123L.
(4 cr.)

BIOL 221 - Genetics

Survey of modern genetics: Mendelian transmission, chromosomes and gene organization, properties of nucleic acids, gene expression, gene regulation, and population genetics. The three-hour laboratory consists of exercises in genetic problem solving, computer simulation and breeding and crossing of fruit flies.
Prerequisites
BIOL 104.
(3 cr. + 1 cr. lab)

BIOL 240 - Ecology

A study of the composition, structure and function of plant and animal communities and the environmental factors regulating their growth and succession. An investigative laboratory emphasizing data collection, analysis and interpretation is included.
Prerequisites
BIOL 105
Notes
Field trips are an integral part of this course.
(3 cr. + 1 cr lab)

BIOL 301 - Animal Physiology

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.
Prerequisites
BIOL 211
(3 cr. + 1 cr. lab)
BIOL 302 - Environmental Biology for Engineers

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.

Prerequisites
Prerequisite: Junior or senior standing.
(2 cr. + 1 cr. lab)

BIOL 303 - Developmental Biology

Studies of the embryogenesis of plants and animals. Emphasizes gamete development, fertilization, stages of morphological development, organ system development, and teratology in selected species. Laboratory includes microscopic examination of various stages of development of plant, amphibian, fish, reptile, avian and mammalian species.

Prerequisites
BIOL 211
(3 cr. + 1 cr. lab)

BIOL 304 - Taxonomy

Principles and methods of taxonomy - classification, systematics, phylogeny, nomenclature, phenetics and cladistics - using a selected group of organisms as a paradigm. Laboratory emphasizes the analysis, interpretation and presentation of taxonomic data.

Prerequisites
BIOL 204
(3 cr. + 1 cr. lab)

BIOL 305 - Environmental Biology

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.

Prerequisites
BIOL 240 or instructor's consent.
(3 cr. + 1 cr. lab)

BIOL 306 - Environmental Biology of the Red Sea

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.

**Prerequisites**
Prerequisites: students must be good swimmers and consent of the instructor.

**Notes**
Laboratories and field trips to the Red Sea are essential to the course.

(3 cr. + 1 cr. lab)

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**BIOL 307 - Microbiology**

Fundamental concepts in morphology, physiology, genetics, immunology, ecology and pathogenic microbiology. Applications of microbiology to medicine, the food industry and biotechnology are taught. Laboratory emphasizes fundamental techniques in culturing, studying and identifying microorganisms.

**Prerequisites**
BIOL 211
(3 cr. + 1 cr. lab)

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**BIOL 312 - Comparative Anatomy**

Comparative anatomy of chordates, their evolution, and phylogenetic relationships. Three-hour laboratory includes dissection of chordates.

**Prerequisites**
BIOL 104 and BIOL 105
(3 cr. + 1 cr. lab)

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**BIOL 313 - Invertebrate Zoology**

Anatomy, behavior, systematics, and phylogeny of invertebrates are included in the lectures. Three hour laboratory emphasizes morphology and anatomy.

**Prerequisites**
BIOL 105
(3 cr. + 1 cr. lab)

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**BIOL 315 - Biochemistry**

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.

**Prerequisites**
CHEM 306

**Cross-listed**
Same as CHEM 315

**Hours**
Two class periods and one three hour lab period.
(3 cr.)

**BIOL 320 - Animal Behavior**

Study of ethology with emphasis on its development, control and function. Laboratory includes observations and descriptions, qualification techniques and experimentation.

**Prerequisites**
BIOL 221
(3 cr. + 1 cr. lab)

**BIOL 340 - Quantitative Biology**

Application of mathematical and statistical techniques to analyze and interpret data relating to biological inquiries.

**Prerequisites**
BIOL 240 and MACT 112.

**Notes**
Extensive use of appropriate computer technology will be applied in recording, cataloguing, analyzing, simulating and reporting data.

(3 cr. + 1 cr. lab)

**BIOL 345 - GIS For Biologists**

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.

**Prerequisites**
Prerequisite: Junior or Senior standing
(4 cr.)

**BIOL 350 - Selected Topics in Biotechnology**

A practical learning experience in methodology in the various fields of biology, including, but not limited, to virology, bacteriology, parasitology, entomology/acarology, epidemiology, epizootiology, molecular biology, biotechnology, or care of laboratory animals. The student gets hands-on training by interning in an active laboratory under the guidance of an experienced researcher. Under the guidance of a faculty member, 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. The number of credit hours will be determined by the number of hours worked.

**Prerequisites**
Prerequisites: permission of the instructor.

**Repeatable**
BIOL 399 - Guided Studies in Environmental Biology

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 399.

**When Offered**
Offered in fall and spring.

(3 cr.)

BIOL 408 - Selected Topics in Biology

Topics in biology chosen according to the special interests of the student and faculty.

**Prerequisites**
Prerequisite: consent of the instructor.

**Repeatable**
May be repeated for credit more than once if the content changes.

(1-4 cr.)

BIOL 410 - Guided Studies in Biology

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.

**Prerequisites**
Prerequisite: consent of the instructor.

(1-4 cr.)

BIOL 411 - Molecular Biology of the Gene

A comprehensive course in modern molecular genetics with emphasis on principles, processes, and methodology leading to the formulation of central concepts of molecular genetics. Includes gene regulation and structure, genome organization and molecular evolution.

**Prerequisites**
BIOL 221 and CHEM 203 or corequisite.

(3 cr. + 1 cr. lab)

BIOL 412 - Molecular Cell Biology
A comprehensive course in modern molecular biology with emphasis on principles, process, and methodology leading to the formulation of central concepts of cell biology. Includes energy flow within cells, information flow, cancer and growth control.

**Prerequisites**
BIOL 211 and CHEM 203 or corequisite.
(3 cr. + 1 cr. lab)

**BIOL 415 - Immunology**

The student is introduced to the function and structure of the immune system at the molecular, cellular, tissue, and organ system levels and the processes involved in the host defense against infection. Laboratories include practical experience with the anatomy and histology of the lymphoid tissues, cell isolation and identification and serological and cellular immune techniques.

**Prerequisites**
BIOL 211 and CHEM 105
(3 cr. + 1 cr. lab)

**BIOL 420 - Genomics and Bioinformatics**

This course offers an in depth coverage of the rapidly expanding fields of genomics and bioinformatics. Topics include: the organization and structure of genomes, subdividing the genome, assembling a physical map of the genome, sequencing methods and strategies, genome annotation and bioinformatics, comparative genomics, global expression profiling and applications of genome analysis and genomics.

**Prerequisites**
BIOL 221 .
(3 cr. + 1 cr. lab)

**BIOL 430 - Tumor Biology**

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.

**Prerequisites**
BIOL 211 and BIOL 221
(3 cr. + 1 cr. lab)

**BIOL 440 - Marine Ecology**

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.
Prerequisites
BIOL 240 and CHEM 105

Notes
Includes an extended field trip to marine research institute for "hands-on" experience in marine biological research.

(3 cr. + 1 cr. lab)

BIOL 445 - Desert Ecology

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.

Prerequisites
BIOL 240

(3 cr. + 1 cr. lab)

BIOL 495 - Senior Research Thesis

Participating students select a topic according to their field of interest and the availability of advisors and facilities. Students prepare a written report based upon sound literature, laboratory and/or field investigations and present their findings orally in BIOL 496 (Seminar in biology).

Prerequisites
Prerequisite: senior standing in biology.

When Offered
Offered in fall

Repeatable

(2 cr.)

BIOL 496 - Seminar in Biology

Weekly one hour seminars in different areas of biology and biotechnology to be given by students, faculty and invited speakers from industry and other scientific communities.

Prerequisites
BIOL 495

When Offered
Offered in the spring.

(1 cr.)

BIOT 501 - Biochemistry

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 501.
(3 cr.)

**BIOT 502 - Cell and Molecular Biology**

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.
(3 cr.)

**BIOT 503 - Biotechnology**

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.

**Prerequisites**
BIOT 501 and BIOT 502
(3 cr.)

**BIOT 504 - Experimental Biotechnology**

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.

**Prerequisites**
BIOT 503
(3 cr.)

**BIOT 505 - Basics of Bioentrepreneurship**

This course covers four modules: business aspects of biotechnology, regulatory issues, patenting biotechnology inventions, and bioethics.
(3 cr.)

**BIOT 511 - Bioengineering**
The application of the concepts and methods of the physical sciences and mathematics in an engineering approach to problems in the life sciences.
(3 cr.)

**BIOT 521 - Fundamentals of Bioinformatics**

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.

**Prerequisites**
Familiarity with molecular biology, calculus, basic probability and statistics.
(3 cr.)

**BIOT 531 - Molecular Diagnosis**

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.
(3 cr.)

**BIOT 533 - Pharmacogenomics and Pharmacogenetics**

Principles of pharmacology, drug efficacy, pharmacogenetics of major drug groups, application of pharmacogenomics and proteomics to clinical practice.
(3 cr.)

**BIOT 541 - Molecular Genetics**

The course introduces genetics studies in molecular biotechnology; introduction to Mendelian 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.
(3 cr.)

**BIOT 543 - Microbial Biotechnology**

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.
(3 cr.)

**BIOT 551 - Selected Topics in Biotechnology**

Topics chosen according to special interests of faculty and students.

**Prerequisites**
Pre-requisite: consent of instructor, graduate standing.

**Repeatable**
May be repeated for credit more than once if content changes.
(3 cr.)

**BIOT 580 - Independent Study In Biotechnology**

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.
(3 cr.)

**BIOT 590 - Graduate Seminar I**

Seminars on research topics, research methodology, and thesis writing and presentations given by invited speakers.
(2 cr.)

**BIOT 591 - Graduate Seminar II**

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.

**Prerequisites**
BIOT 590
(1 cr.)

**BIOT 599 - Research Guidance and Thesis**

Consultation on problems related to student thesis.

**Notes**
Must be taken twice for a total of 6 credits.
(3 cr. + 3 cr.)
BIOT 601 - Current Topics in Biotechnology

This course provides a comprehensive and thorough understanding of recent trends in biotechnology research and development. Frontier areas in biotechnological applications as bioremediation, genetically modified organisms, molecular medicine and nano-biotechnology will be addressed.

(3 cr.)

BIOT 602 - Reading and Conference Course

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.

(3 cr.)

BIOT 620 - Computational Genomics and Transcriptomics

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 publicly 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.

Prerequisites
BIOT 521

When Offered
Offered in fall.

(3 cr.)

BIOT 699 - Research Guidance Dissertation

Consultation on problems related to student thesis. To be taken 11 times for credit.

(3 cr.)

CASA 401 - Egyptian Colloquial Arabic

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.
(4 cr.)

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**CASA 411 - Modern Standard Arabic**

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.
(4 cr.)

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**CASA 501 - Egyptian Colloquial Arabic**

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.
(3 cr.)

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**CASA 502 - Advanced Egyptian Colloquial Arabic**

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.
(3 cr.)

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**CASA 521 - Listening And Speaking**

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.
(3 cr.)
CASA 522 - Academic Listening and Speaking

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.

Prerequisites
CASA 411 and CASA 521

When Offered
Offered in spring.
(3 cr.)

CASA 531 - Reading, Writing And Vocabulary Building

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.
(5 cr.)

CASA 541 - Advanced Writing

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
(3 cr.)

CASA 551 - Advanced Translation

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
CASA 552 - Advanced Media

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.
(3 cr.)

CASA 553 - Selected Topics in Arabic

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.
(3 cr.)

CASA 555 - CASA Students without Borders

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 fall and spring.
(2 cr.)

CENG 215 - Drawing for Construction Engineering and Architecture


Prerequisites
ENGR 115
**CENG 280 - Construction Surveying**

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.

**Prerequisites**
MACT 132

**Hours**
One three-hour lab period.

**When Offered**
Offered in fall and spring.

(1 cr.)

**CENG 301 - Structural Analysis**

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.

**Prerequisites**
ENGR 212 and ENGR 229 or concurrent

**Hours**
Two class periods and three-hour lab period.

**When Offered**
Offered in fall and spring.

(3 cr.)

**CENG 302 - Structural Analysis for Architects**

Classification of structures with respect to stability and determinacy. Analysis of statically determinate structures under static loads, including: computation of reactions and internal forces in: trusses, beams, frames, arches and cables. Computation of deflections. Analysis of structures using commercial computer software. Assessment of trusses, beams, frames and arches with respect to geometric, loading and supporting conditions.

**Prerequisites**
ENGR 212

**When Offered**
Offered in fall and spring

(3 cr.)
CENG 305 - Structural Design for Architects I

Reinforced Concrete Design: properties of concrete, principles of limit states design of beams, loads and load combination, design and reinforcement detailing of beams, one-way and two-way slabs and short columns. Structural Steel Design: properties of steel, concepts of load and resistance factor design of steel structures, structural systems, computation of loads and load combinations, design of tension members, compression members and beams, behavior of beam-columns, and types of connections.

Prerequisites
CENG 302

When Offered
Offered in fall and spring.
(3 cr.)

CENG 306 - Structural Design for Architects II

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.

Prerequisites
CENG 305

When Offered
Offered in fall and spring.
(3 cr.)

CENG 307 - Structural Design

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.

Prerequisites
CENG 301

Hours
Three class periods and three-hour tutorials.

When Offered
Offered in fall and spring
(4 cr.)

CENG 311 - Fundamentals of Hydraulic Engineering

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.

Prerequisites
ENGR 261 and ENGR 313 (or concurrent).

Hours
Two class periods and three hour lab period.
When Offered
Offered in fall and spring.
(3 cr.)

CENG 323 - Construction Materials and Quality Control I


Prerequisites
ENGR 229

Hours
Three class periods and three-hour lab period.

When Offered
Offered in fall and spring.
(4 cr.)

CENG 325 - Mechanical Engineering in Construction

Introduction to energy transformation systems. Sizing, matching and installation of mechanical, plumbing, heating, ventilation and air conditioning (HVAC) and machining systems.

Prerequisites
ENGR 261

Hours
One class period and three-hour lab period.

When Offered
Offered in fall and spring.
(2 cr.)

CENG 331 - Geology for Engineers

Minerals and rock types, superficial deposits, interpretation of geologic maps, structural geology, geologic exploration, ground water cycle, geology of Egypt and greater Cairo.

Prerequisites
CENG 280

When Offered
Offered in fall and spring.
(2 cr.)

CENG 403 - Design of Steel Structures

Concepts of elastic design of steel structures, type of loading, structural systems for buildings and bridges, elastic design and analysis of structural members, tension members, compression members, beams, columns, and connections.
CENG 411 - Soil Mechanics

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.

**Prerequisites**
ENGR 229 and CENG 311

**Hours**
Two class periods and three-hour lab period.

**When Offered**
Offered in fall and spring.

(3 cr.)

CENG 423 - Methods and Equipment for Construction I

Site management. Techniques of building construction; methods, materials, tools and equipment; traditional, mechanized and prefabrication construction systems. Construction detailing. Selection, sizing, matching and operation of construction equipment.

**Prerequisites**
AENG 321 and CENG 305 or CENG 307

**Hours**
Two class periods and three-hour field trip period.

**When Offered**
Offered in fall and spring.

(3 cr.)

CENG 424 - Methods and Equipment for Construction II

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.

**Prerequisites**
CENG 423

**When Offered**
Offered in fall and spring.

(2 cr.)

CENG 426 - Steel and Concrete Bridges

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.
Prerequisites
CENG 307
(3 cr.)

CENG 427 - Prefabricated, Water and Prestressed Concrete Structures

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.

Prerequisites
CENG 307
(3 cr.)

CENG 428 - Tall Buildings and Large Span Structures

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.

Prerequisites
CENG 306 or CENG 307
When Offered
Offered occasionally.
(3 cr.)

CENG 431 - Transportation Engineering

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.

Prerequisites
ENGR 214 and CENG 323
When Offered
Offered in fall and spring.
(3 cr.)

CENG 441 - Introduction to Construction Management and Cost Estimating

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, financing costs, cost recording and cost accounts, Quality Management, and Safety.

Prerequisites
ENGR 345
When Offered
Offered in fall and spring.
(3 cr.)

**CENG 442 - Construction Project Specifications, Bids, and Contracts**


**Prerequisites**
CENG 441

**When Offered**
Offered in fall and spring.
(3 cr.)

**CENG 443 - Project Management for Multi-National Environments**


**Prerequisites**
CENG 441
(3 cr.)

**CENG 444 - Risk Management and Bidding Strategies**


**Prerequisites**
CENG 441
(3 cr.)

**CENG 445 - Resource Management**

Introduction to productivity in construction engineering. Conceptual and mathematical formulation of labor, equipment, and material factors affecting productivity. Critical project resources, material management planning and control, procurement and acquisition costs, material management information systems, inventory analysis, inventory factors. Human resources management, manpower planning and organization.

**Prerequisites**
CENG 441
(3 cr.)

CENG 446 - Techniques of Planning, Scheduling and Control

Project definition and work breakdown structure, scheduling and control models, and techniques. Resource allocation and leveling, optimal schedules, documentation and reporting, cash flow analysis, time and cost control, progress monitoring and evaluation. Computer applications.

Prerequisites
CENG 441.

When Offered
Offered in fall and spring.
(3 cr.)

CENG 447 - Design, Modeling and Simulation of Construction Systems


Prerequisites
CENG 423

Hours
Two one-hour class periods and three-hour lab period.
(3 cr.)

CENG 448 - Financial Management and Accounting for Construction

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.

Prerequisites
CENG 442

When Offered
Offered in fall and spring.
(3 cr.)

CENG 449 - Systems Analysis for Construction Engineering

Introduction to the basic construction systems. The systems analysis approach; multi-objective problems. Decision analysis; decision making under uncertainty, risk aversion, utility function. Economic considerations for resource allocation; minimum cost model, maximum output model. Sensitivity analysis; changes in unit costs, changes in resource constraints. Information management systems.

Prerequisites
ENGR 313 and CENG 446
When Offered
Offered occasionally.
(3 cr.)

CENG 452 - Structural Systems and Advanced Design

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.

**Prerequisites**
CENG 306 or CENG 307
(3 cr.)

CENG 453 - Construction Materials and Quality Control II

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.

**Prerequisites**
CENG 323
(3 cr.)

CENG 454 - Structural Mechanics

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.

**Prerequisites**
CENG 307
(3 cr.)

CENG 461 - Design and Construction of Foundations and Retaining Structures

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.

**Prerequisites**
CENG 411

**When Offered**
Offered in fall and spring.
(3 cr.)
CENG 462 - Applications in Geotechnical Engineering

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.

Prerequisites
CENG 461 or concurrent.

When Offered
Offered occasionally.

(3 cr.)

CENG 471 - Environmental and Sanitary Engineering


Prerequisites
CENG 311

When Offered
Offered in fall and spring.

(3 cr.)

CENG 472 - Design of Water Resources Systems

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.

Prerequisites
CENG 411

When Offered
Offered occasionally.

(3 cr.)

CENG 473 - Unit Operations in Environmental Engineering

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.

Prerequisites
CENG 471 concurrent.

Cross-listed
Same as ENVE 562 but with additional requirements for graduate students.

(3 cr.)

CENG 474 - Computer-aided design of environmental and sanitary systems

**Prerequisites**
CENG 311
(3 cr.)

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**CENG 475 - Solid and Hazardous Wastes Engineering**


**Prerequisites**
Pre-requisites: Senior standing.

**Cross-listed**
Same as ENVE 566, but with additional requirements for graduate students.
(3 cr.)

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**CENG 479 - Assessment, Protection and Repair of Structures**

Types, mechanisms and analysis 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.

**Prerequisites**
CENG 307 and CENG 323

**Cross-listed**
Same as CENG 579, but with additional requirements for graduate students.
(3 cr.)

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**CENG 480 - Special Problems in Construction Engineering**

Independent study in various problem areas of construction may be assigned to individual students or groups.

**Prerequisites**
Prerequisite: consent of instructor and department chair on the basis of a well-defined proposal.

**When Offered**
Offered in fall and spring.

**Repeatable**
May be repeated for credit if content changes.

**Notes**
Readings assigned and frequent consultations held.

(1-3 cr.)
CENG 481 - Highway Facilities

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.

Prerequisites
CENG 431

When Offered
Offered occasionally.
(3 cr.)

CENG 490 - Senior Project I

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.

Prerequisites
Prerequisite: completion of 78 credits in major.

When Offered
Offered in fall and spring.
(1 cr.)

CENG 491 - Senior Project II

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.

Prerequisites
Prerequisite: CENG 490.

When Offered
Offered in fall and spring.
(2 cr.)

CENG 494 - Selected Topics in Construction Engineering

Specialized topics in construction engineering will be selected and presented.

Prerequisites
Prerequisite: senior standing.

When Offered
Offered in fall and spring.
(3 cr.)

CENG 497 - Practical Training
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.

**Prerequisites**
Prerequisite: completion of 96 credit hours.

**When Offered**
Offered in fall.
(1 cr.)

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**CENG 530 - Contracts in Construction Industry**

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.
(3 cr.)

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**CENG 531 - Construction Management**

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.
(3 cr.)

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**CENG 532 - Planning, Scheduling and Control**

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.
(3 cr.)

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**CENG 533 - Management for Multi-National Environments**


**Prerequisites**
CENG 531

**When Offered**
Offered in fall and spring.
(3 cr.)
**CENG 534 - Risk Management and Bidding Strategies**


**Prerequisites**
CENG 531

**When Offered**
Offered in fall and spring.

(3 cr.)

**CENG 535 - Claims and Disputes in the Construction Industry**

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.

**Prerequisites**
CENG 531

**When Offered**
Offered in fall and spring.

(3 cr.)

**CENG 536 - Systems Analysis for Construction**

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.

**Prerequisites**
CENG 532

(3 cr.)

**CENG 537 - Resource Management for Construction Projects**

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.

(3 cr.)
CENG 538 - Procurement of Assets & Services for Construction Projects

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.
(3 cr.)

CENG 567 - Construction Leadership and Management Skills

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.
Prerequisites
Prerequisite: consent of instructor.
Notes
Not open for credit for M.S. students.
(3 cr.)

CENG 570 - Advanced Construction Management

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.
Prerequisites
Prerequisite: consent of instructor.
(3 cr.)

CENG 571 - Advanced Systems Analysis for Construction Engineering

Introduction to the basic construction industry and its problems. Systems analysis approach; systems modelling; systems approach to engineering and management; closed versus open systems; modelling construction organizations as open systems. Decision analysis; decision making under certainty, risk and uncertainty. Utility Function and Sensitivity Analysis; definition and techniques. Introduction to Reliability; Reliability and Risk Analysis: Qualitative and Quantitative Techniques; Reliability Analysis: Knowledge Representation; Importance of Developing a Reliable Knowledge-Based System [KBS]. Restructuring the Construction Engineering Management Systems using The Systems, Reliability and Decision-Making Module.
Notes
Not open for students with MENG 517.
(3 cr.)
CENG 572 - Claims and Disputes in the Construction Industry

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.

(3 cr.)

CENG 573 - Advanced Construction and Building Materials

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.

(3 cr.)

CENG 574 - Methods and Equipment for Construction

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.)

Cross-listed
Same as CENG 424 with special course assignments for graduate students.

(3 cr.)

CENG 575 - Techniques of Planning, Scheduling and Control

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.)

Cross-listed
Same as CENG 446 with special course assignments for graduate students.

(3 cr.)

CENG 576 - Advanced Systems for Construction

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, formwork systems, construction technique specialized equipment, deep excavation, dewatering.

Prerequisites
Prerequisite: consent of instructor.

(3 cr.)
CENG 577 - The Finite Element Method in Structural Engineering

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.

Prerequisites
Prerequisite: consent of instructor.
(3 cr.)

CENG 578 - Resource Management for Construction Projects

Resource management as part of the construction management process. Management of materials; scheduling, handling, utilization, costing. Management of labor; tabulation, productivity, ergonomics, utilization, costing. Management of equipment; acquisition, production rates, utilization, matching, costing. Techniques of managing the three resources as an integral part of construction management.

Prerequisites
Prerequisite: graduate standing.
(3 cr.)

CENG 579 - Assessment, Protection and Repair of Structures

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.

Cross-listed
Same as CENG 479 with special course assignment for graduate students.
(3 cr.)

CENG 580 - Independent Study in Construction Engineering

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).
(3 cr.)

CENG 592 - Advanced Topics in Construction Engineering
Topics to be chosen every year according to specific interests.

**Prerequisites**
Prerequisite: consent of instructor.

**Repeatable**
May be taken for credit more than once if content changes.

(3 cr.)

**CENG 599 - Research Guidance Thesis**

Consultation on problems related to student thesis. Must be taken twice for credit.

(3 cr.)

**CENG 611 - Structural Stability**


**Prerequisites**
Consent of instructor.

(3 cr.)

**CENG 612 - Structural Dynamics**

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.

**Prerequisites**
Consent of instructor.

(3 cr.)

**CENG 613 - Earthquake Engineering and Seismic Design**

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.

**Prerequisites**
Consent of instructor.

(3 cr.)
CENG 631 - Specialty Materials for Construction

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.

Prerequisites
Consent of instructor.
(3 cr.)

CENG 632 - Highways Pavement Systems and Design

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.

Prerequisites
Consent of instructor.
(3 cr.)

CENG 679 - Preserving, Repair and Sustainability of Structures


Prerequisites
CENG 579 or Equivalent Course/Experience
(3 cr.)

CENG 680 - Independent Study in Structural and Material Engineering

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.

(3 cr. max.)

CENG 692 - Advanced Selected Topics in Structural and Material Engineering
Topics chosen according to special interests of faculty and students. May be repeated for credit more than once if content changes.

(3 cr.)

**CENG 699 - Research Guidance Dissertation**

Consultation on problems related to student thesis. To be taken 11 times for credit.

(3 cr.)

**CHEM 103 - Chemistry and Society**

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

**Prerequisites**
Not for credit for Science, Engineering and Computer Science Majors

**When Offered**
Offered in fall and spring.

**Notes**
Not for credit for Science, Engineering and Computer Science majors

(3 cr.)

**CHEM 104 - Man and the Environment**


**When Offered**
Offered in fall, spring and occasionally in summer.

**Notes**
Not for credit for science, engineering and computer science majors.

(3 cr.)

**CHEM 105 - General Chemistry I**

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.

**Prerequisites**
Thanawiya Amma Science or equivalent.
When Offered
Offered in fall, spring and occasionally in summer and winter.
(3 cr.)

**CHEM 106 - General Chemistry II**

Gases; thermochemistry; liquids and solids, properties of solutions; introduction to chemical kinetics, chemical equilibria, environmental pollution.

**Prerequisites**
CHEM 105

When Offered
Offered in fall and spring.
(3 cr.)

**CHEM 115L - General Chemistry Laboratory**

Selected experiments in inorganic and organic chemistry.

**Prerequisites**
Thanawiya Amma Science or equivalent

**Hours**
One three-hour lab period

When Offered
Offered in fall and spring and occasionally in summer and winter.
(1 cr.)

**CHEM 116L - General Chemistry Laboratory**

Semi-micro qualitative analysis of selected salts and mixtures

**Prerequisites**
CHEM 115L

**Hours**
One three-hour laboratory period.

When Offered
Offered in fall and spring.
(1 cr.)

**CHEM 199 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

When Offered
Offered occasionally.
(3 cr.)
CHEM 203 - Organic Chemistry I

Aliphatic and aromatic hydrocarbons, stereochemistry and conformational analysis, ionic and free-radical substitution and addition reactions.

Prerequisites
CHEM 105

When Offered
Offered in fall.

(3 cr.)

CHEM 205 - Environmental Analytical Chemistry

Introduction; analytical environmental data: assessment and interpretation, titrimetry, chromatography, atomic spectrometry, mass spectrometry, potentiometric techniques, thermal techniques. Specific applications to the environment.

Prerequisites
CHEM 106

Notes
This course is not available for credit for students who take CHEM 311. Some laboratory demonstrations will be provided.

(3 cr.)

CHEM 206 - Analytical Chemistry I


Prerequisites
CHEM 106 and to be taken concurrently with CHEM 216L

When Offered
Offered in spring.

(2 cr.)

CHEM 207 - Chemical Industries

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.

Prerequisites
CHEM 106

When Offered
Offered in fall.

Notes
Field trips to local industries.
CHEM 216L - Volumetric and Gravimetric Analysis

Acid-base, oxidation-reduction, complexometric and precipitation titrations; gravimetric analysis; potentiometric titrations.

Prerequisites
CHEM 116L and concurrent with CHEM 206

Hours
Two three-hour periods.

When Offered
Offered in spring.

(2 cr)

CHEM 220 - Introduction to Food Chemistry

Introduction of the chemistry associated with the structure and the functions of food components and systems. The course also addresses the beneficial and detrimental changes that occur in foods during processing, storage and utilization.

Prerequisites
CHEM 105.

(3 cr.)

CHEM 301 - Seminar in Science and Technology

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.

Prerequisites
Junior standing

When Offered
Offered occasionally

(1 cr.)

CHEM 303 - Thermodynamics

Gas laws, state variables and equations of state, energy and the first law, thermochemistry; entropy and the second and the third laws; spontaneity and equilibrium; phase equilibria.

Prerequisites
MACT 231 CHEM 206 and concurrent with CHEM 313L.

When Offered
Offered in fall.

(3 cr.)
CHEM 304 - Physical Chemistry I

Chemical potential and equilibria, solutions and colligative properties, electrolytes, electrochemical cells. Kinetic Theory of Gases.

Prerequisites
CHEM 303, PHYS 112 and concurrent with CHEM 314L.

When Offered
Offered in spring.
(3 cr.)

CHEM 306 - Organic Chemistry II

Stereochemistry, aromaticity, electrophilic aromatic substitution; spectroscopy and structure; SN1, SN2, E1, and E2 reactions.

Prerequisites
CHEM 203

When Offered
Offered in spring.
(3 cr.)

CHEM 307 - Production Basics for Chemical Industries

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.

Prerequisites
CHEM 106.

When Offered
Offered every other semester.
(3 cr.)

CHEM 309 - Inorganic Chemistry I

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.

Prerequisites
CHEM 106 and junior standing.

When Offered
Offered in fall.
(3 cr.)
CHEM 310L - Organic Chemistry I Laboratory

Characterization of organic compounds by classification tests.

**Prerequisites**
CHEM 116L and CHEM 306.

**When Offered**
Offered in fall.

(1 cr.)

CHEM 311 - Analytical Chemistry II

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.

**Prerequisites**
CHEM 206 and CHEM 216L.

**Hours**
Two class periods and one three-hour lab period.

**When Offered**
Offered in fall.

(3 cr.)

CHEM 312 - Archaeological Chemistry I


**Prerequisites**
CHEM 106.

**When Offered**
Offered occasionally.

(3 cr.)

CHEM 313L - Thermodynamics Laboratory

Experiments in physical chemistry, thermodynamics and error analyses.

**Prerequisites**
CHEM 106, CHEM 216L and concurrent with CHEM 303.

**When Offered**
Offered in fall.

(1 cr.)
CHEM 314L - Physical Chemistry I Laboratory

Experiments in electrochemistry. One three-hour lab period.

Prerequisites
CHEM 313L and concurrent with CHEM 304.

When Offered
Offered in spring.

(1 cr.)

CHEM 315 - Biochemistry

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.

Prerequisites
CHEM 306

Cross-listed
Same as BIOL 315.

Hours
Two class periods and one three hour lab period.

When Offered
Offered in fall.

(3 cr.)

CHEM 316L - Organic Chemistry II Laboratory

Systematic identification of organic compounds, analysis of mixtures (qualitative and quantitative).

Prerequisites
CHEM 310L

When Offered
Offered in spring.

(1 cr.)

CHEM 318L - Inorganic Chemistry Laboratory

Preparations, reactions, and characterization of some inorganic compounds; ion-exchange; chromatography; measurements of stability constants.

Prerequisites
CHEM 216L

When Offered
Offered in fall.

(1 cr.)

CHEM 320 - Food Science and Technology
An overview of the interdisciplinary nature of food science. Key food commodities and food composition with an emphasis on the functional properties of each commodity. The chemical and physical properties of foods. An overview of food regulation. Concepts and applications of food processing, biotechnology, sensory evaluation, food packaging and food product development. Global food situation with an emphasis on the Egyptian context.

**Prerequisites**
CHEM 105.
(3 cr.)

**CHEM 325 - Clinical Chemistry I**


**Prerequisites**
CHEM 311 or concurrently, CHEM 313L or consent of instructor

**Hours**
Two class periods and one three-hour lab period.

**When Offered**
Offered in spring.
(3 cr.)

**CHEM 399 - Guided Studies in Environmental Sciences**

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 399.

**When Offered**
Offered in fall and spring.
(3 cr.)

**CHEM 402 - Physical Chemistry II**

Chemical kinetics and dynamics, photochemistry, heterogeneous and homogeneous catalysis, surface chemistry including adsorption, crystal structure.

**Prerequisites**
CHEM 304, MACT 233 and concurrent with CHEM 412L.

**When Offered**
Offered in fall.
(3 cr.)

**CHEM 403 - Introduction to Quantum Mechanics and Spectroscopy**
Basic concepts and theory of quantum mechanics, applications to atomic and molecular spectroscopy.

**Prerequisites**
CHEM 304 (or concurrent) and PHYS 214.

**When Offered**
Offered in spring.

(3 cr.)

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**CHEM 406 - Organic Chemistry III**

A continuation of the chemistry of monofunctional and polyfunctional compounds, including the chemistry of carbanions, condensation reactions, nucleophilic addition and multistep syntheses.

**Prerequisites**
CHEM 306

**When Offered**
Offered in spring.

(3 cr.)

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**CHEM 407 - Food Processing and Preservation**

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.

**Prerequisites**
CHEM 106.

**When Offered**
Offered in fall.

(3 cr.)

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**CHEM 408 - Inorganic Chemistry II**

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.

**Prerequisites**
CHEM 309

**When Offered**
Offered in spring.

(3 cr.)

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**CHEM 410 - Archaeological Chemistry II**

Introduction to Mercury porosimetry.

**Prerequisites**
CHEM 312

**When Offered**
Offered occasionally.

**Notes**
Pore size distribution studies.

(3 cr.)

**CHEM 412L - Physical Chemistry II Laboratory**

Experiments in physical chemistry emphasizing chemical kinetics.

**Prerequisites**
CHEM 314L and concurrent with CHEM 402.

**Hours**
One three-hour lab period.

**When Offered**
Offered in fall.

(1 cr.)

**CHEM 414 - Selected Topics in Chemistry**

Topics chosen according to special interests of faculty and students.

**Prerequisites**
Prerequisite: consent of instructor.

**When Offered**
Offered occasionally.

**Repeatable**
May be repeated for credit more than once if content changes

(1-3 cr.)

**CHEM 416L - Organic Syntheses**

Organic Synthesis of compounds through one step or multistep, using different techniques for separation and purification. Several spectroscopic tools, (MS, IR, NMR & C13) are used to confirm the structure of synthesized compounds.

**Prerequisites**
CHEM 316L and CHEM 406.

**When Offered**
Offered in fall.

(2 cr.)

**CHEM 425 - Clinical Chemistry II**

**Prerequisites**
CHEM 325

**Hours**
Two class periods and one three-hour lab period

**When Offered**
Offered in fall.

(3 cr.)

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**CHEM 430L - Advanced Practical Organic Chemistry**

Advanced organic multistep syntheses, identification of products by spectroscopy, semimicro quantitative determination of organic compounds.

**Prerequisites**
CHEM 416L and consent of instructor.

**When Offered**
Offered occasionally.

(3 cr.)

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**CHEM 435 - Advanced Organic Chemistry**

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.

**Prerequisites**
CHEM 406 consent of instructor.

**When Offered**
Offered occasionally.

(3 cr.)

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**CHEM 440 - Molecular Symmetry and Applications**

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.

**Prerequisites**
CHEM 309 and consent of instructor.

**When Offered**
Offered occasionally.

(3 cr.)

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**CHEM 444 - Independent Study**
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.

**Prerequisites**
Prerequisite: consent of instructor, senior standing.

**Repeatable**
May be taken more than once if content changes.

**Notes**
A student may earn up to a total of three credits.

(1-3 cr.)

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**CHEM 450 - Electrochemistry**

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.

**Prerequisites**
CHEM 304, CHEM 314L, and consent of instructor.

**Hours**
Three class periods or two class periods and one three-hour lab period.

**When Offered**
Offered occasionally.

(3 cr.)

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**CHEM 495 - Senior Thesis and Seminar**

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.

**Prerequisites**
Prerequisite: senior standing.

**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.

(3 cr.)

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**CHEM 501 - Biochemistry**

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 501.
(3 cr.)

CHEM 502 - Organometallics

Structure and properties of different types of organometallic compounds, types of ligands, bonding, reactivity of organotransition metal compounds, applications in synthesis and catalysis.
(3 cr.)

CHEM 503 - Advanced Organic Chemistry

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.
(3 cr.)

CHEM 504 - Methods of Structure Determination

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.

Prerequisites
CHEM 440 or consent of instructor.
(3 cr.)

CHEM 511 - Applied Food Microbiology

This course consists of two lectures and one laboratory session per week. It is designed to train students on different aspects of food microbiology. It focuses on the biology and practical aspects of both pathogenic microorganisms and useful industrial bacteria associated with foodstuffs. The course also considers topics on food preservation regimes and laboratory methods for the detection of various food-born bacteria. Much emphasis is being placed on practical training via extensive laboratory classes planned in this course. This training involves practical work on both classical and modern methodologies in food microbiology.
(3 cr.)

CHEM 512 - Food Safety Assurance

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.

(3 cr.)

**CHEM 513 - Beverage Manufacturing**

This course covers chemistry and technology of beverages and drinks with respect to beverage chemistry, processing, preservation and quality control. Characteristics of raw materials and the relationship of end product characteristics to product formulation, processing and storage will be addressed. Emphasis will be placed upon the safety of products and maintaining or enhancing their health nutritional properties. Other topics include production, marketing and distribution both locally and globally, impact of processing techniques on the nutritional qualities of beverages.

(3 cr.)

**CHEM 514 - Chemical Changes In Food During Processing**

This course consists of two lectures and one laboratory session per week. It 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.

(3 cr.)

**CHEM 515 - Food Additives**

This course consists of two lectures and one laboratory session per week. The course will present the principles and discuss 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.

(3 cr.)

**CHEM 516 - Food Fermentation**

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.

(3 cr.)

**CHEM 517 - Sensory Evaluation of Food Products**

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.

(3 cr.)

**CHEM 518 - Functional Foods and Nutraceuticals**

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.

(3 cr.)

**CHEM 519 - Practical Approaches to Food Analysis**

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.

(3 cr.)

**CHEM 551 - Selected Topics in Chemistry**

Topics include: polymer science, quantum chemistry and spectroscopy, and molecular symmetry and applications.

**Prerequisites**
Consent of instructor

(3 cr.)

**CHEM 552 - Independent Study in Chemistry**

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.

**Prerequisites**
Consent of instructor.

(3 cr.)
CHEM 590 - Graduate Seminar I

Seminars on research topics, research methodology, and thesis writing and presentations given by invited speakers. (2 cr.)

CHEM 591 - Graduate Seminar II

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.
Prerequisites
CHEM 590.
(1 cr.)

CHEM 599 - Research Guidance and Thesis

Consultation on problems related to student thesis. Must be taken twice for a total of 6 credits. (3 cr. + 3 cr.)

CHEM 603 - Bioseparation Processes for Food and Pharmaceutical Industries

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.
Prerequisites
Consent of instructor.
When Offered
Offered in fall and spring. (3 cr.)

CHEM 615 - Principles and Applications of Mass Spectrometry

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.
Prerequisites
CHEM 504
(3 cr.)

CORE 199 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.
(3 cr.)

CORE 299 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.
Prerequisites
RHET 101
(3 cr.)

CORE 499 - Selected Topic for Core Curriculum

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.
Prerequisites
RHET 201
(3 cr.)

CREL 135 - Dimensions of the Sacred: Exploring Religious Experience

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.
(3 cr.)

CREL 210 - Religions of the World

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.
(3 cr.)

CREL 212 - The Quest for the Historical Jesus
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 212.

**When Offered**
Offered occasionally
(3 cr.)

**CREL 220 - Hinduism and Buddhism in India**

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.
(3 cr.)

**CREL 230 - Pilgrimage Traditions in the World's Religions**

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.
(3 cr.)

**CREL 299 - Selected Topics for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**Prerequisites**
RHET 101

**When Offered**
Offered occasionally.
(3 cr.)

**CREL 320 - Masters, Saints, and Saviors: Sacred Biography in the World's Religions**

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.
(3 cr.)

**CREL 333 - Zionism and Modern Judaism**
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 333.
(3 cr.)

**CREL 529 - World Religions and the Study of Religion**

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.

**Prerequisites**
Prerequisite: Enrollment in the Islamic Studies MA program.

**Cross-listed**
Same as ARIC 529.
(3 cr.)

**CSCE 102 - Introduction to Computers and their Applications**

Introduction to computer-related terms and concepts. Scope limitations of the computer capabilities. Ethics and social impact of using computers. Basic skills related to the familiarity and efficient use of computer input/output devices, operating systems and computer communications. Training on popular computer applications (e.g. word processing, spread sheet, database and presentation graphics). Limited programming experience in a high-level language.

**When Offered**
Offered in fall and spring.

**Notes**
This course is intended for arts students.

(3 cr.)

**CSCE 106 - Fundamentals of Computer Science**

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.

**Prerequisites**
Prerequisite: College level preparation course in Mathematics or MACT 100.

**When Offered**
Offered in fall and spring.
(3 cr.)

**CSCE 110 - Programming Fundamentals**
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.

**Prerequisites**
CSCE 106

**When Offered**
Offered in fall and spring.
(3 cr.)

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**CSCE 201 - Information Technology**

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.)

**Prerequisites**
Prerequisite: Sophomore standing or higher.

**When Offered**
Offered once every year.
(3 cr.)

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**CSCE 210 - Data Structures and Algorithms**


**Prerequisites**
CSCE 110

**When Offered**
Offered in fall and spring.
(3 cr.)

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**CSCE 230 - Digital Design I**

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.

**Prerequisites**
PHYS 215

**When Offered**
Offered in fall and spring.
(3 cr.)
CSCE 231 - Computer Organization and Assembly Language Programming

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).

Prerequisites
CSCE 110

Cross-listed
Same as EENG 352.

When Offered
Offered in fall and spring.

(3 cr.)

CSCE 239L - Digital Design I Lab

The laboratory will cover experiments in digital design and experiments illustrating material of course CSCE 230.

Prerequisites
Concurrent with CSCE 230.

When Offered
Offered in fall and spring.

(1 cr.)

CSCE 253 - Fundamentals of Database Systems

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.

Prerequisites
CSCE 210.

When Offered
Offered in fall and spring.

(3 cr.)

CSCE 315 - Programming Language

A programming language different from those studied in CSCE 106 and 110 will be presented according to the interest of both students and faculty.

Prerequisites
CSCE 210

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.

(1-2 cr.)

CSCE 316 - Programming in Java

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.

Prerequisites
CSCE 210

When Offered
Offered occasionally.

(3 cr.)

CSCE 317 - Object Oriented Programming

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.

Prerequisites
CSCE 210

When Offered
Offered Occasionally.

(3 cr.)

CSCE 321 - Analysis and Design of Algorithms

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.

Prerequisites
CSCE 210 and MACT 200

When Offered
Offered in fall and spring.

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

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.

Prerequisites
CSCE 210

When Offered
Offered in fall and spring.
(3 cr.)

CSCE 330 - Computer Architecture

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.

Prerequisites
CSCE 230 and CSCE 231

Cross-listed
Same as EENG 455.

When Offered
Offered in fall and spring.
(3 cr.)

CSCE 332 - Fundamental Microelectronics

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.

Prerequisites
PHYS 215

When Offered
Offered in fall.
(3 cr.)

CSCE 333 - Data and Computer Communications

Data transmissions. Transmission media, data encoding, data link control, and multiplexing. Introduction to wide area networks and local area networks technology and systems.

Prerequisites
CSCE 210 and PHYS 215

When Offered
Offered in fall and spring.
(3 cr.)
CSCE 337 - Digital Design II

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.

Prerequisites
CSCE 230, CSCE 332.

When Offered
Offered in spring.

(3 cr.)

CSCE 339L - Computer Architecture Lab

The laboratory will cover experiments in computer architecture and hardware design and experiments illustrating material of course CSCE 330.

Prerequisites
Prerequisite: Concurrent with CSCE 330

Cross-listed
Same as EENG 458.

When Offered
Offered in fall and spring.

(1 cr.)

CSCE 341 - Software Engineering

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.

Prerequisites
CSCE 210

When Offered
Offered in fall and spring.

(3 cr.)

CSCE 342 - Computer Systems

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.

Prerequisites
CSCE 106

When Offered
Offered in fall.

Notes
This course is not available for either Computer Science or Computer Engineering students.

(3 cr.)

**CSCE 345 - Operating Systems**


**Prerequisites**
CSCE 210 and CSCE 330

**When Offered**
Offered in fall and spring.

(3 cr.)

**CSCE 346 - Introduction to Information Security**

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.

**Prerequisites**
CSCE 110

**When Offered**
Offered in spring.

(3 cr.)

**CSCE 363 - Digital Signal Processing**

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.

**Prerequisites**
PHYS 215 and junior standing.

**When Offered**
Offered in spring.

(3 cr.)

**CSCE 401 - Internet-based Information Systems**

The World Wide Web as a business domain, E-Business and E-Commerce, Network Options and Infrastructure, HTML/XML and WWW Site Design, Emerging technologies, WWW Tools, Internet Issues and Implications (Security
issues, social and ethical issues, legal issues), Costs and Resources, Internet Services Providers.

**Prerequisites**
MOIS 305

**Cross-listed**
Same as MOIS 402.

**When Offered**
Offered in fall and spring.

(3 cr.)

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**CSCE 422 - Theory of Computing**


**Prerequisites**
MACT 200 and Senior standing.

**When Offered**
Offered in fall and spring.

(3 cr.)

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**CSCE 427 - Introduction to Artificial Neural Networks**


**Prerequisites**
CSCE 210 MACT 231 and MACT 240

**When Offered**
Offered Occasionally.

(3 cr.)

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**CSCE 432 - Embedded Systems**

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.

**Prerequisites**
CSCE 345

**When Offered**
Offered in spring.

(3 cr.)

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**CSCE 435 - Wide Area Networks**

**Prerequisites**
CSCE 210 and PHYS 215

**When Offered**
Offered in fall.

(3 cr.)

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**CSCE 436L - Local Area Networks Lab**

The laboratory will cover experiments in Local Area Networks to support and illustrate the material of the course CSCE 437.

**Prerequisites**
Concurrent with CSCE 437

**When Offered**
Offered in spring.

(1 cr.)

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**CSCE 437 - Local and Metropolitan Area Networks**


**Prerequisites**
CSCE 333

**When Offered**
Offered in spring.

(3 cr.)

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**CSCE 438L - Embedded Systems Lab**

The laboratory will cover experiments in embedded systems illustrating material of course CSCE 432.

**Prerequisites**
CSCE 432

**When Offered**
Offered in spring.

(1 cr.)

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**CSCE 439L - Wide Area Networks Lab**

The laboratory will cover experiments in computer networks illustrating material of course CSCE 435.

**Prerequisites**
Concurrent with CSCE 435

**When Offered**
Offered in fall.
(1 cr.)

CSCE 441 - Object-Oriented Analysis and Design


Prerequisites
CSCE 341

When Offered
Offered occasionally
(3 cr.)

CSCE 445 - Fundamentals of Distributed Systems

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.

Prerequisites
CSCE 345

When Offered
Offered in fall.
(3 cr.)

CSCE 446 - Computer Security

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.

Prerequisites
CSCE 345

When Offered
Offered occasionally.
(3 cr.)

CSCE 447 - Compiler Design

Principles and practices in the design of compilers. Lexical analysis. Syntax analysis, top-down and bottom-up parsing. Syntax-directed translation and syntax trees. Declarations, types, and symbol management. Run-time environments,

**Prerequisites**
CSCE 325.

**When Offered**
Offered in fall and spring.

**Notes**
Project: students construct a simple compiler that generates unoptimized code.

(3 cr.)

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**CSCE 448 - Secure Systems Engineering**

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.

**Prerequisites**
CSCE 341 and CSCE 345

**When Offered**
Offered in fall and spring.

(3 cr.)

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**CSCE 453 - Database Systems**

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.

**Prerequisites**
CSCE 253

**When Offered**
Offered occasionally.

(3 cr.)

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**CSCE 455 - Computer Graphics**

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.

**Prerequisites**
CSCE 210 and MACT 240 or concurrent.

**When Offered**
Offered occasionally.

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


Prerequisites
CSCE 253

When Offered
Offered in fall and spring.

(3 cr.)

CSCE 465 - Artificial Intelligence

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.

Prerequisites
CSCE 325 and MACT 200

When Offered
Normally offered in fall.

(3 cr.)

CSCE 485 - Selected Topics in Computer Science and Engineering

Topics chosen according to special interests of faculty and students. May be repeated for credit more than once if content changes.

Prerequisites
Prerequisite: permission of instructor.

When Offered
Offered in fall and spring.

(1-3 cr.)

CSCE 490 - Industrial Training

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.

Prerequisites
Prerequisite: junior standing.

When Offered
Offered in fall and spring.

Notes
Graded pass or fail

(1 cr.)
CSCE 491 - Senior Project I

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.

Prerequisites
CSCE 341 or concurrent and Senior standing.

When Offered
Offered in fall and spring.

(1 cr.)

CSCE 492 - Senior Project II

Participating students carry on the plan of work they developed in CSCE 491. 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.

Prerequisites
CSCE 491

When Offered
Offered in fall and spring.

(2 cr.)

CSCE 495 - Guided Studies in Computer Science and Engineering

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.

Prerequisites
Prerequisite: consent of instructor.

When Offered
Offered in fall and spring.

(1-3 cr.)

CSCE 525 - Algorithms and Complexity Theory


(3 cr.)

CSCE 527 - Neural Networks and Genetic Algorithms
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.
(3 cr.)

**CSCE 529 - Design and Analysis of Parallel Algorithms**

(3 cr.)

**CSCE 530 - Advanced Processor Architecture**

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.
**Prerequisites**
CSCE 330
(3 cr.)

**CSCE 532 - Parallel Computer Architecture**

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.
**Prerequisites**
CSCE 530
(3 cr.)

**CSCE 535 - High Speed Networks**

**Prerequisites**
CSCE 435 or equivalent.
(3 cr.)
CSCE 541 - Advanced Software Engineering

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.

(3 cr.)

CSCE 543 - Advanced Software Quality

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.

(3 cr.)

CSCE 545 - Distributed Systems

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.

(3 cr.)

CSCE 555 - Computer Graphics and Animation


(3 cr.)

CSCE 561 - Knowledge Engineering

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.

(3 cr.)

CSCE 563 - Digital Image Processing
Image acquisition, color representation, quantization, image transforms, enhancement, filtering, multi-spectral processing, image restoration, image segmentation, morphological transform, compression, and applications. (3 cr.)

**CSCE 564 - Web Mining**

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. (3 cr.)

**CSCE 565 - Advanced Artificial Intelligence**


**Cross-listed**

Same as RCSS 545. (3 cr.)

**CSCE 567 - Computer Vision**

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.

**Prerequisites**

Approval of Instructor. (3 cr.)

**CSCE 569 - Natural Language Processing and Machine Translation**

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. (3 cr.)

**CSCE 585 - Selected Topics in Computer Science**

Topics chosen according to special interests of faculty and students.

**Prerequisites**

Prerequisite: permission of instructor. 

Repeatable
May be repeated for credit more than once if content changes.
(3 cr.)

**CSCE 590 - Seminar**

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.

(1 cr.)

**CSCE 591 - Capstone Project in Computing**

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.

**Prerequisites**
Prerequisite: consent of instructor.

**Notes**
This course cannot be taken for credit by thesis-option M.Sc. students.

(3 cr.)

**CSCE 599 - Graduate Thesis**

Consultation on problems related to student thesis.

**Notes**
Must be taken twice for credit.

(3 cr.)

**CSCE 642 - Mobile and Pervasive Computing**

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.

**Prerequisites**
Approval of Instructor.

(3 cr.)

**CSCE 664 - Advanced Data Mining**
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.

Prerequisites
CSCE 565
(3 cr.)

CSCE 692 - Advanced Selected Topics in Computer Science

Topics chosen according to special interests of faculty and students. May be repeated for credit more than once if content changes.

(3 cr.)

CSCE 699 - Research Guidance Dissertation

Consultation on problems related to student thesis. To be taken 11 times for credit.

(3 cr.)

DSGN 200 - Analogue and Digital Practices

This course introduces students to the basic skills in various traditional and contemporary mediums: screen printing, digital photography, digital imaging, video and sound editing. The aim is to offer hands-on basic skills in analogue and digital practices including film, visual arts and graphic design.

Cross-listed
Same as ARTV 200 and FILM 200

Notes
*Registration in this course is contingent upon consent of the director of the program

(3 cr.)

DSGN 201 - Design I

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.

Prerequisites
DSGN 200 and DSGN 213
(3 cr.)
DSGN 202 - Design II: Logo and Corporate Identity

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.

Prerequisites
DSGN 210 and DSGN 250
(3 cr.)

DSGN 210 - Typography I

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.

Prerequisites
DSGN 200 and DSGN 213
(3 cr.)

DSGN 213 - Introduction to Visual Cultures

Introduces students to the study of visual cultures in such arenas as film and video, photography, painting and sculpture, the built environment, advertising and fashion, and social media/internet. Students will learn how to analyze visual materials across media, interpret meanings, and gain experience in applying critical concepts to these understandings.

Cross-listed
Same as ARTV 213 and FILM 213.
(3 cr.)

DSGN 215 - History of Graphic Design

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.

Prerequisites
DSGN 213
(3 cr.)
DSGN 240 - Color

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.

(3 cr.)

DSGN 245 - Illustration

Students explore the different media of illustration for different end products in this studio course.

(3 cr.)

DSGN 250 - Digital Practice I

Introduction to the basic operation of computers for designers and developing their skills on desktop programs like Illustrator and Photoshop.

Prerequisites
DSGN 200
(3 cr.)

DSGN 303 - Design III: Publication

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

Prerequisites
DSGN 210 and DSGN 350
(3 cr.)

DSGN 304 - Design IV: Packaging

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.

Prerequisites
DSGN 210 and DSGN 250
(3 cr.)

DSGN 305 - Design V: Retail Design

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.

Prerequisites
DSGN 210 and DSGN 250
(3 cr.)

DSGN 313 - Web Design

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.

Prerequisites
DSGN 201

When Offered
Offered in fall and spring
(3 cr.)

DSGN 315 - History of Graphic Design in the Arab World

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.

Prerequisites
DSGN 213
(3 cr.)

DSGN 317 - History of Advertising in the Arab World

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.

Prerequisites
DSGN 213
(3 cr.)

DSGN 318 - History of Arabic Calligraphy

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.

(3 cr.)

DSGN 320 - Typography II

This course continues exploring the world of typography through the study of essential typographic elements and principles while discussing 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

Prerequisites
DSGN 210
(3 cr.)

DSGN 330 - Typography III

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.

Prerequisites
DSGN 320
(3 cr.)

DSGN 335 - Animation

Students are taught how to deal with shapes in motion, character and background animation using director or flash.

Prerequisites
DSGN 350
(3 cr.)

DSGN 350 - Digital Practices II
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.

**Prerequisites**
DSGN 250  
(3 cr.)

**DSGN 360 - Photography for Designers**

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.

**Prerequisites**
ARTV 230  
(3 cr.)

**DSGN 365 - Advertising and Branding**

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.

**Prerequisites**
DSGN 210 and DSGN 250  
(3 cr.)

**DSGN 400 - Professional Practice**

Off-campus experimental 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, calligraphers, TV stations, printing presses, and animation houses.

**Prerequisites**
Completion of all Major Courses.  
(3 cr.)

**DSGN 410 - Portfolio**

This course helps students create and promote their image in the market through discussions on career pathways. It will prepares students for the professional world guiding them on how to design a digital and printed portfolio, a resume and a personal corporate identity.
**Prerequisites**
Completion of all major courses.
(3 cr.)

**DSGN 420 - Production for Designers**

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.

**Prerequisites**
Completion of all major courses.
(3 cr.)

**DSGN 469 - Senior Project Thesis**

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.

**Prerequisites**
Completion of all major courses.
(3 cr.)

**DSGN 470 - Senior Project Practice**

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.

**Prerequisites**
DSGN 469
(3 cr.)

**ECLT 123 - Experiencing Creativity: Texts and Images**

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 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.
(3 cr.)
ECLT 200 - Introduction to Literature

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.
(3 cr.)

ECLT 201 - Survey of British Literature

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.
(3 cr.)

ECLT 202 - Global Literature in English

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.
(3 cr.)

ECLT 209 - Introduction to American Studies

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 209.
(3 cr.)

ECLT 299 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.
Prerequisites
RHET 101
(3 cr.)

ECLT 301 - Medieval Literature
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.*
(3 cr.)

**ECLT 302 - Literature of the Renaissance**

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.
(3 cr.)

**ECLT 303 - Seventeenth-Century Literature**

The literary developments that followed the Renaissance are explored, culminating in discussion of John Milton and his epic masterpiece, *Paradise Lost.*
(3 cr.)

**ECLT 304 - Eighteenth-Century Literature**

Dominant modes in European literature and thought between 1660 and 1760. Works not originally written in English will be read in English translations.
(3 cr.)

**ECLT 305 - Romanticism**

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.
(3 cr.)

**ECLT 306 - Nineteenth-Century European Literature**

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.
(3 cr.)

**ECLT 308 - Modern European and American Literature**

Selected readings of American and European authors representing literary trends from 1900 to the present
(3 cr.)
ECLT 310 - American Literature to 1900

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
Cross-listed with AMST 310.
(3 cr.)

ECLT 311 - Modern American Literature

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
Cross-listed with AMST 311.
(3 cr.)

ECLT 330 - Literature and Cinema

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.

(3 cr.)

ECLT 332 - World Literature

The course covers seminal literary works in both Western and non-Western canons, assigned in editions of excellent English translations.

(3 cr.)

ECLT 333 - African Literature

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.

(3 cr.)

ECLT 344 - Literature and Philosophy
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 344.
(3 cr.)

**ECLT 345 - Literature and Gender**

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.
(3 cr.)

**ECLT 346 - Third World Literature**

The course analyzes Third World literary texts from Asia, Africa and South America in their historical context and their contribution to post-colonial discourse.
(3 cr.)

**ECLT 347 - Selected Topics**

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.
(3 cr.)

**ECLT 348 - Contemporary Literature**

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.
(3 cr.)

**ECLT 352 - Recurrent Themes in Literature**

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.
(3 cr.)
ECLT 353 - Modern Drama

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.
(3 cr.)

ECLT 360 - Shakespeare

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.
(3 cr.)

ECLT 370 - Creative Writing

A course on literary writing designed to accommodate the needs of diverse students. Emphasis is on developing one’s own story-telling, play-writing, and/or poetic skills by studying the craft of influential authors from different regions and traditions. The students will meet and interact with Cairo-based emerging and established creative writers as part of their course work.
(3 cr.)

ECLT 409 - Greek Classics in Translation

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 506.
(3 cr.)

ECLT 410 - Classics of the Ancient World

Major works in ancient Near Eastern and Latin literatures studied in the most artistic translations.
Cross-listed
Same as ECLT 507.
(3 cr.)

ECLT 411 - History of Literary Criticism

Study of central documents in the tradition of Western literary criticism, from Plato to the Romantics.
Cross-listed
Same as ECLT 508.
(3 cr.)

**ECLT 412 - Modern Literary Criticism**

Analysis of the major trends in modern literary theory, such as Russian formalism, new criticism and post-structuralism.

**Cross-listed**

Same as ECLT 509.
(3 cr.)

**ECLT 447 - Capstone Seminar: Selected Topics**

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.
(3 cr.)

**ECLT 506 - Greek Classics in Translation**

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 409.
(3 cr.)

**ECLT 507 - Classics of the Ancient World**

Major works in ancient Near Eastern and Latin literatures studied in the most artistic translations.

**Cross-listed**

Same as ECLT 410.
(3 cr.)

**ECLT 508 - History of Literary Criticism**

Study of central documents in the history of literary criticism, from Plato to the Romantics.

**Cross-listed**

Same as ECLT 411.
(3 cr.)

**ECLT 509 - Modern Literary Criticism**
Analysis of the major trends in modern literary theory, such as Russian formalism, new criticism and post-structuralism.

**Cross-listed**
Same as ECLT 412.
(3 cr.)

**ECLT 510 - Renaissance Writers**

Detailed study of the works of selected British or European writers from Petrarch to Shakespeare.
(3 cr.)

**ECLT 512 - Seventeenth-Century Writers**

Detailed study of the works of selected seventeenth-century European and British writers.
(3 cr.)

**ECLT 514 - Eighteenth-Century Writers**

Selected works of major eighteenth-century writers.
(3 cr.)

**ECLT 516 - The Romantic Movement**

Selected critical problems in the Romantic movement.
(3 cr.)

**ECLT 517 - Nineteenth-Century Writers**

Works of selected major nineteenth-century novelists and poets.
(3 cr.)

**ECLT 523 - Modern Poets**

Readings and analyses of works of major British, European, and American poets from the beginnings of the Symbolist and Imagist movements to the present.
(3 cr.)
ECLT 531 - The Modern Novel

Works of selected novelists of the twentieth century.
(3 cr.)

ECLT 540 - Readings in American Literature

Guided reading.
(3 cr.)

ECLT 542 - Readings in French Literature

Guided reading.
(3 cr.)

ECLT 543 - Readings in British Literature

Guided reading.
(3 cr.)

ECLT 545-546 - Selected Topics

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
545 offered in fall, 546 in spring.

Repeatable
May be repeated for credit if content changes.
(3 cr.)

ECLT 555 - Research Methods in Literature

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.

(3 cr.)
ECLT 588 - Comprehensives

Individual consultation for students preparing for the comprehensive examination.
(no cr.)

ECLT 599 - Research Guidance and Thesis
(no cr.)

ECON 199 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.
Prerequisites
RHET 101
When Offered
Offered in fall and spring.
Notes
This course does not count as part of Economics major or minor requirements.
(3 cr.)

ECON 201 - Introduction to Macroeconomics

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.
(3 cr.)

ECON 202 - Introduction to Microeconomics

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.
(3 cr.)
ECON 215 - Economic History of the Modern Middle East

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.
(3 cr.)

ECON 216 - Mathematics for Economists I


Prerequisites
MACT 100 or equivalent.

When Offered
Offered in fall and spring.
(3 cr.)

ECON 218 - Statistics for Economists

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.

Prerequisites
MACT 112

When Offered
Offered in fall and spring.
(3 cr.)

ECON 224 - Economic History

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.
(3 cr.)

ECON 301 - Intermediate Macroeconomic Theory

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.

**Prerequisites**
ECON 201 and ECON 216.

**When Offered**
Offered in fall and spring.

(3 cr.)

**ECON 302 - Intermediate Microeconomic Theory**


**Prerequisites**
ECON 202 and ECON 316

**When Offered**
Offered in fall and spring.

(3 cr.)

**ECON 303 - Money and Banking**

Determinants of a nation's money supply and the role of the central bank. Monetary theory, impact of changes in the stock of money on economic activity, international monetary relations, examination of different international monetary systems

**Prerequisites**
Prerequisite: ACCT 201 plus ECON 201 and ECON 202

**When Offered**
Offered in fall and spring.

(3 cr.)

**ECON 308 - Labor Economics**

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)

**Prerequisites**
ECON 201 and ECON 202

**When Offered**
Offered in fall and spring.

(3 cr.)
**ECON 309 - Emerging Economies**

This course conducts a critical analysis of the specific economic and institutional characteristics enabling emerging economies to achieve rapid and sustainable economic growth and development. Case studies will also be used to illustrate the impact of these nations upon global integration dynamics.

**Prerequisites**  
ECON 201 and ECON 202

**When Offered**  
Offered occasionally.  
(3 cr.)

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**ECON 310 - Public Finance**

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.

**Prerequisites**  
ECON 201 and ECON 202

**When Offered**  
Offered in fall and spring.  
(3 cr.)

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**ECON 312 - Economic Development**

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.

**Prerequisites**  
ECON 201 and ECON 202

**When Offered**  
Offered in fall and spring.  
(3 cr.)

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**ECON 316 - Mathematics for Economists II**


**Prerequisites**  
ECON 216

**When Offered**  
Offered in fall and spring.  
(3 cr.)
**ECON 318 - Introduction to Econometrics**

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.

**Prerequisites**
ECON 218 and ECON 316

**When Offered**
Offered in fall and spring.

(3 cr.)

**ECON 320 - The Digital Economy: Information Technology, Knowledge and Intellectual Property**

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.

**Prerequisites**
ECON 201 and ECON 202

**When Offered**
Offered in fall and spring.

(3 cr.)

**ECON 348 - Agricultural Economics**

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.

**Prerequisites**
ECON 201 and ECON 202

**When Offered**
Offered occasionally.

(3 cr.)

**ECON 403 - International Trade**

**Prerequisites**
ECON 301 and ECON 302

**When Offered**
Offered in fall and spring.

(3 cr.)

**ECON 405 - History of Economic Thought**

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.

**Prerequisites**
ECON 201 and ECON 202

**When Offered**
Offered in fall and spring.

(3 cr.)

**ECON 411 - Seminar: Special Topics in Economics**

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.

(3 cr.)

**ECON 413 - Cost-Benefit Analysis**

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.

**Prerequisites**
ECON 302

**When Offered**
Offered in fall and spring.

(3 cr.)

**ECON 414 - Economics of Egypt**
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.

Prerequisites
ECON 201 and ECON 202. Junior standing or higher.

When Offered
Offered in fall and spring.
(3 cr.)

ECON 415 - Seminar on Economic Development in the Middle East

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.

Prerequisites
ECON 201

When Offered
Offered occasionally.
(3 cr.)

ECON 416 - Mathematical Economics


Prerequisites
ECON 316

When Offered
Offered in fall and spring.
(3 cr.)

ECON 418 - Econometric Methods


Prerequisites
ECON 318

When Offered
Offered in fall.
(3 cr.)
ECON 418P - Practicum

This practicum is structured to run parallel with ECON 418. 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.
(1 cr.)

ECON 420 - Independent Study

Guided reading, research, and discussion based on a subject of mutual interest to a student and faculty member.

Prerequisites
Consent of instructor and unit head, senior standing.

When Offered
Offered in fall and spring.
(3 cr.)

ECON 500 - The Economic Setting for Development

Open only for those students doing the Diploma or Masters Degree in Economics (International Development). 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.
(3 cr.)

ECON 501 - Advanced Macroeconomic Theory

Analysis of the equilibrium and disequilibrium macroeconomic activity of an open, monetized economy with a government sector. Theories of aggregate consumption and investment behavior.

Prerequisites
ECON 416

When Offered
Offered in Spring
(3 cr.)

ECON 502 - Advanced Microeconomic Theory

including Cournot, Bertrand, and Stackelberg competition for homogeneous and differentiated products. The Envelope Theorem and its applications including Roy, Sheppard, and Hotelling Lemmas. The equilibrium number of firms and business cycle behavior. General equilibrium theory.

**Prerequisites**
ECON 416

**When Offered**
Offered in fall.
(3 cr.)

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**ECON 504 - Financial Economics**

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.

**Prerequisites**
ECON 416

**When Offered**
Offered in spring.
(3 cr.)

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**ECON 505 - Advanced International Trade**

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.

**Prerequisites**
ECON 500 * or ECON 501 ** and ECON 502**

**Notes**
* denotes a prerequisite that applies to students enrolled in the MA Econ., or Graduate Diploma, in International Development. ** denotes prerequisites that apply to MA Econ. Degree students.

(3 cr.)

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**ECON 506 - Advanced Topics in Economics**

Guided readings, research, and discussion in special topics in Economics.

**Prerequisites**
Prerequisites: Consent of instructor

**When Offered**
Offered occasionally.
(3 cr.)
ECON 508 - Labor Economics

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.

Prerequisites
ECON 500* or consent of instructor.

When Offered
Offered occasionally.

Notes
* denotes a prerequisite that applies to students enrolled in the MA Econ., or Graduate Diploma, in International Development.

(3 cr.)

ECON 509 - An Advanced History of Economic Thought

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.

(3 cr.)

ECON 511 - Economic Development in Middle East Countries

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 occasionally.

(3 cr.)

ECON 512 - Economic Growth & Development

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.

Prerequisites
ECON 500* or ECON 501** and ECON 502**

Notes
* denotes a prerequisite that applies to students enrolled in the MA Econ., or Graduate Diploma, in International Development. ** denotes prerequisites that apply to MA Econ. Degree students.

(3 cr.)
ECON 514 - Ethical Issues in Development

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.

**Prerequisites**
ECON 500* or ECON 501**

**Notes**
* denotes a prerequisite that applies to students enrolled in the MA Econ., or Graduate Diploma, in International Development. ** denotes prerequisites that apply to MA Econ. Degree students.

(3 cr.)

ECON 516 - Mathematical Economics

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.

**Prerequisites**
ECON 416

**When Offered**
Offered occasionally.

(3 cr.)

ECON 517 - International Finance

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.

**Prerequisites**
ECON 501

(3 cr.)

ECON 518 - Econometrics


**Prerequisites**
ECON 418

**When Offered**
ECON 519 - Project Evaluation

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.

Prerequisites
ECON 500* or ECON 502**

Notes
* denotes a prerequisite that applies to students enrolled in the MA Econ., or Graduate Diploma, in International Development. ** denotes prerequisites that apply to MA Econ. Degree students.

(3 cr.)

ECON 520 - Competitive Strategy and Game Theory

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.

Prerequisites
ECON 502.

When Offered
Offered in Spring.

(3 cr.)

ECON 521 - Independent Study

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. Course can be taken more than once.

(3 cr.)

ECON 522 - Economic Strategies for Sustainable Development

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.

Prerequisites
ECON 500* or ECON 501**

When Offered
Offered occasionally.

Notes
ECON 525 - Research Workshop

Research methodology: collection of data, analysis of information, measurement, and testing hypotheses. Completion of a major research term paper.

**Prerequisites**
ECON 501, ECON 502 and ECON 518

**When Offered**
Offered occasionally.

(3 cr.)

ECON 526 - Development Research Workshop

Review of research process, dealing with problem/hypothesis definition, data collection/analysis, statistical measurement and testing methods particularly relevant to applied development issues (quantitative and qualitative data) and some exposure to applied econometrics. This is followed by individualized guidance of students’ research proposals and projects. Completion of a research-based paper.

**Prerequisites**
Prerequisites: completion of at least three core courses.

(3 cr.)

ECON 530 - Health Economics in Developing Countries

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.

**Prerequisites**
ECON 500* or ECON 502**

**Notes**
* denotes a prerequisite that applies to students enrolled in the MA Econ. or Graduate Diploma, in International Development. ** denotes prerequisites that apply to MA Econ. Degree students.

(3 cr.)

ECON 531 - Health Care Financing
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.

**Prerequisites**
ECON 501* and ECON 502** or ECON 500**

**Notes**
* denotes a prerequisite that applies to students enrolled in the MA Econ., or Graduate Diploma, in International Development. ** denotes prerequisites that apply to MA Econ. Degree students.

(3 cr.)

**ECON 590 - Practicum**

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.

**Prerequisites**
Prerequisites: completion of 3 core courses at least.

(3 cr.)

**ECON 599 - Research Guidance and Thesis**

(6 cr.)

**EDUC 511 - Foundations of Educational Research**

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.

(3 cr.)

**EDUC 513 - Qualitative & Mixed Methods in Educational Research**

In this course, MA candidates will have the opportunity to extend the knowledge of educational research acquired in EDUC 511 by learning about essential methods of qualitative research and mixed method research in education. Emphasis will be on data handling in qualitative settings, as well as research in a variety of applied educational
contexts. This course must be taken by MA candidates whose Capstone project will require qualitative or mixed methods research.

**Prerequisites**
EDUC 511 and EDUC 521
(3 cr.)

**EDUC 521 - Social Foundations of Education**

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.

(3 cr.)

**EDUC 531 - Introduction to International & Comparative Education**

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.

**Prerequisites**
EDUC 511 and EDUC 521
(3 cr.)

**EDUC 532 - globalization, Development, and Educational Reform in the Arab World**

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.

(3 cr.)

**EDUC 533 - Comparative Gender, Adolescent, Youth, and Human Development Policy**
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.
(3 cr.)

**EDUC 534 - Strategic Educational Planning and Development**

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.
(3 cr.)

**EDUC 535 - Educational Evaluation & Assessment**

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.

**Prerequisites**
EDUC 511 and EDUC 521.
(3 cr.)

**EDUC 536 - Human Rights-based Education**

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.
(3 cr.)

**EDUC 541 - Human Development & Learning Theories for Classroom Teachers**

The MA candidates enrolled in the Teacher Education concentration will learn about human growth and development from infancy through adolescence, in order that they will understand the capabilities and needs of their students. Emphasis will be placed on the integration of various aspects of development (including cognitive, linguistic,
social/emotional, motor). They will also study current developments in theories of learning, including those derived from neuro-cognitive research, in light of their roles as classroom teachers. Candidates may be exempted from this course if they pass a content-based examination.

(3 cr.)

**EDUC 542 - Transformational Leadership**

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.

(3 cr.)

**EDUC 543 - Foundations of Educational Psychology for Educational Leaders**

MA candidates enrolled in the Educational Leadership concentration will study theories of learning and human development, focusing on the application of this knowledge in their various leadership roles. Candidates may be exempted from this course if they pass a content-based examination.

(3 cr.)

**EDUC 544 - School Governance and Management**

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.

**Prerequisites**
Completion of Core Courses.

(3 cr.)

**EDUC 545 - Psychological Foundations of Education for Policy Planners**

In this course, MA candidates enrolled in the International Education Policy & Planning concentration will learn about human development—from birth through adulthood—as well as about contemporary theories of learning. The emphasis will be on how the multiple processes which accompany development and learning interact with their policy-making and planning activities. Candidates may be exempted from this course if they pass a content-based examination.
EDUC 546 - Organizational Theory and Educational Institutions

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.

(3 cr.)

EDUC 551 - Foundations of Instructional Practice for Classroom Teachers

In this course, MA candidates enrolled in the Teacher Education concentration will study major methods of instruction as well as classroom management, lesson planning, meeting the needs of diverse learners, the nature of inquiry learning, and standards-based instruction. Candidates may be exempted from this course if they pass a content-based examination.

(3 cr.)

EDUC 552 - The Potential of Emerging Technologies as Transformative Learning Tools

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.

(3 cr.)

EDUC 553 - Fundamentals of Instruction Management for Educational Leaders

In this course, MA candidates enrolled in the Educational Leadership concentration will study instructional methods from the point of view of how to enhance instruction in the school, in order to achieve overall school improvement. Enhancement of instruction will be viewed in light of the educational leader’s supervisory, professional development, and organizational management functions. Candidates may be exempted from this course if they pass a content-based examination.

(3 cr.)

EDUC 554 - Reading and Writing in the Content Area Classroom

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. (3 cr.)

EDUC 555 - Classroom Instruction for Policy Planners

MA candidates enrolled in the International Education Policy & Planning concentration will study the major methods of instruction which teachers apply in classrooms, in order to better understand the challenges which classroom instruction poses. Discussion of these challenges will present issues from teaching and administrative perspectives, in order to better inform the views of policy planners. Candidates may be exempted from this course if they pass a content-based examination. (3 cr.)

(3 cr.)

EDUC 556 - Action Research

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.

Prerequisites
EDUC 511
(3 cr.)

EDUC 557 - Reaching Diverse and Underserved Learners

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. (3 cr.)

EDUC 573 - Research-based Instructional Leadership

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.

Prerequisites
EDUC 575 - Educational Policy Analysis

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.

Prerequisites
Completion of Core Courses.
(3 cr.)

EDUC 581 - Issues in Comparative Education for Classroom Teachers

This course presents MA candidates in the Pre-K—12 Teacher Education concentration with major education debates, practices, and challenges which teachers throughout the world are faced with on a daily basis. 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.

Prerequisites
Completion of Core Courses.
(3 cr.)

EDUC 583 - Issues in Comparative Education for Educational Leaders

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.

Prerequisites
Completion of Core Courses.
(3 cr.)

EDUC 585 - Issues in Comparative Education for Policy Planners

This course presents MA candidates in the International Education Policy & Planning concentration with 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.

**Prerequisites**
Completion of Core Courses.
(3 cr.)

**EDUC 590 - MA Capstone (Thesis or Equivalent; Practicum for IEPP)**

The student will complete a scholarly thesis; conduct action research; develop a school-based or community-based educational program; or engage in a practicum, under the supervision of a faculty member. The capstone must include both theoretical aspects and practical field experience. This course will allow students an opportunity to synthesize their coursework, apply their acquired knowledge, and contribute to the knowledge base on education and learning in Egypt and the region. This course will be graded Pass-Fail.

**Prerequisites**
EDUC 511 and EDUC 521
(3 semester hours)

**EDUC 595 - Supervised Fieldwork**

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.
(3 cr.)

**EENG 210 - Digital Logic Design**

The nature of digital logic and numbering systems. Boolean algebra, Karnaugh map, decision-making elements, memory elements, latches, flip-flops, design of combinational and sequential circuits, integrated circuits and logic families, shift registers, counters and combinational circuits, adders, subtracters, multiplication and division circuits, memory types. Exposure to logic design automation software. Introduction to FPGAs and HDL.

**Prerequisites**
CSCE 106 . Concurrent with EENG 218L
**Cross-listed**
Same as PHYS 319.
**When Offered**
EENG 215 - Circuit Analysis I

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.

Prerequisites
PHYS 112

When Offered
Offered in fall and spring.

(3 cr.)

EENG 216 - Circuit Analysis II

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.

Prerequisites
EENG 215 and concurrent with MACT 233 and EENG 219L

When Offered
Offered in fall and spring.

(3 cr.)

EENG 218L - Digital Logic Design Lab

The laboratory component will cover experiments in digital design and experiments illustrating material of course EENG 210.

Prerequisites
Concurrent with EENG 210

Cross-listed
Same as PHYS 309L.

When Offered
Offered in fall, spring and summer.

(1 cr.)

EENG 219L - Circuit Analysis Lab

Experiments illustrating material of course EENG 216.

Prerequisites
Concurrent with EENG 216

**When Offered**
Offered in fall and spring.
(1 cr.)

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**EENG 315 - Electronics I: Basic Electronic Devices & Circuits**

Devices and Basic Circuits: Introduction to Electronics, Operational Amplifiers, Diodes, Bipolar Junction Transistors (BJT's), Field Effect Transistors (FET's).

**Prerequisites**
EENG 216

**When Offered**
Offered in fall and spring.
(3 cr.)

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**EENG 316 - Electronics II: Analog Circuits**


**Prerequisites**
EENG 315, concurrent with EENG 319L

**When Offered**
Offered in fall and spring.
(3 cr.)

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**EENG 318 - VLSI Design**

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.

**Prerequisites**
EENG 210 and EENG 315

**Hours**
Two class periods and one three-hour lab period.

**When Offered**
Offered in fall and spring.
(3 cr.)

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**EENG 319L - Electronics Lab**

Experiments illustrating material of course EENG 316.

**Prerequisites**
Concurrent with EENG 316.

**When Offered**
Offered in fall and spring.
(1 cr.)

**EENG 320 - Linear Systems Analysis**

Basic properties of signals and systems, stability, step and impulse response, linearity and time invariance properties, superposition integral, Fourier series and Fourier transform for discrete and continuous time signals and sampling theorem.

**Prerequisites**
EENG 216 and MACT 233

**When Offered**
Offered in fall and spring.
(3 cr.)

**EENG 321 - Automatic Control**

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.

**Prerequisites**
EENG 320

**When Offered**
Offered in fall and spring.
(3 cr.)

**EENG 341 - Electromagnetic Theory I**


**Prerequisites**
PHYS 112  and MACT 232

**Cross-listed**
Same as PHYS 316.

**When Offered**
Offered in fall and spring.
(3 cr.)

**EENG 352 - Computer Organization and Assembly Language Programming**
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).

**Prerequisites**
CSCE 110
**Cross-listed**
Same as CSCE 231.
**When Offered**
Offered in fall and spring.
(3 cr.)

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**EENG 360 - Power and Machines**

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.

**Prerequisites**
EENG 216 and EENG 341
**When Offered**
Offered in fall and spring.
(3 cr.)

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**EENG 404L - Photonics and Optical Communication Laboratory**

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.

**Prerequisites**
Concurrent with EENG 434.
**When Offered**
Offered occasionally.
(1 cr.)

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**EENG 410 - Solid-State Devices**

Theory of semiconductor surfaces, field effect transistors, application in static logic design, semiconductor sensors and transducers.

**Prerequisites**
Prerequisite: consent of instructor.
**When Offered**
EENG 413 - Testing of Digital Circuits


Prerequisites
EENG 210

When Offered
Offered occasionally.

(3 cr.)

EENG 414 - High Level Digital ASIC Design Using CAD

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.

Prerequisites
EENG 315

Hours
Two class periods and one three-hour lab period.

When Offered
Offered occasionally.

(3 cr.)

EENG 415 - Integrated Circuit Fabrication: Materials and Processes

Microfabrication techniques for silicon very large integrated circuits (VLSI), unit processes including lithography, native film growth, diffusion, ion implantation, thin film deposition and etching. Metal interconnects. Process integration for CMOS, BiCMOS, ECL and MEMS.

Prerequisites
EENG 316

When Offered
Offered occasionally.

(3 cr.)

EENG 416 - Advanced ASIC Design

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.

Prerequisites
EENG 414

When Offered
Offered occasionally.
(3 cr.)

EENG 420 - Fundamentals of Communications I

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.

Prerequisites
EENG 320, MACT 317 and ENGR 313, concurrent with EENG 439L.

When Offered
Offered in fall and spring.
(3 cr.)

EENG 421 - Fundamentals of Communications II

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.

Prerequisites
EENG 420

When Offered
Offered in fall and spring.
(3 cr.)

EENG 432 - Computer Communication Networks

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.

Prerequisites
EENG 420.

When Offered
Offered in fall and spring.
(3 cr.)
EENG 433 - Telecommunications Systems


Prerequisites
EENG 420 and EENG 432

When Offered
Offered occasionally.

(3 cr.)

EENG 434 - Optical Communication Systems


Prerequisites
EENG 341 and PHYS 214, concurrent with EENG 404L.

When Offered
Offered occasionally.

(3 cr.)

EENG 436 - Mobile Communication Systems


Prerequisites
EENG 421 and EENG 432

When Offered
Offered occasionally.

(3 cr.)

EENG 439L - Communications Lab

Experiments illustrating material of course EENG 420.

Prerequisites
Concurrent with EENG 420

When Offered
Offered in fall and spring.

(1 cr.)
EENG 442 - Electromagnetic Waves


Prerequisites
EENG 341

When Offered
Offered in fall and spring.
(3 cr.)

EENG 447 - Microwave Systems


Prerequisites
EENG 442

When Offered
Offered occasionally.
(3 cr.)

EENG 453 - Microcontroller System Design

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.

Prerequisites
EENG 210, EENG 316, EENG 352 and concurrent with EENG 459L.

When Offered
Offered in fall and spring.
(3 cr.)

EENG 455 - Computer Architecture

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.

Prerequisites
EENG 210, EENG 352 concurrent with EENG 458L.
Cross-listed
Same as CSCE 330.

When Offered
Offered in fall and spring.
(3 cr.)

EENG 456 - Digital Control Systems

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.

Prerequisites
Prerequisite: EENG 210 and EENG 321 (for EENG students); PHYS 319 and MENG 476 (for MENG students).

When Offered
Offered occasionally.
(3 cr.)

EENG 458L - Computer Architecture Lab

The laboratory will cover experiments in computer architecture and hardware design and experiments illustrating material of Course EENG 455.

Prerequisites
Concurrent with EENG 455

Cross-listed
Same as CSCE 339L.

When Offered
Offered in fall and spring.
(1 cr.)

EENG 459L - Microcontroller System Design Lab

Experiments illustrating material of course EENG 453.

Prerequisites
Concurrent with EENG 453

When Offered
Offered in fall and spring.
(1 cr.)

EENG 460 - Product Design and Development

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.

Prerequisites
Senior level standing.
(3 cr.)

EENG 480 - Special Problems in Electronics Engineering

Independent study in various problem areas of electronics engineering may be assigned to individual students or to groups. Readings assigned and frequent consultations held.
Prerequisites
Prerequisite: consent of instructor
When Offered
Offered in fall and spring.
Repeatable
May be repeated for credit if content changes.
(1-3 cr.)

EENG 490 - Senior Project I

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.
Prerequisites
Prerequisite: senior standing.
When Offered
Offered in fall and spring.
(1 cr.)

EENG 491 - Senior Project II

A continuation of the capstone project.
Prerequisites
EENG 490
When Offered
Offered in fall and spring.
(2 cr.)
EENG 494 - Selected topics in Electronics Engineering

Course content will be selected each semester from current developments in the field of electronics engineering.

Prerequisites
Prerequisite: senior standing.

When Offered
Offered occasionally
(3 cr.)

EENG 497 - Industrial Internship

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.

Prerequisites
Prerequisite: completion of 100 credit hours.

When Offered
Offered in fall and spring.
(1 cr.)

EENG 510 - Advanced Solid-State Devices

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.

Prerequisites
Graduate standing in engineering and physics. Electromagnetics, vector algebra, differential equations, and MATLAB programming.

Cross-listed
Same as NANO 561.
(3 cr.)

EENG 516 - Analog Integrated Circuit Design


CAD tools: Cadence.

Prerequisites
EENG 316
(3 cr.)
EENG 517 - Digital Integrated Circuit Design

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.

Prerequisites
EENG 315 and EENG 316
(3 cr.)

EENG 518 - Advanced Integrated Circuit Design

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.

Prerequisites
EENG 318
Cross-listed
Same as NANO 562.
(3 cr.)

EENG 520 - Advanced Digital Communications

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.

Prerequisites
EENG 421 or equivalent.
(3 cr.)

EENG 521 - Wireless Communication Systems

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.

Prerequisites
EENG 421 or equivalent.
(3 cr.)
EENG 522 - Stochastic Processes for Engineers

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.

Prerequisites
MACT 317 or equivalent.
(3 cr.)

EENG 524 - Enabling Technologies for High Date Rate Communications

Enabling techniques for high data rate wireless communication systems. Topics include 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.

Prerequisites
EENG 421 or equivalent.
(3 cr.)

EENG 525 - Digital Signal Processing

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.

Prerequisites
EENG 320 or equivalent.
(3 cr.)

EENG 526 - Information Theory and Coding

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.

Prerequisites
EENG 421 or equivalent.
(3 cr.)
EENG 530 - Advanced Computer Networks

Advanced computer communication networks. Topics covered include internet architecture and protocols, queuing delay in network devices, queuing theory, Markov chains, analysis of M/M/1, M/M/m, M/M/m/m, and M/G/1 queues, multi-dimensional Markov Chains, Wireless Local Area Networks (WLANs), mobile ad hoc networks (MANETs), and wireless sensor networks (WSNs).

Prerequisites
EENG 432 or equivalent.
(3 cr.)

EENG 541 - Microwave Circuit Analysis and Design

Microwave circuit theory and techniques. Emphasis on microwave integrated circuits (MIC) and waveguides. Planar transmission lines. Transmission line theory, impedance, scattering and transmission parameters, Smith chart, impedance matching, power dividers and couplers, active two port networks, devices for microwave amplification. Low noise amplifier design, and power amplifier design.

Prerequisites
EENG 442 or equivalent.
(3 cr.)

EENG 547 - RF and Microwave Systems

The purpose of this class is to introduce students to the general hardware components, system parameters, and architectures of RF and microwave wireless systems. Practical examples of components and system configurations are emphasized. Communication systems are used to illustrate the applications. This class will help bridge the gap between RF/microwave engineers and communication system engineers. At the end of the class, students will be able to design basic RF transceiver systems and allocate requirements to RF units from which these systems are composed.

Prerequisites
EENG 442 or equivalent.
(3 cr.)

EENG 548 - RF Integrated Circuit Design

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.

Prerequisites
EENG 442 or equivalent.
(3 cr.)

EENG 549 - Antennas Design and Applications
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.

**Prerequisites**

EENG 442 or equivalent.

(3 cr.)

**EENG 553 - Fault-tolerant Computing and Reliability Modeling**

Faults, errors, fault modeling, redundancy techniques, error detecting and correcting codes, self-checking circuits, reliability and availability modeling, performability.

**Prerequisites**

EENG 453

(3 cr.)

**EENG 556 - Networked Control Systems Design & Applications**

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.

**Prerequisites**

EENG 321 and EENG 432

**Cross-listed**

Same as RCSS 534.

(3 cr.)

**EENG 570 - New Product Design and Development**

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.

(3 cr.)

**EENG 571 - Technology and Innovation Management**

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 517.
(3 cr.)

EENG 572 - Strategic Management of Innovation

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 511.
(3 cr.)

EENG 573 - Entrepreneurship and Innovation

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 MGMT 510
(3 cr.)

EENG 580 - Graduate Independent Study
EENG 590 - Thesis Seminar I
(1 cr.)

EENG 591 - Thesis Seminar II
(2 cr.)

EENG 594 - Advanced Topics in Electronics Engineering
(3 cr.)

EENG 599 - Thesis

EENG 622 - Advanced Topics in Wireless Communications

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.

Prerequisites
EENG 521
(3 cr.)

EENG 625 - Detection, Classification, and Estimation Theory

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.

Prerequisites
EENG 522
(3 cr.)
EENG 661 - Nanoscale CMOS

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.

(3 cr.)

EENG 699 - Research Guidance Dissertation

Consultation on problems related to student thesis. To be taken 11 times for credit.

(3 cr.)

EGPT 199 - Selected Topic for the Core Curriculum

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.

(3 cr.)

EGPT 202 - Ancient Egypt

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.

(3 cr.)

EGPT 203 - Introduction to Egyptian Architecture

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.

Prerequisites
Only open to declared architecture majors and Egyptology majors.
(3 cr.)

EGPT 204 - Archaeology: Methods and Theories

The methods and theories of archaeological excavation and interpretation; archaeological evidence of human cultural development; archaeology as a social science.

When Offered
Offered occasionally.
(3 cr.)

EGPT 250 - Ancient Egyptian Literature in Translation

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.
(3 cr.)

EGPT 253 - Hieroglyphics I

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.
(3 cr.)

EGPT 254 - Hieroglyphics II

The course is a continuation of EGPT 253. Students will concentrate on the verbal forms of classical Egyptian.

Prerequisites
EGPT 253

When Offered
Offered in spring.
(3 cr.)

EGPT 299 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

Prerequisites
RHET 101

When Offered
Offered occasionally.
(3 cr.)

EGPT 301 - Temples, Tombs and Hieroglyphs

The class examines Egypt’s history and geography and devotes special attention to the effect of geography and natural resources upon the development of Ancient Egyptian history, art, and civilization.
Prerequisites instructors consent

Prerequisites
Instructor's consent
When Offered
Offered occasionally.
(3 cr.)

EGPT 304 - Culture and Society of Ancient Egypt

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.
Prerequisites
EGPT/HIST 243, 244, EGPT 261 or 262.
When Offered
Offered occasionally.
(3 cr.)

EGPT 341 - Egypt in the Late Period

The course will examine the factors that lay behind the collapse of the New Kingdom state and the rise of the Libyan and Nubian dynasties that dominated Egypt from 1200 to 332 BC. Special attention will be devoted to the last dynasties of the Pharaonic tradition (Dynasties XXI-XXX).
Prerequisites
EGPT 343 and EGPT 344 , or instructor's consent.
When Offered
Offered occasionally.
(3 cr.)

EGPT 342 - History of Egypt in the Graeco-Roman Era

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.
Prerequisites
EGPT 343 and EGPT 344 , or instructor's consent.
EGPT 343 - History of Ancient Egypt I: Pre-Dynastic Through Middle Kingdom

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.
(3 cr.)

EGPT 344 - History of Ancient Egypt II: Middle Kingdom through Ptolemaic Egypt

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.
(3 cr.)

EGPT 346 - Societies and Culture of the Ancient Near East

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 Hittites, 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.

Prerequisites
EGPT 342 and EGPT 343, or instructor's consent.

Cross-listed
Same as HIST 346.

When Offered
Offered occasionally.
(3 cr.)
EGPT 348 - Societies and Cultures of Ancient Nubia

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.

Prerequisites
Prerequisite: consent or of instructor.

When Offered
Offered occasionally.
(3 cr.)

EGPT 353 - Hieroglyphics III

Students will read a number of Egyptian texts and learn how to translate and interpret written documents.

Prerequisites
EGPT 254

When Offered
Offered every fall.
(3 cr.)

EGPT 361 - Art and Architecture of Ancient Egypt I

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.

Prerequisites
EGPT 202 or consent of instructor.

When Offered
Offered in fall.
(3 cr.)

EGPT 362 - Art and Architecture of Ancient Egypt II

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.

Prerequisites
EGPT 202 or consent of instructor.

When Offered
Offered in spring.
(3 cr.)
EGPT 400 - Introduction to Coptic

Coptic represents the last stage of the ancient Egyptian language. The course will include reading of selected texts in two Coptic dialects.

Prerequisites
EGPT 254

When Offered
Offered occasionally.
(3 cr.)

EGPT 401 - Introduction to Hieratic

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.

Prerequisites
EGPT 254

When Offered
Offered occasionally.
(3 cr.)

EGPT 402 - Hieroglyphics IV

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.

Prerequisites
EGPT 353.

Cross-listed
Same as EGPT 501.

When Offered
Offered in spring.
(3 cr.)

EGPT 403 - Independent Study in Egyptology

Independent research projects in Egyptology, with consent of instructor and student's adviser.

When Offered
Offered every semester.
(1-3 cr.)

EGPT 440 - Ancient Egyptian Religion and Ethics
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.

**Prerequisites**
Prerequisite: instructor's permission.

**When Offered**
Offered occasionally.

(3 cr.)

**EGPT 445 - Selected Topics in Coptic Studies**

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 ANTH, HIST, SOC 445 and EGPT 539.

**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.

(3 cr.)

**EGPT 459 - Selected Topics in Cultural Resource Management and Museology**

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.

**Prerequisites**
Prerequisite: consent of instructor.

**Cross-listed**
Same as EGPT 545.

**When Offered**
Offered occasionally.

(3 cr.)

**EGPT 491 - Field Work in Egyptological Method and Theory**

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.

**Prerequisites**
EGPT 499 - Selected Topics in Egyptology

**Prerequisites**
Prerequisites: junior standing and/or consent of instructor.

**When Offered**
Offered occasionally.

**Repeatable**
May be repeated for credit when content changes.

(3 cr.)

EGPT 500 - Hieroglyphics III

Students will read a number of Egyptian texts and learn how to translate and interpret written documents.

**Prerequisites**
EGPT 254 or equivalent.

**When Offered**
Offered every fall.

(3 cr.)

EGPT 501 - Hieroglyphics IV

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.

**Prerequisites**
Hieroglyphics I-III or equivalent

**Cross-listed**
Same as EGPT 402.

**When Offered**
Offered in spring.

(3 cr.)

EGPT 502 - Introduction to Demotic
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.

Prerequisites
Equivalency to advanced hieroglyphs.
(3 cr.)

**EGPT 503 - Introduction to Ptolemaic Hieroglyphs**

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.

Prerequisites
EGPT 253 EGPT 254 or equivalent.
(3 cr.)

**EGPT 504 - Advanced Hieratic**

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.

Prerequisites
EGPT 401 or equivalent.
(3 cr.)

**EGPT 505 - Introduction to Coptic**

Coptic represents the last stage of the ancient Egyptian language. The course will include reading of selected texts in two Coptic dialects.

Prerequisites
EGPT 254 or basic hieroglyphs.

Cross-listed
Same as EGPT 400.

When Offered
Offered occasionally.
(3 cr.)
EGPT 506 - Advanced Coptic Texts

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.

Prerequisites
Basic Coptic.
(3 cr.)

EGPT 510 - Culture and Society of Ancient Egypt

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.

Prerequisites
Consent of instructor.
(3 cr.)

EGPT 512 - Art, Societies, and Cultures of the Ancient Near East

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.

Prerequisites
Consent of instructor.
(3 cr.)

EGPT 519 - Selected Topics in Ancient Egyptian Art and Culture

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, and culture.

Prerequisites
EGPT 521 - Societies and Cultures of Ancient Nubia

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.

Prerequisites
Consent of instructor.
(3 cr.)

EGPT 522 - Ancient Egyptian Religion and Ethics

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.

Prerequisites
Consent of instructor.
(3 cr.)

EGPT 525 - Settlement and Daily Life in Ancient Egypt

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.

(3 cr.)

EGPT 526 - Death and Burial in Ancient Egypt
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.

**Prerequisites**
Consent of instructor.
(3 cr.)

**EGPT 530 - Graeco-Roman Egypt**

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.

**Prerequisites**
Consent of instructor.
(3 cr.)

**EGPT 531 - The Romano-Byzantine World and Egypt**

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.

**Prerequisites**
Consent of the instructor.
(3 cr.)

**EGPT 532 - Classical Art and Archaeology**

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.

(3 cr.)

**EGPT 533 - Coptic Art and Architecture**

A course designed to introduce students to Coptic art and architecture, with an emphasis on monasticism. Field trips are required.
**Prerequisites**
Consent of the instructor.
(3 cr.)

**EGPT 539 - Selected Topics in Coptic Studies**

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 ANTH, HIST, SOC 445, EGPT 445.
(3 cr.)

**EGPT 540 - Advanced Method and Theory: Archaeological and Historical**

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.

**Prerequisites**
Consent of instructor.
(3 cr.)

**EGPT 541 - Material Culture: Looking at Artifacts in Context**

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.

**Prerequisites**
Consent of instructor.
(3 cr.)

**EGPT 542 - Site Analysis**
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.

**Prerequisites**
Consent of instructor.

(3 cr.)

**EGPT 545 - Selected Topics in Cultural Resource Management and Museology**

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.

**Prerequisites**
Consent of instructor.

**Cross-listed**
Same as EGPT 459.

**When Offered**
Offered occasionally.

(3 cr.)

**EGPT 560 - The Iconography of Ancient Egypt**

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.

**Prerequisites**
A course in Egyptian art.

(3 cr.)

**EGPT 561 - Advanced Readings in Ancient Egyptian Religion Texts**

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.

**Prerequisites**
EGPT 253 EGPT 254 EGPT 500 EGPT 501
(3 cr.)

EGPT 562 - Advanced Readings in historical literature from the Old Kingdom to the Late period

This course is designed to cover readings from all periods 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.

Prerequisites
EGPT 253 EGPT 254 EGPT 500 EGPT 501
(3 cr.)

EGPT 591 - Field Work in Egyptological Method and Theory

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.

Prerequisites
Permission of instructor.
Cross-listed
same as EGPT 491.
(3 cr.)

EGPT 598 - Research Seminar: Research Design and Writing

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.

Prerequisites
Consent of instructor.
(3 cr.)

EGPT 599 - Thesis

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.

Prerequisites
Completion of required coursework.

(3 cr.)

**EMBA 601 - Change Management and Global Transformation**

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.

(1.75 cr.)

**EMBA 602 - Team-work & Communication**

The module focuses on team building and growth, performance, effective strategies for better group decision making, team leadership, resolving conflict within and across teams, evaluating and rewarding teams performance and developing a team-focused organizational culture. It aims at improving participants’ ability to lead high-performing teams through effective design and development. They will gain in-depth knowledge of practices of successful teamwork and will examine why other teams fail to deliver their expected results. They will learn how organizations can encourage innovation, strategic decision-making, and co-operation with other organizations through the use of teams and effective communication.

(1.75 cr.)

**EMBA 603 - Data Analysis and Analytical Decision Modeling for Optimizing Decisions**

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.

(2 cr.)

**EMBA 604 - Managerial Economics**

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.

(1.75 cr.)

**EMBA 605 - Strategic Accounting**

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. It 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.

(1.75 cr.)

**EMBA 606 - Financial Management**

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.

(2 cr.)

**EMBA 607 - Corporate Financial Management**

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.

(1.75 cr.)

**EMBA 608 - Talent Management, Coaching & Mentoring**

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.

(1.75 cr.)

**EMBA 609 - Managerial Decision Making and Operation Management**

This module introduces operation from the general managers’ point of view rather than operation specialist. It approaches the integration, efficiency and effectiveness of managerial functions in support of development of the organization’s strategic goals, improving business decisions and achieving competitive advantage. It discusses operating systems: production process, process design and flow analysis, inventory concepts and models, time-to-market and responsiveness, project management, effects of uncertainty and waiting lines in producing an organization’s products and services. It focuses on quality management and statistical quality controls, as well as recent process-improvement ideas. Case studies are used to highlight central issues.

(2 cr.)

**EMBA 610 - Global Marketing Management (International Live-in Module)**

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.

(2.75 cr.)

**EMBA 611 - Competitive & Corporate Strategy (International Live-in Module)**

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.

(2.75 cr.)

**EMBA 612 - E-Business & Managers' Toolkit**

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.

(2 cr.)

**EMBA 613 - Leadership & Management**

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.

(1.75 cr.)

**EMBA 614 - Innovation and Creating the Best Practices of Tomorrow**

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.

(1.75 cr.)

**EMBA 615 - Global Supply Chain Management and Operational Excellence**

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

(2 cr.)

**EMBA 616 - Negotiation & Conflict Management**

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 - Entrepreneurial Management

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.

(1.75 cr.)

EMBA 618 - Doing Business With The East (International Live-in Module)

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.

(2.75 cr.)

EMBA 619 - Doing Business With The East (International Live-in Module)

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.

(2.75 cr.)

EMBA 620 - Corporate Governance & Social Responsibility

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.

(2 cr.)
EMBA 621 - Business & Legal Environment

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.

(1.75 cr.)

EMBA 622 - Development & Rationale for Competitive Law

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.

(1.75 cr.)

EMBA 623 - Adapting to Global Environment - Integration Consultation Project

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.

(4 cr.)

ENGL 100 - Academic English for Freshmen

English 100 is a concurrent course in which classes meet five days a week for a total of fifteen hours. A student who for any reason misses thirty-six hours (12 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 English 100 may enroll in no more than two academic with a maximum of 7 academic course credits. Any student who withdraws from English 100 must withdraw from the two other academic.

For new students, placement in academic English for freshmen is determined by their score on the ELPET or TOEFL with TWE. For students enrolled in the intensive English program, 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 must satisfactorily complete the course work within a time period not to exceed two full semesters and a summer session. Students taking ENGL 100 in summer may not enroll in any academic.

**ENGL 199 - Selected Topic for Core Curriculum**

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 100.  

(3 cr.)

**ENGR 101 - Introduction to Engineering**

**When Offered**  
Offered in fall and spring.  
**Notes**  
The course must be taken in the year of admission to the engineering program.  

(1 cr.)

**ENGR 115 - Descriptive Geometry and Engineering Drawing**

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.  

(2 cr.)

**ENGR 212 - Engineering Mechanics I (Statics)**

**Prerequisites**  
MACT 132 and PHYS 111  
**When Offered**  
Offered in fall and spring.  

(3 cr.)
ENGR 214 - Engineering Mechanics II (Dynamics)

Kinematics and kinetics of a particle, system of particles, and rigid bodies. Energy and momentum methods. Engineering applications.

**Prerequisites**
MACT 231 and ENGR 212

**When Offered**
Offered in fall and spring.

(3 cr.)

ENGR 229 - Strength and Testing of Materials

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.

**Prerequisites**
ENGR 212

**Hours**
Three class periods and one three-hour lab period

**When Offered**
Offered in fall and spring.

(4 cr.)

ENGR 261 - Fundamentals of Fluid Mechanics

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.

**Prerequisites**
PHYS 112 and ENGR 214

**Hours**
Two class periods and one three-hour lab period.

**When Offered**
Offered in fall and spring.

(3 cr.)

ENGR 313 - Engineering Analysis and Computation I

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.

**Prerequisites**
CSCE 106 and MACT 233

**When Offered**
Offered in fall and spring.
(3 cr.)

**ENGR 318 - General Electrical Engineering**

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.

**Prerequisites**
PHYS 112 and MACT 231

**When Offered**
Offered in fall and spring.
(3 cr.)

**ENGR 345 - Engineering Economy**

Economic and cost concepts, the time value of money, single, multiple and series of cash flows, gradients, functional notation, nominal and effective interest rates, continuous compounding, rates of return. Computation and applications, economic feasibility of projects and worth of investments, comparison of alternatives. Replacement, depreciation and B.E. analysis. Introduction to risk analysis.

**Prerequisites**
MACT 132

**When Offered**
Offered in fall and spring.
(3 cr.)

**ENGR 364 - Fundamentals of Thermofluids**

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 convention heat transfer.

**Prerequisites**
PHYS 111. Open for Electronics Engineering major only.

**When Offered**
Offered in fall.
(3 cr.)

**ENGR 494 - Entrepreneurial Development and Innovation**
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.

(3 cr.)

**ENGR 511 - Computational Methods in Engineering**


(3 cr.)

**ENGR 512 - Experimental Methods in Engineering**


(3 cr.)

**ENGR 516 - Engineering for a Sustainable Environment**

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.

(3 cr.)

**ENGR 518 - Engineering Statistics**

Probability distributions, sampling distributions, estimation, test of hypotheses, regression, correlation, and nonparametric statistics.

(3 cr.)

**ENGR 590 - Graduate Thesis Seminar I**

Seminars on research topics, research methodology and thesis writing, and presentations given by invited speakers.  
**Cross-listed**  
Same as RCSS 590.

(2 cr.)
ENGR 591 - Graduate Thesis Seminar II

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.

**Prerequisites**
ENGR 590

**Cross-listed**
Same as RCSS 591.
(1 cr.)

ENTR 203 - Introduction to Entrepreneurship and Small Business Management

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.

(3 cr.)

ENTR 303 - Principles of Entrepreneurial Finance

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.

(3 cr.)

ENTR 413 - Entrepreneurship and Innovation

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.

(3 cr.)

ENTR 417 - Entrepreneurship Lab: Developing and Launching a New Venture

Pre-Req: ENTR 203; MKTG 302; ENTR 303; ENTR 413
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.

Prerequisites
ENTR 203, MKTG 302, ENTR 303 and ENTR 413.
(3 cr.)

ENVE 561 - Water Quality Control

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.
(3 cr.)

ENVE 562 - Unit Operations in Environmental Engineering

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 473 but with additional requirements for graduate students.
(3 cr.)

ENVE 564 - Air Pollution Control Engineering

(3 cr.)

ENVE 565 - Air Pollution and Combustion

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.
(3 cr.)

ENVE 566 - Solid and Hazardous Wastes Engineering

Cross-listed
Same as CENG 475 but with additional requirements for graduate students.
(3 cr.)

**ENVE 567 - Environmental Chemistry**

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.
(3 cr.)

**ENVE 568 - Noise Pollution Fundamentals, Measurements and Control**

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.
(3 cr.)

**ENVE 569 - Groundwater Hydrology and Contamination**

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.
(3 cr.)

**ENVE 580 - Independent Study in Engineering**

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).
(3 cr.)

**ENVE 592 - Advanced Topics in Engineering**

Topics to be chosen every year according to specific interests.

*Prerequisites*
Prerequisite: consent of instructor.

*Repeatable*
May be taken for credit more than once if content changes.
(3 cr.)
ENVE 599 - Research Guidance Thesis

Consultation on problems related to student thesis.
Repeatable
Must be taken twice for credit.
(3 cr.)

ENVE 62 - Advanced Treatment Processes

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.

(3 cr.)

ENVE 680 - Independent Study in Environmental Engineering

Independent study in various problem areas of environmental engineering may be assigned to individual students or to groups. Readings assigned and frequent consultations held.

(3 cr. Max.)

ENVE 692 - Advanced Selected Topics in Environmental Engineering

Topics chosen according to special interests of faculty and students. May be repeated for credit more than once if content changes.

(3 cr.)

ENVE 699 - Research Guidance Dissertation

Consultation on problems related to student thesis. To be taken 11 times for credit.

(3 cr.)

EUST 504 - European Union Law
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 504.
(3 cr.)

**EUST 506 - Seminar on Practical Diplomacy (Arranged with European embassies and institutions)**

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.
(3 cr.)

**EUST 508 - Seminar on the European Union**

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.
(3 cr.)

**EUST 511 - Special Topics in Nineteenth and Twentieth Century European Studies**

Content differs according to topics.

**Cross-listed**
Same as HIST 511.
(3 cr.)

**EUST 513 - The European Systems of Human Rights Protection**

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 513.
(3 cr.)

**FILM 199 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concern and accessible to all first-year students as part of the Primary Level Core.

**When Offered**
Offered occasionally.
(3 cr.)

**FILM 200 - Analogue and Digital Practices**

This course introduces students to the basic skills in various traditional and contemporary mediums: screen printing, digital photography, digital imaging, video and sound editing. The aim is to offer hands-on basic skills in analogue and digital practices including film, visual arts and graphic design.

**Cross-listed**
Same as DSGN 200 and ARTV 200.

**Notes**
*Registration in this course is contingent upon consent of the director of the program

(3 cr.)

**FILM 213 - Introduction to Visual Cultures**

Introduces students to the study of visual cultures in such arenas as film and video, photography, painting and sculpture, the built environment, advertising and fashion, and social media/internet. Students will learn how to analyze visual materials across media, interpret meanings, and gain experience in applying critical concepts to these understandings.

**Cross-listed**
Same as ARTV 213 and DSGN 213.

(3 cr.)

**FILM 220 - Introduction to Film**

An introduction to the art of cinema, covering basic film history, theory, aesthetics, and production. Dramatic narrative (fiction), documentary (non-fiction), and avant-garde 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 minor in film.

(3 cr.)

**FILM 299 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**Prerequisites**
RHET 101  
**When Offered**  
Offered occasionally.  
(3 cr.)

**FILM 310 - History of World Cinema**

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.

**Prerequisites**  
FILM 220 or consent of the Director of the Film Program  

**When Offered**  
Offered in the fall or spring.  
(3 cr.)

**FILM 320 - Cinema in Egypt and the Arab World**

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.  
(3 cr.)

**FILM 330 - Film Theory and Criticism**

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.  
**Prerequisites**  
FILM 220 or consent of the Director of the Film Program.  
**When Offered**  
Offered in the fall or spring.  
(3 cr.)

**FILM 340 - Documentary Film**

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.  
**Prerequisites**  
FILM 220 or consent of the Director of the Film Program.
When Offered
Offered occasionally.
(3 cr.)

FILM 341 - Anthropology and Film

The history and practice of film in anthropology; film as ethnography; comparison of films and analytical ethnographies.

Prerequisites
ANTH 202

Cross-listed
Same as ANTH 341.

When Offered
Offered occasionally.
(3 cr.)

FILM 351 - Digital Editing

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.

Prerequisites
FILM 200

When Offered
Offered in fall and spring.
(3 cr.)

FILM 352 - The Film Industry

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.

Prerequisites
FILM 200 FILM 213
(3 cr.)

FILM 353 - Digital Cinematography

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.

Prerequisites
FILM 200
(3 cr.)

FILM 354 - Film Audience and Reception

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.

Prerequisites
FILM 200 FILM 213
(3 cr.)

FILM 357 - Screenwriting

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.

Prerequisites
FILM 200 FILM 213
(3 cr.)

FILM 360 - The Filmmaker

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.

Prerequisites
FILM 220 or consent of the Director of the Film Program.
(3 cr.)

FILM 370 - Selected Topics in Film

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
(3 cr.)

**FILM 390 - Film Genres**

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.

**Prerequisites**
FILM 220 or the consent of the Director of the Film Program.
(3 cr.)

**FILM 402 - Independent Study**

With departmental approval, advanced students may arrange an individualized course topic to be completed under faculty supervision.

**Prerequisites**
Prerequisite: departmental approval required.

**When Offered**
Offered in fall and spring.

**Notes**
An overall minimum B average is required for admission to the course

(1-3 cr.)

**FILM 450 - Senior Film Project**

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.

**Prerequisites**
At least three courses from the 'Film Production’ list.
(3 cr.)

**FILM 452 - The Arab and Egyptian Film Industries: National and Global Perspectives**

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.
Prerequisites
Fourth year level in the Film major or the consent of the Program Director.

Notes
This course may be repeated for credit.

(3 cr.)

FILM 456 - Experiential Learning in Film

This course is designed to provide students with the opportunity to combine interests in film studies research with experimental learning opportunities in the community and workplace (internships, paid employment or volunteer position).

Prerequisites
Fourth year level in the Film major or the consent of the Program Director.

(3 cr.)

FILM 470 - Advanced Seminar in Film Study and Research

This course is designed to provide students with the opportunity to combine interests in film studies research with experimental learning opportunities in the community and workplace (internships, paid employment or volunteer position).

Prerequisites
Fourth year level in the Film Major or consent of the Film Program Director.

(3 cr.)

FINC 303 - Business Finance I

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.

Prerequisites
ACCT 201, (ECON 201 or ECON 202) and MACT 112

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.

(3 cr.)

FINC 404 - Investment Analysis
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.

**Prerequisites**
FINC 303

**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.

(3 cr.)

**FINC 405 - Applied Banking**

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.

**Prerequisites**
FINC 303

**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.

(3 cr.)

**FINC 408 - International Finance**

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.

**Prerequisites**
FINC 303

**Cross-listed**
Same as INTB 408

**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.

(3 cr.)

**FINC 410 - Capital Markets**
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.

**Prerequisites**
FINC 303 .

**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.

(3 cr.)

**FINC 412 - Options and Derivatives**

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.

**Prerequisites**
FINC 404

**When Offered**
Offered occasionally.

**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.

(3 cr.)

**FINC 414 - Corporate Finance**

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.

**Prerequisites**
FINC 404

**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.

(3 cr.)
FINC 415 - Portfolio Theory and its Applications

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.

Prerequisites
FINC 404

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.

(3 cr.)

FINC 470 - Special Topics in Financial Management

Considers selected topics of current relevance in Financial Management.

Prerequisites
Prerequisite: Consent of Instructor.

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.

(3 cr.)

FINC 475 - Independent Study in Financial Management

Guided readings, research, and discussions on specific selected topic in Financial Management.

Prerequisites
Prerequisites: Senior standing and consent of FINC unit head and chair.

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.

(1-3 cr.)

FINC 512 - Options and Derivatives
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.

(3 cr.)

**FINC 513 - Fixed Income Securities**

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.

(3 cr.)

**FINC 514 - Financial Risk Analysis**

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.

(3 cr.)

**FINC 515 - Portfolio Management**

This course blends portfolio theory with the type of practical issues that one will come across in the investment process. Topics include identifying investor objectives and constraints, recognizing risk and return characteristics of investment vehicles, developing strategic asset allocations among equity, fixed-income and risk-free assets, utilizing derivative securities to manage portfolio risk and, if possible, enhance portfolio return, and evaluating portfolio and manager performance relative to investment objectives and appropriate benchmarks. Investment tools, such as economic indicators and regression analysis will be introduced in computer labs.

(3 cr.)

**FINC 516 - Real Estate Finance**

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.

(3 cr.)
FINC 517 - Financial Modeling

The course shows how Learn 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.

(3 cr.)

FINC 527 - Managerial Economics

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.

(3 cr.)

FINC 540 - Financial Management

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.

Prerequisites
ACCT 501

When Offered
Offered in fall and spring.

(3 cr.)

FINC 541 - Investments

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.

Prerequisites
FINC 540

When Offered
Offered in spring.

(3 cr.)
FINC 542 - International Financial Markets

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.

Prerequisites
FINC 540

When Offered
Offered in fall.

(3 cr.)

FINC 543 - Financial Institutions and Markets

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.

Prerequisites
FINC 540

When Offered
Offered occasionally.

(3 cr.)

FINC 544 - Corporate Financial Policy

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.

Prerequisites
FINC 541

When Offered
Offered in fall.

(3 cr.)
FINC 545 - Private Equity and Venture Capital

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.

**Prerequisites**
FINC 540

**When Offered**
Offered occasionally.

(3 cr.)

FINC 546 - Financial Analysis, Planning and Valuation

The course focuses on the framework, concepts and tools for planning business decisions and valuation. Topics discussed include forecasting financial statements, discounted cash flow techniques, alternative valuation methods and the implementation of capital budgets.

**Prerequisites**
FINC 540

**Cross-listed**
Same as ACCT 503.

**When Offered**
Offered occasionally.

(3 cr.)

FINC 570 - Selected Topics in Financial Management

It considers selected topics of current relevance in Financial Management.

**Prerequisites**
Prerequisites: consent of the instructor.

**When Offered**
Offered occasionally.

(3 cr.)

FINC 575 - Independent Study in Financial Management

Guided readings, research, and discussions on specific selected topic in Financial Management.

**Prerequisites**
Prerequisite: Consent of FINC unit head and chair.

**When Offered**
Offered occasionally.

(1-3 cr.)

FINC 590 - Research Methodology
FINC 599 - Thesis

(6 cr.)

GWST 500 - Theorizing Gender

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.
(3 cr.)

GWST 501 - Approaches to Middle East/ North Africa Gender and Women's Studies

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.
(3 cr.)

GWST 502 - Justice: Histories and Theories

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. 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 520.
GWST 503 - Histories and Theories of Gender and Development

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 filed 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.
(3 cr.)

GWST 504 - Gender and Migration

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
MRS 504.
(3 cr.)

GWST 505 - Gender and Feminist Research Methodologies

This course provides an introduction to gender and feminist approaches to dominant theories of knowledge and research methodologies in the social sciences.

Prerequisites
GWST 500

When Offered
Offered in spring.
(3 cr.)

GWST 506 - Reading Capital

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.

(3 cr.)
GWST 507 - Critical Geographies: Reading the Global South

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.

(3 cr.)

GWST 508 - Women and Human Rights

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.

(3 cr.)

GWST 570 - Special Topics in Gender and Women's Studies

Alternating selected topics.
Repeatable
May be taken more than once if content changes.
(3 cr.)

GWST 580 - Independent Study and Readings

Prerequisites
Prerequisite: Approval of IGWS Graduate Advisory Committee.
When Offered
Offered occasionally.
(3 cr.)

GWST 599 - Research Guidance and Thesis

Consultation for students in problems related to their thesis.
When Offered
Offered in fall and spring.
(no cr.)

HIST 110 - World Cultures

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.
(3 cr.)

HIST 111 - Big History for Freshmen

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.
(3 cr.)

HIST 122 - Words That Made History: Great Speeches of the 20th Century

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.
(3 cr.)

HIST 123 - Family History in the Modern Middle East

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.
(3 cr.)

HIST 199 - Selected Topics for Core Curriculum

Course addressing broad intellectual concerns and accessible to all first-year students.
(3 cr.)

HIST 201 - History of American Civilization to the Nineteenth Century

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.
(3 cr.)

HIST 202 - History of Modern American Civilization

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.
(3 cr.)
HIST 203 - Western Civilization from Antiquity to Medieval Europe

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.
(3 cr.)

HIST 204 - Europe from the Middle Ages to the Enlightenment (1337-1789)

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.
(3 cr.)

HIST 205 - Europe in the Age of Revolution and Reform (1789-1914)

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 205
(3 cr.)

HIST 206 - Europe in International Politics in the Twentieth Century

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 206.
(3 cr.)

HIST 207 - World History

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.
(3 cr.)

**HIST 209 - Introduction to American Studies**

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 209.
(3 cr.)

**HIST 210 - Religions of the World**

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.
(3 cr.)

**HIST 211 - History In The Making**

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.
(3 cr.)

**HIST 212 - The Quest for the Historical Jesus**

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 212.
(3 cr.)

**HIST 225 - East Asian History**

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 - History I: Pre-Dynastic Through Middle Kingdom Egypt

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.

(3 cr.)

HIST 244 - History II: Middle Kingdom Through New Kingdom Egypt

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.

Prerequisites
HIST 243 or consent of the instructor.

When Offered
Offered in spring.

Notes
Field trips to the Cairo Museum and other relevant sites are a required part of the course.

(3 cr.)

HIST 246 - Survey of Arab History

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 246.

(3 cr.)

HIST 247 - The Making of the Modern Arab World

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.

(3 cr.)
HIST 299 - Selected Topics for Core Curriculum

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.
Prerequisites
RHET 101
Notes
May be repeated for credit when content changes.
(3 cr.)

HIST 307 - The Middle Ages, the Renaissance and the Reformation

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.
(3 cr.)

HIST 308 - Europe in the Age of Reason

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.
(3 cr.)

HIST 309 - History of American Political Thought

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.
Prerequisites
HIST 201 or HIST 202 or HIST 209
(3 cr.)

HIST 319 - Islamic Spain and North Africa (711-1492 A.D.)

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 319.
(3 cr.)
HIST 320 - Big History

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.

Prerequisites
The course will not be open to students who have already taken HIST 111.
(3 cr.)

HIST 330 - Urban Landscapes in the Modern Middle East/North Africa

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.
(3 cr.)

HIST 331 - History of Palestine/Israel

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.
(3 cr.)

HIST 333 - Zionism and Modern Judaism

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 333.
(3 cr.)

HIST 342 - History of Egypt in the Graeco-Roman Era

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.

Prerequisites
HIST 243 and HIST 244 or instructor's consent.

Cross-listed
HIST 343 - Birth of Muslim Community and Rise of the Arab Caliphates

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 343.

When Offered
Offered occasionally.
(3 cr.)

HIST 344 - Caliphs and Sultans in the Age of Crusades and Mongols

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 344.

When Offered
Offered in spring.
(3 cr.)

HIST 345 - Gunpowder Empires: Ottomans, Safavids and Mughols

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 345.

When Offered
Offered in fall.
(3 cr.)

HIST 346 - Societies and Cultures of the Ancient Near East

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.

Prerequisites
HIST 243 and HIST 244, or instructor's consent

Cross-listed
Same as EGPT 346

When Offered
Offered occasionally.
(3 cr.)

HIST 355 - State and Society in the Middle East, 1699-1914

The Ottoman Empire and Iran: continuities and transformations. Imperial administration and relations with Europe. Challenges to the premodern order: regional and global economics; social and cultural trends

Cross-listed
Same as ARIC 355.
(3 cr.)

HIST 356 - State and Society in the Middle East, 1906-present

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 356.
(3 cr.)

HIST 357 - Selected topics in Middle East History

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 357.

When Offered
Offered occasionally.
(3 cr.)

HIST 400 - Independent Study

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.
(1-3 cr.)

HIST 401 - Selected Topics in the History of the United States
Repeatable
May be repeated for credit when content changes.
(3 cr.)

HIST 402 - Selected Topics in European History

Repeatable
May be repeated for credit when content changes
(3 cr.)

HIST 405 - Selected Topics in World History

Repeatable
May be repeated for credit when content changes.
(3 cr.)

HIST 412 - Selected Topics in Modern Egyptian History

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.
(3 cr.)

HIST 415 - The Marriage Crisis and the Middle East

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.
(3 cr.)

HIST 420 - Historical Theory and Methodology

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.
Prerequisites
Prerequisite: To be taken in senior year
(3 cr.)
HIST 425 - Food in World History

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.

(3 cr.)

HIST 430 - The Environment in World History

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.

(3 cr.)

HIST 435 - Social and Political History of Modern Cairo

The History of Cairo with an emphasis on social, political and economic developments in the twentieth century.

(3 cr.)

HIST 440 - Colonialism and Imperialism in the Middle East and South Asia

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.

(3 cr.)

HIST 445 - Selected Topics in Coptic Studies

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, EGPT, ANTH, SOC 445.

When Offered
Offered in fall.

Notes
Students in these majors may petition preferably before registration to have the course included in their major requirements.

(3 cr.)
HIST 454 - Modern Movements in Islam

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.

Prerequisites
HIST 355 or HIST 356 or equivalent background.

Cross-listed
Same as ARIC 454.
(3 cr.)

HIST 460 - Selected Topics in Middle Eastern History, 600-1250 A. D.

Cross-listed
Same as ARIC 460

When Offered
Offered occasionally.

Repeatable
May be repeated for credit when content changes.
(3 cr.)

HIST 461 - Selected Topics in Middle Eastern History, 1250-1800 A. D.

Cross-listed
Same as ARIC 461.

When Offered
Offered occasionally.

Repeatable
May be repeated for credit when content changes.
(3 cr.)

HIST 462 - Selected Topics in the History of the Modern Middle East

Cross-listed
Same as ARIC 462.

Repeatable
May be repeated for credit when content changes.
(3 cr.)

HIST 463 - Selected Topics in the History of Islamic Thought and Institutions
Prerequisites
Prerequisite: consent of instructor
Cross-listed
Same as ARIC 463.
Repeatable
May be repeated for credit when content changes.
(3 cr.)

HIST 511 - Special Topics in Nineteenth and Twentieth Century European Studies

Content differs according to topics.
Cross-listed
Same as EUST 511.
(3 cr.)

HIST 542 - Seminar on the Nineteenth-Century Middle East

Readings, discussion, and research.
Cross-listed
Same as ARIC 542.
(3 cr.)

HIST 543 - Seminar on the Twentieth-Century Middle East

Readings, discussion, and research.
Cross-listed
Same as ARIC 543.
(3 cr.)

INTB 301 - Introduction to International Business

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.
Prerequisites
MKTG 302 and MGMT 307.
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.
(3 cr.)
INTB 408 - International Finance

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.

**Prerequisites**
FINC 303

**Cross-listed**
Same as FINC 408.

**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.

(3 cr.)

INTB 412 - International Marketing

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.

**Prerequisites**
MKTG 302

**Cross-listed**
Same as MKTG 412

**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.

(3 cr.)

JRMC 200 - Introduction to Mass Communication

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.

(3 cr.)

JRMC 201 - Mass Media Writing
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.
(3 cr.)

**JRMC 202 - Multimedia Writing**

Cross-media study and practice of writing and reporting for print, broadcast, Internet.

**Prerequisites**
JRMC 201
(3 cr.)

**JRMC 203 - Mass Media Ethics and Responsibility**

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.
(3 cr.)

**JRMC 230 - Introduction to Photography**

History, composition, lighting, and other basic elements of photography. Practical applications of digital photography
(3 cr.)

**JRMC 250 - Global Media Systems**

Comparative study of global communication systems and theory in relation to national and international development.

**Notes**
Open to all university students.

(3 cr.)

**JRMC 270 - Online Communication**

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.
(3 cr.)

**JRMC 299 - Selected Topic for Core Curriculum**
Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**Prerequisites**
RHET 101

**When Offered**
Offered occasionally.

**Notes**
Enrollment is limited and priority is given to students with declared JMC majors.

(3 cr.)

**JRMC 301 - Journalism Editing and Design**

Principles of, and laboratory practice in, copyediting and proofreading; headline writing; scaling and cropping photographs; and layout and design.

**Prerequisites**
JRMC 202

(3 cr.)

**JRMC 305 - Introduction to Visual Communication**

Introductory laboratory in basics of typography, desktop publishing, digital design of publications and advertising. Taught by lecture with practical application.

**Prerequisites**
JRMC 201

(3 cr.)

**JRMC 310 - Public Opinion, Persuasion and Propaganda**

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.

(3 cr.)

**JRMC 312 - Multimedia Journalism Lab: The Caravan**

Supervised newsroom experience in reporting, writing, editing, designing and layout for print, broadcast and online version of The Caravan and AUC TV.

**Prerequisites**
JRMC 202, JRMC 203 and JRMC 301 or consent of instructor.

(3 cr.)
JRMC 315 - Introduction to Advertising

Survey of professional principles and practices in advertising and their relationship to business and government, with special emphasis on the United States and Egypt.

Prerequisites
JRMC 305
(3 cr.)

JRMC 320 - Mass Communication Research

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.

Prerequisites
Junior standing.
(3 cr.)

JRMC 330 - Advanced Photography

Theory and practice of photojournalism. Advanced photography and photo editing techniques and operations.

Prerequisites
JRMC 230
(3 cr.)

JRMC 333 - Research for Journalists

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.

Prerequisites
JRMC 312
Notes

(3 cr.)

JRMC 337 - TV Scriptwriting and Production

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.

Prerequisites
JRMC 202  
(3 cr.)

JRMC 339 - Studio Production: AUC TV

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.

Prerequisites  
JRMC 337  
Notes

(3 cr.)

JRMC 355 - Creative Strategy and Advertising Copywriting

Development of creative strategy, writing advertising and promotional copy, designing and preparing layouts for various media, planning and executing written and oral presentations.

Prerequisites  
JRMC 305 and JRMC 315  
Notes

(3 cr.)

JRMC 402 - Reporting and Writing in Arabic

Advanced principles and practice in reporting and writing in and from Arabic.

Prerequisites  
Completion of university general requirements in Arabic and JRMC 202 .

When Offered  
Offered occasionally.

(3 cr.)

JRMC 403 - Feature and Magazine Writing

Principles and intensive practice in researching, organizing, and writing feature articles for international newspapers and magazines.

Prerequisites
JRMC 202
When Offered
Offered occasionally.
Notes
Enrollment is limited and priority is given to students with declared MMJ majors.
(3 cr.)

JRMC 405 - Advanced Visual Communication

Advanced practical integration of digital text and photographs in desktop publishing of printed material using state-of-the-art production hardware and software.
Prerequisites
JRMC 305
When Offered
Offered occasionally.
(3 cr.)

JRMC 406 - Internship

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.
Prerequisites
Junior standing.
Notes
(3 cr.)

JRMC 412 - Newsroom Editing and Management

Supervised advanced newsroom experience in writing, editing, layout and management of Caravan, the AUC newspaper.
Prerequisites
JRMC 312
(3 cr.)

JRMC 415 - Public Relations Theory and Techniques

Principles and practical use of public relations and public information techniques, with emphasis on media use for business and non-profit organizations.
Prerequisites
JRMC 202 and JRMC 315  
(3 cr.)

**JRMC 420 - Media Management**

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.  
**Prerequisites**  
Junior standing.  
**Notes**

(3 cr.)

**JRMC 425 - Integrated Marketing Communication Campaigns Capstone**

Examination, development, and critique of advertising and marketing communication campaigns, with emphasis given to creative and media factors.  
**Prerequisites**  
JRMC 415  
**Notes**  
IMC seniors only.

(3 cr.)

**JRMC 441 - Camera and Editing Workshop**

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.  
**Prerequisites**  
JRMC 202  
(3 cr.)

**JRMC 444 - Media Law and Policy**

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.

**Prerequisites**  
JRMC 203  
(3 cr.)
**JRMC 460 - Audio Production**

Studio experience in Audio production.

**Prerequisites**
JRMC 202 and junior standing.
(3 cr.)

**JRMC 471 - Online Journalism**

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.

**Prerequisites**
JRMC 202
(3 cr.)

**JRMC 480 - Multimedia Reporting Capstone**

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.
(3 cr.)

**JRMC 482 - Media Convergence Capstone**

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.
(3 cr.)

**JRMC 490 - Special Topics in Mass Communication**

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
(1-3 cr.)

**JRMC 499 - Directed Individual Study in Mass Communication**
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.

**Prerequisites**
Junior standing and written project proposal endorsed by full-time faculty with project review by department.

**Repeatable**
May be repeated once for credit if content changes.

**Notes**
Enrollment is limited and priority is given to students with declared JRMC majors.

(1-3 cr.)

**JRMC 500 - Mass Communication Theory and Literature**

Survey of mass communication theory and the philosophical, sociological and political effects of mass media on audiences and societies.

**When Offered**
Offered in fall.

(3 cr.)

**JRMC 501 - Advanced Reporting and Writing**

Intensive reporting, research, and writing of in-depth articles for magazines and newspapers with intent to publish.

**Prerequisites**
appropriate professional experience or undergraduate coursework (JRMC 201 and JRMC 301 or equivalent).

**When Offered**
Offered in fall.

(3 cr.)

**JRMC 502 - Current Issues in Mass Communication**

Overview of major issues in mass communication and how they impact audiences and society.

**When Offered**
Offered in spring.

(3 cr.)

**JRMC 504 - Research Methods in Mass Communication**

Introduction to scientific method and mass media research methods: field surveys, quantitative and qualitative research.

**When Offered**
Offered in fall.

(3 cr.)
JRMC 506 - Internship

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.
(3 cr.)

JRMC 537 - TV News Gathering and Script Writing

Introduces students to the theory 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.

Prerequisites
JRMC 201 and JRMC 337.
(3 cr.)

JRMC 538 - Arabic TV Script Writing

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.

Prerequisites
JRMC 537

Notes
Non-Arab students may substitute an elective with approval of the director.

(3 cr.)

JRMC 539 - TV Presentation and Voice Coaching

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.

Prerequisites
JRMC 537
(3 cr.)

JRMC 540 - Reporting Civil Society
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.

**Prerequisites**
- JRMC 501 and JRMC 571

**When Offered**
- Offered in fall.

(3 cr.)

**JRMC 541 - Digital Camera Production**

Intensive field training on how to use digital video cameras. Students will learn the basic of camera shooting, sequencing framing, lighting, and also how to conduct voxpops and interviews. Students will practice shooting on different camera models and formats.

**Prerequisites**
- JRMC 337

(3 cr.)

**JRMC 542 - Digital Video Editing**

Intensive training in editing labs to master basic operation of video editing equipment to undertake the editing of simulated news events to a finished professional product. Students will learn how to edit their stories using machine to machine editing (linear editing) and software editing (non linear editing).

**Prerequisites**
- JRMC 337, JRMC 541

(3 cr.)

**JRMC 545 - Broadcast News Intensive I**

This course provides students with an intensive real-world exposure to the production of a television news broadcast. Students will be involved in all aspects of producing a weekly TV news program, including reporting, producing, executive producing, studio camera work, directing, writing and anchoring.

**Prerequisites**
- JRMC 537, JRMC 541 and JRMC 542

**When Offered**
- Offered in fall.

(3 cr.)

**JRMC 546 - Broadcast News Intensive II**
This course is a continuation of JRMC 545, providing students with advanced intensive real-world exposure to the production of a television news broadcast. Students will be involved in all aspects of producing a weekly TV news program, including reporting, producing, executive producing, studio camera work, directing, writing and anchoring. In addition, students fluent in Arabic will produce reports in Arabic.

**Prerequisites**
JRMC 545

**When Offered**
Offered in spring.
(3 cr.)

**JRMC 550 - Seminar in International Communication**

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.
(3 cr.)

**JRMC 559 - TV Interviewing & Talk Show Hosting**

Theory and intensive practice in TV skills of interviewing guests on one-on-one bases as well as hosting talk shows.

**Prerequisites**
Appropriate professional experience or undergraduate coursework (JRMC 201, JRMC 301 or equivalent).
(3 cr.)

**JRMC 560 - Seminar on Electronic Journalism and Arab Society**

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.
(3 cr.)

**JRMC 570 - Seminar in Mass Communication and National Development**

The role of mass communication in developing nations and its relationship to economic growth, education, socialization, persuasion, and diffusion of innovation.

**When Offered**
JRMC 571 - Digital Journalism

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.
(3 cr.)

JRMC 580 - Impact of Television: Issues and Developments

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 spring.
(3 cr.)

JRMC 588 - Comprehensives

Individual consultation for students preparing for the comprehensive examination.

When Offered
Offered in fall and spring.
(no cr.)

JRMC 590 - Special Topics

Content varies with the instructor. Can be repeated once for credit if content changes.

When Offered
Offered occasionally.
(3 cr.)

JRMC 599 - Research Guidance and Thesis

Consultation with students as they prepare their theses.

When Offered
Offered in fall and spring.
(no cr.)
LAW 500 - Legal Research and Writing

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.

(3 cr.)

LAW 501 - Jurisprudence

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.

Prerequisites
LAW 500  (prerequisites can be waived by special permission of the Law department)
(3 cr.)

LAW 502 - Comparative Law

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.

(3 cr.)

LAW 503 - Law and Economic Development

Exploration of the relationship between different strategies of economic development and legal reforms in the public and private spheres from a comparative law perspective.

(3 cr.)

LAW 504 - European Union Law

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.

Prerequisites
LAW 502 or LAW 509  (Prerequisites can be waived by special permission of the Law department).

Cross-listed
Same as EUST 504.
(3 cr.)
LAW 505 - Islamic Law Reform

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.

Prerequisites
LAW 502 or LAW 509 (Prerequisites can be waived by special permission of the Law department).
(3 cr.)

LAW 506 - Egyptian Legal History

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.
(3 cr.)

LAW 507 - The Law and Practice of the Settlement of International Disputes Between States

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.

Prerequisites
LAW 509 and LAW 510 (prerequisites can be waived by special permission of the Law Department).
(3 cr.)

LAW 508 - International Criminal Law

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.

Prerequisites
LAW 509 and LAW 510 (prerequisites can be waived by special permission of the Law Department).
(3 cr.)
LAW 509 - International Law

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.
(3 cr.)

LAW 510 - Introduction to International Human Rights and Humanitarian Law

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).
(3 cr.)

LAW 511 - International Humanitarian Law

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.
Prerequisites
LAW 509 and LAW 510 (prerequisites can be waived by special permission of the Law Department).
(3 cr.)

LAW 512 - Human Rights and the United Nations

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.
Prerequisites
LAW 509 and LAW 510. (Prerequisites can be waived by special permission of the Law department).
(3 cr.)
LAW 513 - The European System of Human Rights Protection

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.

**Prerequisites**
LAW 509 and LAW 510. (Prerequisites can be waived by special permission of the Law department).

**Cross-listed**
Same as EUST 513.
(3 cr.)

LAW 514 - Human Rights in the Middle East

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.

**Prerequisites**
LAW 509 and LAW 510. (Prerequisites can be waived by permission of the department).
(3 cr.)

LAW 515 - Comparative Constitutional Law and Human Rights

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.

**Prerequisites**
LAW 509 and LAW 510. (Prerequisites can be waived by special permission of the Law department).
(3 cr.)

LAW 516 - Economic, Social, and Cultural Rights

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.

**Prerequisites**
LAW 509 and LAW 510. (Prerequisites can be waived by special permission of the Law department).
(3 cr.)
LAW 517 - Human Rights and Identity Groups

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.

**Prerequisites**

LAW 509 and LAW 510. (Prerequisites can be waived by special permission of the Law department).

(3 cr.)

LAW 518 - International Refugee Law

A consideration of the dynamics between the legal rights of forced migrants and the privilege of states to grant asylum. This course is required of all students seeking the diploma in Forced Migration and Refugee Studies.

**Prerequisites**

LAW 509 and LAW 510. (Prerequisites can be waived by special permission of the Law department).

**Cross-listed**

Same as MRS 518.

(3 cr.)

LAW 519 - Human Rights in Africa

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.

**Prerequisites**

LAW 509 and LAW 510 (Prerequisites may be waived by permission of the department)

(3 cr.)

LAW 520 - Justice: Histories and Theories

This course introduces students to justice as a problem in contemporary cultural, legal and philosophical debates. The course explores the different domains through which justice becomes a universal language of rights, and the resultant compartmentalization of human experiences along parameters in which culture is presumed to be non-existent, rendering different forms of justice, such as gender justice, appendixes to the already known. This course will engage with questions of distribution of justice - economic, social, political, historical- in the contemporary world with special focus on locating theories of justice in the practice thereof. It is conceived as laying the intellectual foundation for the
GWST gender and justice graduate concentration, for graduate work in IHRL and other related fields. This is a joint
course offered by the Institute for Gender and Women's Studies and the Department of Law.

Cross-listed
Same as GWST 502.
(3 cr.)

LAW 522 - International Economic and Trade Law

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.
(3 cr.)

LAW 523 - International Commercial Arbitration

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.
Prerequisites
LAW 502 or LAW 509 (Prerequisites can be waived by special permission of the Law department).
(3 cr.)

LAW 524 - Comparative Corporate Governance

Comparison of how select questions of corporate governance, control, and finance are regulated under American,
French, German, and Egyptian corporate law.
Prerequisites
LAW 502
(3 cr.)

LAW 525 - Securities Regulation Law

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.
Prerequisites
LAW 502
(3 cr.)

LAW 526 - Antitrust Law

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.
Prerequisites
LAW 502 (Prerequisites can be waived by special permission of the Law department).
(3 cr.)

LAW 527 - Graduate Law Seminar

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.

Prerequisites
Permission of the Department. Prerequisites can be waived by special permission of the Law Department.
(3 cr.)

LAW 528 - Migration in International Law

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.

Prerequisites
LAW 509 and LAW 510
Cross-listed
Same as MRS 528.
(3 cr.)

LAW 570 - Special Topics in Comparative Law

In addition to allowing the resident faculty to give special topics seminars as regular 3 credit courses, this course as well as LAW 571 and LAW 572 are used to accommodate the short courses that distinguished visiting lecturers give, with varying credit values depending on the number of hours covered.

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.
(up to 3 cr.)

LAW 571 - Special Topics in International Law
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.
(up to 3 cr.)

LAW 572 - Special Topics in Public Law

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.
(up to 3 cr.)

LAW 575 - Special Topics in International Human Rights Law

Specialized areas of International Human Rights Law.

Prerequisites
Prerequisite: consent of the instructor.

Repeatable
May be taken a second time for credit if content changes.
(3 cr.)

LAW 584 - Human Rights in Practice

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.

Prerequisites
Consent of the instructor.
(3 cr.)

LAW 585 - Legal Practice

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.

Prerequisites
Consent of the instructor.
(3 cr.)
**LAW 586 - Independent Study**

Guided individual reading and/or research on a subject of mutual interest to the student and the faculty member.

**Prerequisites**
Consent of the instructor and approval of the Degree Program Director.

**LAW 599 - Research Guidance/Thesis**

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.

**Prerequisites**
LAW 527
(no cr., graded)

**LING 200 - Languages of the World**

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.

(3 cr.)

**LING 252 - Introduction to Linguistics**

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.

(3 cr.)

**LING 268 - Principles and Practice of Teaching English**

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.

**Prerequisites**
RHET 201.

(3 cr.)
LING 299 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

Prerequisites
RHET 101.

Repeatable
May be taken more than once if content changes
(3 cr.)

LING 322 - Introduction to Phonetics

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.
(3 cr.)

LING 352 - Language in Culture

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 352
(3 cr.)

LING 422 - Language and Human Development

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.
(3 cr.)

MACT 100 - Algebra and Trigonometry


Prerequisites
Prerequisites: Thanawyia 'Amma Arts or equivalent.

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 - Basic Mathematics for Social Sciences


**Prerequisites**
Prerequisite: Thanawyia 'Amma Science or MACT 100.

**When Offered**
Offered occasionally.

**Notes**
No credit for science majors

(3 cr.)

MACT 112 - Statistical Reasoning

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.

(3 cr.)

MACT 131 - Calculus I

Limits of one-variable functions, continuity and differentiability. Extrema and Curve sketching. Related rates. Linear approximation. Differentiation of Trigonometric functions. Applications of the derivative

**Prerequisites**
Prerequisite: Thanawiya, 'Amma Science or equivalent.

**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.

(0/3)

MACT 132 - Calculus II

integrals

Prerequisites
MACT 131 or exemption.

When Offered
Offered in fall and spring.
(3 cr.)

MACT 199 - Selected Topic for Core Curriculum

A course addressing broad intellectual concerns and accessible to all students, irrespective of major.

When Offered
Offered in fall and spring.
(3 cr.)

MACT 200 - Discrete Mathematics


Prerequisites
MACT 100 or equivalent.

When Offered
Offered in fall and spring.
(3 cr.)

MACT 210 - Statistics for Business

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.
(3 cr.)

MACT 231 - Calculus III


Prerequisites
MACT 132

When Offered
Offered in fall and spring.
(3 cr.)

**MACT 232 - Calculus IV**


**Prerequisites**
MACT 231

**When Offered**
Offered in fall and spring.
(3 cr.)

**MACT 233 - Differential Equations**


**Prerequisites**
MACT 231

**When Offered**
Offered in fall and spring.
(3 cr.)

**MACT 240 - Linear Algebra**


**Prerequisites**
MACT 231

**When Offered**
Offered in fall and spring.
(3 cr.)

**MACT 301 - Seminar in Mathematics**

Weekly one hour seminar in different areas of Mathematics to be given by faculty or invited speakers from industries and other scientific communities.

**Prerequisites**
Prerequisite: junior standing

**When Offered**
Offered occasionally.
(1 cr.)
MACT 304 - Numerical Methods


**Prerequisites**
CSCE 106 MACT 233 and MACT 240. Any of them can be taken concurrently.

**When Offered**
Offered once a year.

(3 cr.)

MACT 305 - Introduction to PDE and Boundary-Value Problems


**Prerequisites**
MACT 233

**When Offered**
Offered occasionally.

(3 cr.)

MACT 306 - Applied Probability

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.

**Prerequisites**
MACT 231 or concurrently.

**When Offered**
Offered once a year.

(3 cr.)

MACT 307 - Statistical Inference

Sampling distribution. Point and interval estimation, methods of moments and MLE. Hypothesis testing, Uniformly Most Powerful (UMP), generalized likelihood ratio tests and order statistics.

**Prerequisites**
MACT 306

**When Offered**
Offered once a year.

(3 cr.)
MACT 308 - Linear Programming

Formulation of linear programming problems, graphical solutions, the simplex method. The revised simplex method, dual problems and sensitivity analysis. Transportation and assignment problems.

**Prerequisites**

MACT 240

**When Offered**

Offered occasionally.

(3 cr.)

MACT 310 - Operations Research


**Prerequisites**

MACT 231

**When Offered**

Offered occasionally.

(3 cr.)

MACT 317 - Probability and Statistics

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.

**Prerequisites**

MACT 231 or concurrently.

**When Offered**

Offered in fall and spring.

(3 cr.)

MACT 321 - Mathematics of Investment

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.

**Prerequisites**

MACT 231 or concurrently.

**When Offered**
MACT 362 - Formal and Mathematical Logic

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.

Prerequisites
MACT 200 or PHIL 221 or consent of the instructor.

Cross-listed
Same as PHIL 362.

When Offered
Offered occasionally.

(3 cr.)

MACT 401 - Complex-Function Theory


Prerequisites
MACT 232

When Offered
Offered once a year.

(3 cr.)

MACT 403 - Modern Algebra


Prerequisites
MACT 200, MACT 240, or consent of instructor.

When Offered
Offered once a year.

(3 cr.)

MACT 406 - Stochastic Processes

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.

Prerequisites
MACT 233 MACT 306 or MACT 317

When Offered
MACT 407 - Insurance Loss Models I

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.

Prerequisites
MACT 306

When Offered
Offered once a year.
(3 cr.)

MACT 408 - Insurance Loss Models II

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.

Prerequisites
MACT 307 MACT 317 and MACT 407

When Offered
Offered once a year.
(3 cr.)

MACT 409 - Selected Topics in Mathematics

Topics chosen according to interests of students and faculty.

Prerequisites
Prerequisite: consent of instructor.

When Offered
Offered occasionally.

Repeatable
May be repeated for credit if content changes.
(3 cr.)

MACT 410 - Guided Studies in Mathematics
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.

**Prerequisites**
Prerequisite: senior standing and consent of supervisor.

**Repeatable**
May be repeated for credit if content changes

(1-3 cr.)

**MACT 411 - Selected Topics in Actuarial Science**

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.

**Prerequisites**
Senior standing and consent of supervisor.

**When Offered**
Occasionally.

**Repeatable**
May be repeated for credit if content changes.

(3 cr.)

**MACT 412 - Mathematical Modeling**

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.

**Prerequisites**
MACT 240 and MACT 406

**When Offered**
Offered once a year.

(3 cr.)

**MACT 421 - Mathematics of Derivatives Pricing I**

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.

**Prerequisites**
MACT 321

**When Offered**
MACT 422 - Mathematics of Derivatives Pricing II

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-Sholes equation, Itô's lemma, risk-neutral pricing in continuous time, continuous and discrete time interest rate models.

Prerequisites
MACT 421

When Offered
Offered once a year.
(3 cr.)

MACT 423 - Life Contingencies I

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.

Prerequisites
MACT 306 and MACT 321

When Offered
Offered once a year.
(3 cr.)

MACT 424 - Life Contingencies II

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.

Prerequisites
MACT 423

When Offered
Offered once a year.
(3 cr.)

MACT 427 - Applied Regression Methods


Prerequisites
MACT 240 and either MACT 307 MACT 317 or ECON 218

When Offered
Offered once a year.
(3 cr.)

MACT 428 - Analysis of Time Series Data

This course is a continuation of MACT 427. 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.

Prerequisites
MACT 427 or ECON 318

When Offered
Offered once a year.
(3 cr.)

MACT 429 - Applied Multivariate Analysis


Prerequisites
MACT 240 and either MACT 307 MACT 317 or ECON 318

When Offered
Offered once a year.
(3 cr.)

MACT 431 - Real Analysis I


Prerequisites
MACT 200 ,MACT 232 or consent of instructor.

When Offered
Offered once a year.
(3 cr.)

MACT 432 - Real Analysis II

**MACT 440 - Graph Theory**

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.

**Prerequisites**
MACT 200, and either MACT 306, MACT 317 or consent of instructor.

**When Offered**
Offered occasionally.

(3 cr.)

**MACT 495 - Senior Thesis**

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.

**Prerequisites**
Senior standing.

**When Offered**
Offered occasionally.

(3 cr.)

**MACT 497 - Practical Internship**

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.

**Prerequisites**
Prerequisite: Permission of the Department Chair or the Director of Actuarial Science Program

**When Offered**
Offered in fall, spring and summer.

(3 cr.)

**MACT 604 - Advanced Numerical Methods**
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.

**Prerequisites**
Consent of instructor.
(3 cr.)

**MACT 605 - Advanced Probability with Engineering Applications**

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.

**Prerequisites**
A course in probability and consent of instructor.
(3 cr.)

**MENG 215 - Mechanical Engineering Drawing**


**Prerequisites**
ENGR 101 and ENGR 115

**Hours**
One three hour lab period

**When Offered**
Offered in fall and spring.
(1 cr.)

**MENG 327 - Engineering Materials**


**Prerequisites**
CHEM 105 and ENGR 229

**When Offered**
Offered in fall and spring.
(3 cr.)

**MENG 339 - Fundamentals of Manufacturing Processes**

**Prerequisites**
MENG 327

**Hours**
Two class periods and one three-hour lab period.

**When Offered**
Offered in fall and spring.

(3 cr.)

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**MENG 341 - Engineering Operations Research**

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.

**Prerequisites**
ENGR 313

**When Offered**
Offered in fall and spring.

(3 cr.)

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**MENG 342 - Quality and Process Control**

Fundamentals of statistical quality control; control charts for variables and attributes; process capability analysis; sampling plans and techniques; introduction to design of experiments.

**Prerequisites**
ENGR 313 and MACT 317

**Hours**
Two class periods and one three hour lab period.

**When Offered**
Offered in fall and spring.

(3 cr.)

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**MENG 344 - Work Analysis and Design**

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.

**Prerequisites**
MENG 339

**When Offered**
Offered in fall.

(3 cr.)
MENG 346 - Engineering and Project Management


Prerequisites
MACT 317

When Offered
Offered in fall.
(3 cr.)

MENG 355 - Mechanics of Materials


Prerequisites
ENGR 229 and MENG 215

When Offered
Offered in fall and spring.
(3 cr.)

MENG 356 - Mechanical Design I


Prerequisites
ENGR 214 MENG 215 and MENG 355

Hours
Two class periods and one three-hour design and analysis session

When Offered
Offered in fall and spring.
(3 cr.)

MENG 361 - Fundamentals of Thermodynamics


Prerequisites
ENGR 261 and CHEM 105

When Offered
Offered in fall and spring.
(3 cr.)
**MENG 362 - Applied Fluid Mechanics**

Dimensional analysis, fluid measurements, compressible flow, pipe network and water hammer, turbo machinery, pumps and turbines.

**Prerequisites**
MENG 361

**Hours**
Two class periods and one three-hour lab period

**When Offered**
Offered in fall and spring.

(3 cr.)

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**MENG 365 - Applied Thermodynamics**


**Prerequisites**
MENG 361

**Hours**
Two class periods and one three-hour lab period.

**When Offered**
Offered in fall and spring.

(3 cr.)

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**MENG 372 - Mechanical Systems**

Linkage synthesis, position, velocity, and acceleration of mechanisms, cams, gears and gear trains, machine dynamics, rotating and reciprocating machines, dynamic balancing.

**Prerequisites**
ENGR 214 and ENGR 313.

**When Offered**
Offered in fall and spring.

(3 cr.)

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**MENG 375 - System Dynamics**


**Prerequisites**
PHYS 215 and MENG 372.

**When Offered**
MENG 411 - Turbo-Machinery


Prerequisites
MENG 362

When Offered
Offered in fall.
(3 cr.)

MENG 412 - Power Plant Technology


Prerequisites
MENG 365 and MENG 466 or concurrent.

When Offered
Offered in fall.
(3 cr.)

MENG 413 - Design of Renewable Energy Systems


Prerequisites
MENG 365 and MENG 466.

When Offered
Offered in spring.
(3 cr.)

MENG 415 - Internal Combustion Engines

Prerequisites
MENG 362 and MENG 365

When Offered
Offered in spring.
(3 cr.)

MENG 416 - Design of Mechanical Systems in Building

Calculation of building cooling and heating loads, and ventilation requirements. Design of Air conditioning and ventilation systems. Passive cooling and heating. Air conditioning equipment.

Prerequisites
MENG 365 and MENG 466.

When Offered
Offered in fall.
(3 cr.)

MENG 417 - Refrigeration and Air-conditioning


Prerequisites
MENG 466 or concurrent and MENG 365

When Offered
Offered in spring.
(3 cr.)

MENG 421 - Ceramics and Composites

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.

Prerequisites
MENG 339

Hours
Two class periods and one three hour lab period.

When Offered
Offered in spring.
(3 cr.)

MENG 425 - Polymers and Composites

**Prerequisites**  
MENG 339

**Hours**  
Two class periods and one three-hour laboratory

**When Offered**  
Offered in spring.

(3 cr.)

**MENG 426 - Metals, Alloys and Composites**


**Prerequisites**  
MENG 339

**Hours**  
Two class periods and one three-hour lab period

**When Offered**  
Offered in fall.

(3 cr.)

**MENG 427 - Failure of Mechanical Components**


**Prerequisites**  
MENG 339

**When Offered**  
Offered in spring.

(3 cr.)

**MENG 428 - Selection of Materials and Processes for Design**


**Prerequisites**  
MENG 339 and MENG 356

**When Offered**  
Offered in fall and spring.

(3 cr.)
MENG 429 - Nanostructured Materials


Prerequisites
MENG 339

Cross-listed
Same as MENG 530.

When Offered
Offered spring.
(3 cr.)

MENG 432 - Materials, Processing, and Design

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.

Prerequisites
MENG 339

Hours
Two class periods and one three-hour laboratory

When Offered
Offered in fall.
(3 cr.)

MENG 436 - Selected Topics in Materials and Manufacturing

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.

Prerequisites
MENG 339

When Offered
Offered occasionally.
(3 cr.)

MENG 439 - Advanced Manufacturing Processes

Nontraditional manufacturing processes, such as 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.
Prerequisites
MENG 339

Hours
Two class periods and one three-hour lab period.

When Offered
Offered in fall.

(3 cr.)

MENG 441 - Decision Support in Engineering Systems

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.

Prerequisites
MENG 341 and MACT 317.

When Offered
Offered occasionally.

(3 cr.)

MENG 442 - Quality and Reliability Engineering

Quality in design, tolerances, national and international standards, selection and measurement of process quality parameters, quality costs, establishment of quality assurance labs in service and manufacturing industries, calibration, life testing and failure analysis, basic concepts of systems and component reliability and quality engineering cases and applications.

Prerequisites
MENG 342

When Offered
Offered in spring.

(3 cr.)

MENG 443 - Systems Simulation

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.

Prerequisites
MENG 342

When Offered
Offered occasionally.

(3 cr.)

MENG 445 - Production and Inventory Control
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.

**Prerequisites**
ENGR 313 and ENGR 345

**When Offered**
Offered in fall and spring.

(3 cr.)

**MENG 447 - Manufacturing System Automation**

Computer assisted manufacturing systems NC, CNC, DNC, robotics, material handling, group technology, flexible manufacturing systems, process planning and control.

**Prerequisites**
MENG 339

**Hours**
Two class periods and one three-hour lab period

**When Offered**
Offered in spring.

(3 cr.)

**MENG 448 - Facilities Planning**

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.

**Prerequisites**
MENG 339

**When Offered**
Offered in spring.

(3 cr.)

**MENG 449 - Maintenance Management Systems**

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.

**Prerequisites**
ENGR 345

**When Offered**
Offered in fall.

(3 cr.)

**MENG 451 - Computer-Aided Design and Prototyping**

**Prerequisites**
Senior standing, MENG 215 and MENG 356

**Hours**
Two class periods and one three-hour lab period.

**When Offered**
Offered in spring.

(3 cr.)

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**MENG 453 - Finite Element Method and Applications in Design**


**Prerequisites**
MENG 355 and ENGR 313

**Hours**
Two class-periods and one three-hour lab period.

**When Offered**
Offered in fall.

(3 cr.)

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**MENG 454 - Finite Element Method in Dynamic Analysis and Design**

Finite element formulation of eigen problems and initial value problems in one- and multi-dimensions; model, harmonic and transient response; applications in mechanical engineering.

**Prerequisites**
MENG 453

**When Offered**
Offered occasionally.

(3 cr.)

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**MENG 455 - Design of Engineering Systems**

Elements of system architecture, product versus process-driven design objectives, design of systems, synthesis and analysis in systems design, case studies.

**Prerequisites**
MENG 356

**When Offered**
Offered in occasional.

(3 cr.)
MENG 457 - Mechanical Design II


Prerequisites
MENG 356 and MENG 372

Hours
Two class periods and one three-hour design and analysis session.

When Offered
Offered in fall and spring.

(3 cr.)

MENG 458 - Integrated Design


Prerequisites
MENG 339 and MENG 356

When Offered
Offered in fall.

(3 cr.)

MENG 466 - Heat Transfer


Prerequisites
ENGR 313 and MENG 362

Hours
Three class periods and one three-hour laboratory period

When Offered
Offered in fall and spring.

(4 cr.)

MENG 475 - Applied Vibration Measurements, Analysis and Control

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.

Prerequisites
Senior standing and MENG 375

Hours
Two class periods and one three-hour laboratory period
**MENG 476 - Automatic Control Systems**


**Prerequisites**
Senior standing and MENG 375.

**When Offered**
Offered in spring.
(3 cr.)

**MENG 477 - Robotics: Design, Analysis and Control**

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.

**Prerequisites**
ENGR 214.

**When Offered**
Offered in fall.
(3 cr.)

**MENG 478 - Microcontrollers and Mechatronics systems**

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.

**Prerequisites**
PHYS 215

**Hours**
Two class periods and one three-hour laboratory period

**When Offered**
Offered in fall.
(3 cr.)

**MENG 479 - Integrated Design of Electromechanical Systems**
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 Electropneumatic control. Design, control and application of electromechanical systems, Integrated Mechatronics design project.

**Prerequisites**
MENG 375

**Hours**
Two class periods and one three-hour laboratory period.

**When Offered**
Offered in spring.

(3 cr.)

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**MENG 480 - Special Problems in Engineering**

Independent study in various problem areas of engineering may be assigned to individual students or to groups. Readings assigned and frequent consultations held.

**Prerequisites**
Prerequisite: approval of department chair.

**When Offered**
Offered in fall and spring.

**Repeatable**
May be repeated for credit if content changes

(1-3 cr.)

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**MENG 490 - Senior Project I**

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.

**Prerequisites**
Prerequisite: senior standing and completion of all ENGR in addition to a minimum of 18 credits of MENG.

**When Offered**
Offered in fall and spring.

(1 cr.)

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**MENG 491 - Senior Project II**

Participating students continue the work on the project topic selected in MENG 490. Participants give an oral presentation of the main results achieved. After criticism and suggestions, they submit a written report.

**Prerequisites**
MENG 490

**When Offered**
Offered in fall and spring.

(2 cr.)
MENG 492 - Selected Topics in Mechanical Engineering

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.

Prerequisites
Prerequisite: senior standing.

When Offered
Offered occasionally.

(3 cr.)

MENG 494 - Selected Topics in Design

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.

Prerequisites
Prerequisite: senior standing in mechanical engineering.

When Offered
Offered in spring.

(3 cr.)

MENG 497 - Industrial Training

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.

Prerequisites
Prerequisite: Senior standing and completion of all ENGR in addition to a minimum of 18 credits of MENG.

When Offered
Offered in fall.

(1 cr.)

MENG 517 - Engineering Systems Analysis and Design

Introduction, system design process, system modelling and optimization, design for operational feasibility, artificial intelligence and expert systems, applications.

(3 cr.)

MENG 521 - Advanced Topics in Mechanical Behavior of Engineering Materials

MENG 522 - Materials in Design and Manufacturing


(3 cr.)

MENG 523 - Physical Metallurgy


(3 cr.)

MENG 524 - Electronic Phenomena in Solids

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.

Cross-listed
Same as NANO 502.

(3 cr.)

MENG 525 - Deformation and Fracture of Materials

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.

(3 cr.)

MENG 526 - Computer Methods in Materials Engineering

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.

(3 cr.)
MENG 527 - Composite Materials: Mechanics, Manufacturing, and Design

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.

(3 cr.)

MENG 528 - Advanced Testing and Characterization Techniques

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 503
(3 cr.)

MENG 529 - Failure Analysis and Prevention

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.

(3 cr.)

MENG 530 - Nanostructured Materials


Cross-listed
Same as MENG 429.

When Offered
offered in spring
(3 cr.)
MENG 531 - Fabrication of Nanomaterials For Films And Devices

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 504.
When Offered
occasionally.
(3 cr.)

MENG 532 - Simulation and Modeling for Nanoscale Materials and Systems

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 502.
(3 cr.)

MENG 534 - Materials for Energy Conversion and Storage

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 533.
(3 cr.)

MENG 535 - Biomaterials

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 630.
(3 cr.)
MENG 541 - Integrated Manufacturing Systems

Computer aided manufacturing, automation, flexible manufacturing systems, numerical control machines, computerized process planning, information systems in a plant, selection of automated systems.
(3 cr.)

MENG 542 - Total Quality Management

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.
(3 cr.)

MENG 543 - Systems Modeling and Optimization

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.
(3 cr.)

MENG 545 - Production Systems Design

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.
(3 cr.)

MENG 548 - Facilities Planning and Design

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.
(3 cr.)

MENG 553 - Advanced Computer Aided Design

MENG 554 - Advanced Stress Analysis in Design and Manufacturing


MENG 555 - Analysis and Design of Dynamic Systems


MENG 557 - Engineering Design Methodologies

Conceptual design: levels, generic concepts, main and subconcepts. The preliminary design stage. Design for reliability. Design optimization. Examples and a case study.

MENG 558 - Applied Finite Element Analysis for Engineers


MENG 560 - Applied Control, Vibration and Instrumentations

Prerequisites
Instructor Consent.
(3 cr.)

MENG 561 - Robotics: Kinematics, Dynamics and Control


Prerequisites
Instructor Consent.
Cross-listed
Same as RCSS 501.
(3 cr.)

MENG 562 - Embedded Real Time Systems


Prerequisites
Instructor Consent.
Cross-listed
Same as RCSS 502.
(3 cr.)

MENG 563 - Modern Control Design


Prerequisites
Instructor consent.
Cross-listed
**MENG 564 - Autonomous Robotics: Modeling, Navigation and Control**


**Prerequisites**
Instructor Consent.

**Cross-listed**
Same as RCSS 521.

(3 cr.)

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**MENG 573 - Cogeneration and Energy Storage**

Introduction to cogeneration; cogeneration technologies; issues and applications; introduction to energy storage; types; applications in renewable energy and conventional systems; economic analysis.

**Prerequisites**
B.Sc. level Mechanical engineering courses in Thermodynamics, Heat transfer, Fluid mechanics and applications, or equivalent.

(3 cr.)

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**MENG 575 - CFD and Turbulence Modeling**

Introduction to CFD, basic equations of Flow, FV method, SIMPLE algorithm and variants. Turbulence modeling. Introduction to PHOENICS/FLUENT code, application to case studies.

**Prerequisites**
Undergraduate level knowledge of
i) fluid properties, fluid flows with and without friction, duct flows, Bernouli’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.

(3 cr.)

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**MENG 580 - Independent Study in Engineering**

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).

(3 cr.)

**MENG 592 - Advanced Topics in Engineering**

Topics to be chosen every year according to specific interests.
**Prerequisites**
Prerequisite: consent of instructor.
**Repeatable**
May be taken for credit more than once if content changes.
(3 cr.)

**MENG 593 - Capstone Project**

Students are required to attend the library and writing modules of ENGR 590 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.
(3 cr.)

**MENG 599 - Research Guidance Thesis**

Consultation on problems related to student thesis.
**Repeatable**
Must be taken twice for credit.
(3 cr.)

**MENG 615 - Continuum Mechanics**

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.

**Prerequisites**
MENG 355
**When Offered**
Offered in fall.
(3 cr.)

**MENG 620 - Nonlinear and Adaptive Control**

**Prerequisites**
Consent of instructor.

**Cross-listed**
Same as RCSS 533.

(3 cr.)

**MENG 660 - Sustainability of Thermal Systems**
Energy systems; energy demand; energy audit; sustainable development; energy efficiency; energy management.

(3 cr.)

**MENG 670 - Advanced Transport Phenomena**
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.

**Prerequisites**
MENG 362, MENG 466 and CFD course covering numerical solutions of flow equations.

(3 cr.)

**MENG 681 - Stochastic Simulation**
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.

**Prerequisites**
Graduate level knowledge of probability, statistics and stochastic processes.

(3 cr.)

**MENG 699 - Research Guidance Dissertation**
Consultation on problems related to student thesis. To be taken 11 times for credit.

(3 cr.)
MEST 400 - Individual Study and Selected Readings

Guided reading, research, and discussion based on a subject of mutual interest to a student and faculty member.

Prerequisites
Prerequisite: Consent of instructor and department on the basis of a well-defined proposal.

(1-3 cr.)

MEST 430 - Special Topics in Middle East Studies

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.

(3 cr.)

MEST 505 - Palestinian Refugee Issues

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 505.

(3 cr.)

MEST 569 - A Critical Introduction to Middle East Studies

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.

(3 cr.)

MEST 570 - Interdisciplinary Seminar in Middle East Studies

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.

Prerequisites
Prerequisite: completion of 24 credit hours toward the degree or consent of program director.

When Offered
Offered in spring.

(3 cr.)
MEST 580 - Selected Topics

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.
(3 cr.)

MEST 582 - Independent Study and Readings

Guided individual readings and/or research on a subject of mutual interest to the student and faculty member.

**Prerequisites**
Pre-requisites: completion of one semester and Program approval required.

**When Offered**
Offered in fall and spring.
(3 cr.)

MEST 588 - Comprehensives

Individual consultation for students preparing for the comprehensive examination.

**When Offered**
Offered in fall and spring.
(no cr.)

MEST 598 - Research Methods

A seminar designed to help students formulate and execute an MA thesis proposal.
(3 cr.)

MEST 599 - Thesis

**When Offered**
Offered in fall and spring.
(no cr.)

MGMT 300 - Business Environment and Ethics

Perspectives on the business environment and the ethical issues facing business. Organizational responses to environmental and ethical issues. Social responsibility of business firms.
Prerequisites
Any course in Business.

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.

(3 cr.)

**MGMT 307 - Management Fundamentals**

Aims at acquainting the student with the basic management functions and processes with a focus on planning, organizing, leading and controlling. Stresses how communication, motivation, and teamwork affect the organization, how organizations are managed, and how managers apply their skills and knowledge to meet the organizational objectives. Emphasis on the environmental constraints imposed on the Egyptian manager and applying principles of management in Egyptian enterprises.

When Offered
Offered in fall and spring.

Notes
Enrollment 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.

(3 cr.)

**MGMT 311 - Business Law (Commercial & Fiscal)**

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.

Prerequisites
MGMT 307

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.

(3 cr.)

**MGMT 404 - Human Resources Management**

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.

**Prerequisites**
MGMT 307

**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.

(3 cr.)

**MGMT 427 - Organization Development**

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.

**Prerequisites**
MGMT 307

**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.

(3 cr.)

**MGMT 470 - Special Topics in Management**

Considers selected topics of current relevance in management.

**Prerequisites**
Prerequisite: Consent of Instructor.

**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.

(3 cr.)

**MGMT 475 - Independent Study in Management**

Guided readings, research, and discussions on specific selected topic in Management.

**Prerequisites**
Prerequisites: Senior standing and consent of MGMT unit head and chair.
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.

(1-3 cr.)

**MGMT 480 - Business Planning and Strategy**

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.

**Prerequisites**
Prerequisite: Graduating Senior.

**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.

(3 cr.)

**MGMT 501 - Business Communication**

It explores the strategies and techniques of one of the most crucial skills needed for success in business. The course introduces students to theories of communication and how to translate theories into complete strategies for communicating with diverse audiences. The course focuses on written communications including memoranda, letters, executive summaries, and business and research reports. The course also focuses on oral communications including listening, presentation skills, interviewing, conducting meetings, and interpersonal communication. Course content also includes negotiation, intercultural communication, and the importance of communication in team building.

**When Offered**
Offered in fall and spring.

(3 cr.)

**MGMT 502 - Managing in a Dynamic Environment**

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.

**When Offered**
Offered in fall and spring.

(3 cr.)
MGMT 503 - Leading Change in Organizations

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.

Prerequisites
Consent of instructor.

When Offered
Offered in fall.
(3 cr.)

MGMT 504 - Human Capital Strategy

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.
(3 cr.)

MGMT 505 - Organizational Design

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.

Prerequisites
MGMT 502 or equivalent.

When Offered
Offered occasionally.
(3 cr.)

MGMT 506 - Management of International Business Organizations

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.
(3 cr.)

**MGMT 507 - Global Business Strategy**

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.

**Prerequisites**
MGMT 506 or consent of instructor.

**When Offered**
Offered occasionally.
(3 cr.)

**MGMT 508 - Strategic Management**

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

**Prerequisites**
Consent of instructor.

**When Offered**
Offered in fall and spring.

**Notes**
This is the capstone course for the MBA program.

(3 cr.)

**MGMT 509 - Leadership**

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.

**Prerequisites**
MGMT 502

**When Offered**
Offered occasionally.
(3 cr.)
**MGMT 510 - Entrepreneurship and Innovation**

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 573.

(3 cr.)

**MGMT 511 - Strategic Management of Innovation**

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 EENG 511.

(3 cr.)

**MGMT 517 - Technology and Innovation Management**

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.

**Prerequisites**
Prerequisite: Core requirements met and consent of instructor.

**Cross-listed**
Same as MOIS 517.
(3 cr.)

**MGMT 570 - Selected Topics in Management**

It considers selected topics of current relevance in Management.

**Prerequisites**
Prerequisites: consent of the instructor.

**When Offered**
Offered occasionally.
(3 cr.)

**MGMT 575 - Independent Study in Management**

Guided readings, research, and discussions on specific selected topic in Management.

**Prerequisites**
Prerequisite: Consent of MGMT unit head and chair.

**When Offered**
Offered occasionally.
(1-3 cr.)

**MKTG 302 - Principles of Marketing**

The nature and scope of marketing. Marketing systems and the marketing environment, definition of a market, market segmentation, and buyer behavior. The marketing mix: product, place, price, and promotion. Marketing research and marketing information systems. The application of these topics to the Egyptian environment constitutes an important part of the study. Some of the class discussions and projects will incorporate entrepreneurial issues in Marketing.

**When Offered**
Offered in fall and spring.

**Notes**
Enrollment is limited, and priority is given to students seeking the Bachelor of Business Administration degree or the Bachelor of Accounting degree, students enrolling in specified as collateral requirements in other majors, and students who have declared business administration as a minor.

(3 cr.)

**MKTG 405 - Marketing Research**

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.

**Prerequisites**
MKTG 302 and MACT 112

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.

(3 cr.)

MKTG 408 - Marketing Communications Management

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.

Prerequisites
MKTG 302

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.

(3 cr.)

MKTG 410 - Consumer-Buyer Behavior

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.

Prerequisites
MKTG 302

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.

(3 cr.)

MKTG 411 - Professional Selling

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.

**Prerequisites**
MKTG 302

**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.

(3 cr.)

**MKTG 412 - International Marketing**

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.

**Prerequisites**
MKTG 302

**Cross-listed**
Same as INTB 412

**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.

(3 cr.)

**MKTG 414 - Services Marketing**

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.

**Prerequisites**
MKTG 302

**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.

(3 cr.)

**MKTG 416 - E-Marketing**
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.

**Prerequisites**  
MKTG 302

**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.

(3 cr.)

**MKTG 418 - Principles of Public Relations**

An overview of the public relations profession in the Middle East. Public-relations principles and techniques, current public relations problems, possible solutions.

**Prerequisites**  
MKTG 302

**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.

(3 cr.)

**MKTG 420 - Advanced Marketing Research**

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.

**Prerequisites**  
MKTG 405

**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.

(3 cr.)

**MKTG 470 - Special topics in Marketing**
Considers selected topics of current relevance in marketing.

**Prerequisites**
Prerequisite: Consent of Instructor.

**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.

(3 cr.)

**MKTG 475 - Independent Study in Marketing**

Guided readings, research, and discussions on specific selected topic in Marketing.

**Prerequisites**
Prerequisites: Senior standing and consent of MKTG unit head and chair.

**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.

(1-3 cr.)

**MKTG 480 - Marketing Strategy**

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.

**Prerequisites**
MKTG 405, MKTG 410, FINC 303, and Senior standing.

**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.

(3 cr.)

**MKTG 520 - Marketing Management**
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.

**When Offered**
Offered in fall and spring.
(3 cr.)

**MKTG 521 - Marketing Research Methods**

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.

**Prerequisites**
MKTG 520

**When Offered**
Offered occasionally.
(3 cr.)

**MKTG 522 - Marketing Channel Strategies**

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.

**Prerequisites**
MKTG 520

**When Offered**
Offered Occasionally.
(3 cr.)

**MKTG 523 - Sales Force Management**
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.

**Prerequisites**
MKTG 520

**When Offered**
Offered occasionally.
(3 cr.)

**MKTG 524 - Global Marketing**

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.

**Prerequisites**
MKTG 520

**When Offered**
Offered occasionally.
(3 cr.)

**MKTG 526 - Integrated Marketing Communication**

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.

**Prerequisites**
MKTG 520

**When Offered**
Offered occasionally.
(3 cr.)
MKTG 530 - Strategic Marketing

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.

Prerequisites
MKTG 520
When Offered
Offered occasionally
(3 cr.)

MKTG 570 - Contemporary Topics in Marketing

Recent topics in marketing.

Prerequisites
Consent of the instructor.
When Offered
Offered occasionally.
(3 cr.)

MKTG 575 - Independent Study in Contemporary Topics in Marketing

Readings and research on recent topics in marketing

Prerequisites
Consent of MKTG unit head and Director of MBA Program.
When Offered
Offered occasionally.
(1-3 cr.)

MOIS 305 - Introduction to Information Systems/Technology

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
MOIS 406 - Management Information Systems and Database Management

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.

**Prerequisites**
MOIS 305

**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.

(3 cr.)

MOIS 423 - Geographic Information Systems (GIS)

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.

**Prerequisites**
MOIS 305

(3 cr.)

MOIS 430 - Business Information Systems Analysis and Development

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.

**Prerequisites**
MOIS 305

**When Offered**
MOIS 432 - Information & Decision Support Systems

The course is targeted to senior MOIS students who want more expertise in developing, managing and using Decision Support Systems and applications. This course will examine the 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.

**Prerequisites**
MOIS 305

**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.

(3 cr.)

MOIS 433 - Marketing Information Systems

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.

**Prerequisites**
MOIS 305

**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.

(3 cr.)

MOIS 434 - Financial Information Systems
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.

**Prerequisites**
MOIS 305

**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.

(3 cr.)

**MOIS 435 - Introduction to Electronic Business**

The Internet, as a disruptive innovation, is changing the landscape of business operation. This course provides an introduction to the basics of modern business in a networked environment. Managers and decision makers need a broad understanding of the concepts, technologies, tools, techniques and strategies associated with electronic business to be able to exploit the business development potentials of the new information based society. The course focuses on important electronic business issues including the concept, marketing, advertising, strategy formulation and web development and related infrastructure issues, as well as the advantages and disadvantages of this form of business operation, the infrastructures in place to support this type of electronic business, and the global economy within which it takes place.

**Prerequisites**
MOIS 305

**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.

(3 cr.)

**MOIS 444 - Accounting Information Systems**

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.

**Prerequisites**
MOIS 305

**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 - Strategic Information Systems

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.

**Prerequisites**
MOIS 305

**When Offered**
Offered occasionally.

(3 cr.)

MOIS 466 - Human Computer Interaction (HCI)

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.

**Prerequisites**
MOIS 305

(3 cr.)

MOIS 470 - Special Topics in Management of Information Systems

Considers selected topics of current relevance in management of information systems.

**Prerequisites**
Prerequisite: Consent of Instructor.

**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.

(3 cr.)

MOIS 475 - Independent Study in Management of Information Systems
Guided readings, research, and discussions on specific selected topic in Management of Information Systems.

**Prerequisites**
Prerequisites: Senior standing and consent of MOIS unit head and chair.

**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.

(1-3 cr.)

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**MOIS 477 - Systems Integration**

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.

**Prerequisites**
MOIS 305
(3 cr.)

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**MOIS 499 - Internship Project**

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.

**Prerequisites**
Prerequisite: completion of all MOIS core courses.

**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.

(3 cr.)

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**MOIS 508 - Information Systems in Organizations: Management in the Information Age**
The course examines design principles, information process modeling and analysis methodologies, as well as a range of underlying information technologies (e.g., transaction processing, data mining, data warehousing, knowledge management, and web server design) that will help the modern organization or community maximize its strategic objectives and business operations management. The course also demonstrates anecdotal success and failure cases as lessons for future IS projects.

When Offered
Offered in fall and spring.
(3 cr.)

MOIS 517 - Technology and Innovation Management

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.

Prerequisites
Prerequisite: Core requirements met and consent of instructor.

Cross-listed
Same as MGMT 517.
(3 cr.)

MOIS 549 - Systems Analysis, Design, and Implementation

The purpose of the course is twofold. First, the course familiarizes students with the issues involved in conceiving, designing, building, and maintaining the kinds of large-scale, complex information systems required for commercial and governmental settings. Second, the course provides students with the experience working with different tools and techniques in systems analysis, design, and implementation. Special focus will be given to modern object-oriented design methodologies, Unified Modeling Language (UML), and modern Computer Aided Software Engineering (CASE) tools.

Prerequisites
MOIS 508

When Offered
Offered in fall and spring.
(3 cr.)

MOIS 550 - Information Technology

This course surveys the building blocks of information technology including hardware, software, networks, and people and business applications while emphasizing an open systems approach that considers market trends such as
globalization, time and information technology integration.

**Prerequisites**
MOIS 508

**When Offered**
Offered occasionally.

(3 cr.)

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**MOIS 551 - Electronic Business: Doing Business in the Digital Economy**

This course demonstrates how various information and communication technology tools and applications such as the Internet have created new business models, removed time and distance barriers, introduced new cost structures and redefined value chains relocating businesses from marketplace to market space. The course covers different models including business-to-business and business-to-consumer, in addition to strategy formulation, digital marketing strategies and advertising models, analysis and design of websites, infrastructure and security requirements, and economics of online transactions and applications.

**Prerequisites**
MOIS 508 and MOIS 550

**When Offered**
Offered occasionally.

(3 cr.)

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**MOIS 555 - Information Strategy**

Information is an integral part in organizational success paralleling the importance of its technology component. This course explores the importance and value proposition of an information strategy and its relationship with other organizational strategies.

**Prerequisites**
MOIS 508 and MOIS 550

**When Offered**
Offered occasionally.

(3 cr.)

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**MOIS 570 - Advanced Topics (Next Generation Technologies)**

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.

**Prerequisites**
Consent of instructor.

**When Offered**
MOIS 575 - Independent Research in Management of Information Systems/Technology

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.

Prerequisites
Consent of MOIS unit head and Director of MBA Program.

When Offered
Offered occasionally.
(1-3 cr.)

MRS 500 - Migration & Refugee Movements in the Middle East and North Africa

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.

When Offered
Offered in fall.
(3 cr.)

MRS 501 - International Migration & Development

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.

(3 cr.)

MRS 502 - Comparative Migration Policies
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.

(3 cr.)

MRS 503 - Migrants & Refugees in the International System
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.

(3 cr.)

MRS 504 - Gender and Migration
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
GWST 504.
(3 cr.)
MRS 505 - Palestinian Refugee Issues

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 505.

(3 cr.)

MRS 507 - Introduction to Forced Migration and Refugee Studies

This course examines the changing political, social, and legal context 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 Psychosocial aspect of refugee status, and the social and cultural organization of refugee and migrant communities, including notably gender aspects and the role of children.

Cross-listed
Same as SOC 507.

When Offered
Offered in the fall.

(3 cr.)

MRS 508 - Special Topics in Migration and Refugee Studies

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 508.

(3 cr.)

MRS 512 - Psychosocial Issues in Forced Migrants

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 412/512.

When Offered
Offered in the spring

(3 cr.)
MRS 513 - Practicum in Psychosocial Interventions for Forced Migrants and Refugees

(2 cr.)

MRS 514 - Psychosocial Interventions for Forced Migrants and Refugees

(3 cr.)

MRS 518 - International Refugee Law

This course considers the dynamics between the legal rights of forced migrants and the privilege of states to grant asylum.

Cross-listed
Same as LAW 518.

When Offered
Offered in the fall.

(3 cr.)

MRS 528 - Migration in International Law

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 528.

(3 cr.)

MRS 576 - Methods of Research with Forced Migrants & Refugees: Issues in Forced Migration

This course complements other courses offered in the postgraduate Diploma in Forced Migration and Refugee Studies during any given semester by a critical examination of the particular problems and ethics of empirical research on forced migrants and refugees. Students will undertake a group project using different types of research including historical, survey, ethnographic and focus group methods with a view to gaining first-hand experience in understanding the benefits as well as the problems and limitations of research in the field.

Cross-listed
Same as POLS and SOC 576.
When Offered
Offered in the spring.
(3 cr.)

MRS 584 - Practicum: Internship or Research

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.

Prerequisites
Permission of Advisor.
(3 cr.)

MRS 599 - Research Guidance and Thesis

Supervision in the writing of the thesis.
When Offered
Offered in fall and spring.
(3 cr.)

MUSC 180 - How to Read Music

Instruction in how to read music.
Notes
Students taking MUSC 280, Applied Private Instruction (2 cr) are required to take this course in the same semester, or pass the music literacy placement exam.

(2 cr.)

MUSC 199 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.
When Offered
Offered occasionally.
(3 cr.)

MUSC 220 - Introduction to Music

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.
(3 cr.)

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**MUSC 225 - World Music**

Study of the musical practices and cultures of representative diverse nations and peoples.

**Notes**
Requires no previous musical training

(3 cr.)

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**MUSC 232, 332, 432 - Digital Audio / MIDI Lab**

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.

**Prerequisites**
MUSC 220 and MUSC 330.

Students entering the course for the first time register in MUSC 232. Students who have taken a semester of MUSC 232 should register for MUSC 332; those who have completed MUSC 332 register for MUSC 432.

(1 cr. each)

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**MUSC 240 - Western Music Theory I**

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.

**Prerequisites**

**When Offered**
Offered in fall and spring.
(3 cr.)

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**MUSC 241 - Sight-Singing and Aural Skills I**

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.

**Prerequisites**
Concurrent with MUSC 240

Notes
Students must be able to match pitch within a 1-octave range.

(1 cr.)

**MUSC 245 - Arab Music Theory I**

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.

**Prerequisites**
MUSC 180, MUSC 220 and MUSC 280. Concurrent with MUSC 246.

(3 cr.)

**MUSC 246 - Maqam I (Arab Music Sight-Singing and Aural Skills)**

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.

**Prerequisites**
MUSC 180, MUSC 220 and MUSC 280. Concurrent with MUSC 245.

(1 cr.)

**MUSC 250 - Guitar and Piano: Accompaniment and improvisation "by ear"**

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.

(3 cr.)

**MUSC 252 - Vocal Methods**

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 255 - The Songs of America

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 262/362/462 - Arab Music Ensemble

The class will constitute a vocal and instrumental performing ensemble, which will rehearse during class periods.

Prerequisites
Must be taken concurrently with MUSC 342

When Offered
Offered in fall and spring.

Repeatable
MUSC 462 may be repeated for credit.

Notes
Rehearsal will lead to a concert performance of the music prepared.

MUSC 263/363/463 - Guitar Ensemble

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.

Prerequisites
There are no pre-requisites for MUSC 263. Students who have taken MUSC 263 should register for MUSC 363; those who have completed MUSC 363 register for MUSC 463. MUSC 463 may be repeated for credit indefinitely.

MUSC 264/364/464 - Chamber Music Ensembles

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.

Prerequisites
Permission of the Director of the Music Program. Students who have taken MUSC 264 should register for MUSC 364; those who have completed MUSC 364 register for MUSC 464. MUSC 464 may be repeated for credit indefinitely. (1 cr.)

**MUSC 265/365/465 - Rehearsal/Performance Practicum**

465 may be repeated for credit.

**Prerequisites**
Prerequisite: consent of music faculty (required prior to registration).

**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.

(1 cr.)

**MUSC 266/366/466 - Chamber Singers**

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.

**Prerequisites**
Prerequisite: consent of the director.

**When Offered**
Offered in fall and spring.

**Repeatable**
466 may be repeated for credit.

**Notes**
Rehearsal will lead to a concert performance of the music prepared.

(1 cr.)

**MUSC 267/367/467 - Cairo Choral Society**

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.)

**Prerequisites**
Permission of the instructor. Students who have taken MUSC 267 should register for MUSC 367; those who have completed MUSC 367 register for MUSC 467. MUSC 467 may be repeated for credit indefinitely.

(1 cr.)

**MUSC 280/281 - Applied Private Instruction**
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.

**Prerequisites**
Concurrent: Students in MUSC 280 must register concurrently in MUSC 180, or achieve a passing grade on the placement exam. Students who have taken MUSC 280 should register for MUSC 281; those who have completed MUSC 282 should register for MUSC 283. MUSC 283 may be repeated for credit indefinitely. Music majors would normally register for MUSC 480 after completing MUSC 283.

**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 280 may be assigned to a different teacher after this initial meeting, at the discretion of the Music Program.

(1 cr.)

**MUSC 282/283 - Applied Private Instruction**

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.

**Prerequisites**
MUSC 280/281. Students who have completed MUSC 281 register for MUSC 282, and those who have completed MUSC 282 register for MUSC 283. MUSC 283 may be repeated for credit indefinitely. Music majors would normally register for MUSC 480 after completing MUSC 283.

**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 280 may be assigned to a different teacher after this initial meeting, at the discretion of the Music Program.

(2 cr.)

**MUSC 284/285/286 - Private Instruction for Piano Proficiency**

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.

**Prerequisites**
There are no pre-requisites for MUSC 284. Students who have taken MUSC 284 should register for MUSC 285; students who have register for MUSC 285 should register for MUSC 286.

Concurrent: Students in MUSC 284 with no prior experience, or who cannot read music, MUST register concurrently in MUSC 180.
Notes
1. Students registering in this course for the first time should enroll in MUSC 284.
2. Students in MUSC 284 with no prior experience, or who cannot read music, MUST register concurrently in MUSC 180.
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 280 may be assigned to a different teacher after this initial meeting, at the discretion of the Music Program.

(1 cr.each)

MUSC 299 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.
Prerequisites
RHET 101
When Offered
Offered occasionally.
(3 cr.)

MUSC 311 - Guitar Pedagogy

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.
Prerequisites
MUSC 180 MUSC 220 and MUSC 280/480.
(3 cr.)

MUSC 330 - Introduction to Music Technology

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.
(3 cr.)

MUSC 331 - Music Production Using Protools I

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.

(3 cr.)

**MUSC 333 - Microphone Techniques**

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.

**Prerequisites**
MUSC 330 and MUSC 331
(3 cr.)

**MUSC 334 - Music Production for Visual Media**

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.

**Prerequisites**
MUSC 220 MUSC 330 and MUSC 331
(3 cr.)

**MUSC 335 - Electronic Music**

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.

**Prerequisites**
MUSC 220 and MUSC 330
(3 cr.)

**MUSC 336 - Sound for Picture Production**
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, lipsyncing 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.

**Prerequisites**
MUSC 330 and MUSC 331
(3 cr.)

**MUSC 337 - Music for Film**

(3 cr.)

**MUSC 340 - Western Music Theory II**

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.

**Prerequisites**
MUSC 240 and MUSC 241. Concurrent with 340

(3 cr.)

**MUSC 341 - Sight-Singing and Aural Skills II**

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.

**Prerequisites**

(1 cr.)

**MUSC 342 - Music in the Arab Tradition**

Study of Arab music and song in its historical and cultural context, from its origins to the present day.

**Prerequisites**
MUSC 220

**Notes**
No previous experience in Arab music is required.

(3 cr.)
MUSC 345 - Arab Music Theory II

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.

Prerequisites
MUSC 245 and MUSC 246 .
Concurrent: Students in this course must also register for MUSC 346 (3 cr.)

MUSC 346 - Maqam II (Arab Music Sight-Singing and Aural Skills)

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.

Prerequisites
MUSC 245 and MUSC 246 . Concurrent: Students in this course must also register for MUSC 345 (1 cr.)

MUSC 360 - Music in the Western Tradition

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.

Prerequisites
MUSC 220 and MUSC 240 .
(3 cr.)

MUSC 370 - Selected Topics in Music

Offered occasionally.

Prerequisites
Prerequisite: consent of the instructor.
Repeatable
May be repeated for credit if content changes.
(3 cr.)

MUSC 371 - Western and Arab Musical Instruments
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.

Prerequisites
MUSC 220
(3 cr.)

MUSC 372 - Diction for Singers in the Western Tradition

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.

Prerequisites
MUSC 280/480 (at least two semesters) or permission of the instructor.
(3 cr.)

MUSC 402 - Independent Study

In exceptional circumstances, some advanced music students may arrange, with departmental approval, to study beyond the regular course offerings.

Prerequisites
Open to students with a minimum B average.

When Offered
Offered in fall and spring.

Repeatable
May be repeated for credit if content changes.
(1-3 cr.)

MUSC 438 - Music Production Using Protools II

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.

Prerequisites
MUSC 330 and MUSC 331
(3 cr.)

MUSC 439 - Digital Mixing Techniques

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.

Prerequisites
MUSC 220 , MUSC 330 and MUSC 331
(3 cr.)

MUSC 440 - Western Music Theory III

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.

Prerequisites
MUSC 340 and MUSC 341 . Concurrent: students in this course must also register for MUSC 441
(3 cr.)

MUSC 441 - Sight-Singing and Aural Skills III

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.

Prerequisites
MUSC 340 and MUSC 341 . Concurrent: students in this course must also register for MUSC 440
(1 cr.)

MUSC 480/481/482/483 - Advanced Applied Private Instruction

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.
**Prerequisites**
MUSC 283. Students who have taken a semester of MUSC 480 should register for MUSC 481; those who have completed MUSC 481 register for MUSC 482, and those who have completed MUSC 482 register for MUSC 483. MUSC 483 may be repeated for credit indefinitely.

**Notes**
All students are required to meet with their teacher IN THE FIRST WEEK OF CLASSES.

(3 cr.)

**MUSC 490 - Advanced Seminar**

In-depth examination of special advanced topics in music determined by the special interest and expertise of the faculty.

**Prerequisites**
Prerequisite: Consent of the instructor.

**When Offered**
Offered occasionally.

**Notes**
Designed for advanced students.

(3 cr.)

**MUSC 492 - Capstone Final Recital**

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.

**Prerequisites**
MUSC 482.

(3 cr.)

**NANO 501 - Advanced Quantum Mechanics**

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.

**Prerequisites**
PHYS 421 or equivalent.

**Cross-listed**
NANO 502 - Simulation and Modeling for Nanoscale Materials and Systems

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 532.
(3 cr.)

NANO 503 - Advanced Testing and Characterization Techniques

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 calorometry 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 528.
(3 cr.)

NANO 504 - Fabrication of Nanomaterials For Films And Devices

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 531.
(3 cr.)

NANO 505 - Nanochemistry

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).

(3 cr.)

**NANO 506 - Management and Economics of Nanotechnology**

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)

(3 cr.)

**NANO 521 - MEMS/NEMS Technology and Devices**

This course will cover basic MEMS/NEMS fabrication technologies, various transduction mechanisms such as piezoelectric, pyroelectric, thermoelectric, thermionic, piezoresistive, etc. In addition, the theory of operation of few sensors will be covered this will include infrared detectors, radiation sensors, rotation and acceleration sensors, flow sensors, pressure and force sensors, and motion sensors. Finally, the course will give insight of different techniques for analyzing experimental data.

**Prerequisites**
NANO 504

**Cross-listed**
Same as PHYS 556 and RCSS 542.

(3 cr.)

**NANO 522 - Electronic Transport in Semiconductors**

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 526.

(3 cr.)

**NANO 531 - Nanomaterials, Synthesis, Processing and Applications**

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.

(3 cr.)

**NANO 532 - Nanocomposite Science and Technology**

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.

(3 cr.)

**NANO 533 - Materials for Energy Conversion and Storage**

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 534.

(3 cr.)

**NANO 541 - The Chemistry of Nanostructures**

This course addresses the synthesis and chemical properties of the different categories of nanostructures such as carbon nanotubes/nanorods/ etc…, fullerenes, colloids, Self-assembled monolayer structures (SAMs), dendrimers and other macromolecules, oxide and inorganic nanotubes/fibers/rods/etc. For each category examples of applications would be giving to demonstrate the applicability of the properties discussed.

**Prerequisites**
NANO 505

(3 cr.)

**NANO 542 - Nanoelectrochemistry**

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.
Prerequisites
NANO 505
(3 cr.)

NANO 551 - Nanotechnology Applications in Construction Materials
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.

(3 cr.)

NANO 552 - Nanotechnology in Studying Damage and Failure in Structures
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.

(3 cr.)

NANO 561 - Advanced Solid-State Devices
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.

Prerequisites
Graduate standing in engineering and physics. Electromagnetics, vector algebra, differential equations, and MATLAB programming.

Cross-listed
Same as EENG 510.
(3 cr.)

NANO 562 - Advanced Integrated Circuit Design
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 518.
(3 cr.)

NANO 571 - Bionanotechnology

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.

(3 cr.)

NANO 590 - Graduate Thesis Seminars I

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.

(2 cr.)

NANO 591 - Graduate Thesis Seminar II

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.

Prerequisites
NANO 590
(1 cr.)

NANO 592 - Selected Topics in Nanotechnology

Topics to be chosen every year according to specific interests. Maybe taken for credit more than once if content changes.

Prerequisites
Consent of the faculty advisor.
(3 cr.)

NANO 599 - Research Guidance Thesis
Consultation on problems related to student thesis
Must be taken at least twice for credit.

**Prerequisites**
NANO 590
(3 cr.)

**NANO 621 - Nanophotonics**

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.

(3 cr.)

**NANO 630 - Biomaterials**

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 535
(3 cr.)

**NANO 640 - Nanoporous Materials**


**Prerequisites**
NANO 505
(3 cr.)

**NANO 642 - Nanocatalysis**


(3 cr.)
NANO 699 - Research Guidance Dissertation

Consultation on problems related to student thesis. To be taken 11 times for credit.

(3 cr.)

OPMG 202 - Statistics for Business

Basic concepts and applications of statistical analysis in business decisions. Methods include probability, risk analysis, estimation, forecasting, analysis of variances, and regression analysis.

Prerequisites
MACT 101 or ECON 216.

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.

(3 cr.)

OPMG 310 - Operations for Competitive Advantage

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.

Prerequisites
MACT 112 or ECON 216

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.

(3 cr.)

OPMG 401 - Supply Chain Management

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.

Prerequisites
OPMG 310.

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.

(3 cr.)

OPMG 402 - Production/Operations Management II

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.

Prerequisites
OPMG 310

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.

(3 cr.)

OPMG 403 - Business Process Management and Simulation

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.

Prerequisites
OPMG 310

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.

(3 cr.)

OPMG 404 - Service Operations and Strategy

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.

**Prerequisites**
OPMG 310

**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.

(3 cr.)

**OPMG 409 - Quantitative Approach to Management**

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.

**Prerequisites**
OPMG 402

**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.

(3 cr.)

**OPMG 470 - Special Topics in Production / Operation Management**

Considers selected topics of current relevance in Production / Operation Management.

**Prerequisites**
Prerequisite: Consent of Instructor.

**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.

(3 cr.)

**OPMG 475 - Independent Study in Production/Operation Management**

Guided readings, research, and discussions on specific selected topic in Production/Operation Management.

**Prerequisites**
Prerequisites: Senior standing and consent of OPMG unit head and chair.

**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.

(1-3 cr.)

**OPMG 507 - Introduction to Business Statistics**

This course provides a basic introduction to statistics as applied to business 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, numerical 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.
(3 cr.)

**OPMG 520 - Operations Management for Competitive Advantage**

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.

Prerequisites
OPMG 507

When Offered
Offered in fall and spring.
(3 cr.)

**OPMG 521 - Managing and Coordinating Supply Chains**

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.

Prerequisites
OPMG 520
When Offered
Offered occasionally.
(3 cr.)

OPMG 528 - Managing Dynamic Projects

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.

Prerequisites
OPMG 520
When Offered
Offered occasionally.
(3 cr.)

OPMG 530 - Data Analysis

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.

Prerequisites
OPMG 520
When Offered
Offered occasionally.
(3 cr.)

OPMG 531 - Stochastic Models in Managerial Decision Making

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).

Prerequisites
OPMG 520
When Offered
Offered occasionally.
(3 cr.)
OPMG 532 - Operations Strategy

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.

Prerequisites
OPMG 520

When Offered
Offered occasionally.
(3 cr.)

OPMG 533 - Business Dynamics

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.

Prerequisites
OPMG 520

When Offered
Offered occasionally.
(3 cr.)

OPMG 570 - Selected Topics in Operations Management

It considers selected topics of current relevance in Operations Management.

Prerequisites
Prerequisites: consent of the instructor.

When Offered
Offered occasionally.
(3 cr.)

OPMG 575 - Independent Study in Operations Management

Guided readings, research, and discussions on specific selected topic in Production/Operation Management.

Prerequisites
Prerequisite: Consent of OPMG unit head and chair.

When Offered
Offered occasionally.
(1-3 cr.)
PENG 200 - Introduction to Petroleum Geology

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.

Prerequisites
CHEM 105

When Offered
Offered in fall and spring.

(2 cr.)

PENG 218 - Electrical Engineering

Electric circuit theory; Three-phase systems; circuit analysis; electrical insulation; electrical measurements; energy conversion; induction motors, switchgear and substation apparatus, electric heating, Acoustics.

Prerequisites
PHYS 112 and MACT 231.

When Offered
Offered in fall or spring.

(2 cr.)

PENG 219 - Fundamentals of Surveying

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.

Prerequisites
MACT 132

When Offered
Offered in fall or spring.

(1 cr.)

PENG 227 - Materials Engineering

Structure & properties of materials; Metals; Ceramics; Plastics; Phase Equilibria; Structure/Properties relationship; Materials Selection; Performance of materials in oil environment.

Prerequisites
CHEM 105 and ENGR 261

When Offered
Offered in fall or spring.

(3cr.)
PENG 301 - Petroleum Geology and Exploration

History of Petroleum Geology, Oil & Gas accumulation, Origin (Chemical, Biological, and Physical), Porosity, Source Rocks, Migration, Accumulation, Types of Traps (Structural Traps, Stratigraphic Traps, Hydrodynamic Traps and combination Traps), Timing and preservation of Traps, Subsurface Geology and mapping; well sitting (duties of well geologist, introduction to logging and formation testing), Oil and Gas Exploration (Seismic, Gravity and magnetic Methods), Exploration Risk and Analysis, Project.

Prerequisites
PENG 200

When Offered
Offered in fall or spring.
(3 cr.)

PENG 302 - Fluid and Rock Properties

Physical Properties of the Rocks; Lithology, Porosity, Relative and effective Permeability, Capillary pressure and rock-fluid interactions; 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.

Prerequisites
PENG 301

When Offered
Offered in spring.
(3 cr.)

PENG 303 - Fluid and Rock Lab

Lab safety and working with petroleum fluids and rocks, Introduction to rock measurement equipment, Fluid saturation measurement from core, Fluid saturation by high temperature retort oven, Capillary pressure calculation versus saturation curves, Porosity measurement, Permeability measurement, Introduction to reservoir fluid measurement (PVT), Evaluation of black oil properties, review of phase behavior experiments in the lab to obtain pressure and volume graph, Saturation pressure, Solution gas oil ratio, oil formation volume factor, etc. Also, the students will be introduced to the state of the art PVT simulation software in the lab.

Prerequisites
PENG 302 or concurrent.

When Offered
Offered in spring or fall.
(1 cr.)
PENG 311 - Drilling Engineering I

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

Prerequisites
PENG 302

When Offered
Offered in fall and spring.

(3 cr.)

PENG 313 - Drilling Engineering I Lab

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

Prerequisites
PENG 311 or concurrently.

When Offered
Offered in fall or spring.

(1 cr.)

PENG 320 - Well Logging

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.

Prerequisites
PENG 311

When Offered
Offered in fall.

(2cr. + 1cr.)

PENG 322 - Oil and Gas Production
Pressure Draw Down and Productivity; Flow regime in Vertical and Horizontal Pipes; Off Shore and Deep Water Production; Gas Lift Principles and Design; Well Inflow Performance; Naturally Flowing Wells; Vertical lift performance, Multiphase flow, Well Pumping Design and Analysis; Pumps; Gas Separation; Emulsions and Inhibitors; Field Measurements; Pumps; Exercises’ on analysis of the production systems using the state of the art software, nodal analysis, formation damage, stimulation, matrix acidizing, hydraulic fracturing, numerical analysis of petroleum production system.

**Prerequisites**
PENG 332

**When Offered**
Offered in spring.
(2cr. + 1cr. lab)

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**PENG 331 - Reservoir Engineering and Recovery**


**Prerequisites**
PENG 302

**When Offered**
Offered in fall.
(3 cr.)

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**PENG 332 - Well Completion and Workover**

Classification of completions, design, productivity, perforation, completion fluids and equipment, unstable formations and sand control, subsea completion (for offshore wells), workover operations, corrosion control, scale deposition, intelligent completion.

**Prerequisites**
PENG 322 and PENG 374

**When Offered**
Offered in fall.
(3 cr.)

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**PENG 333 - Reservoir Simulation and Well Testing**

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, Reservoir Simulation Fundamentals; Data Required; Models; Exercises using the state of the art well simulation and testing software.

**Prerequisites**
PENG 331

**When Offered**
Offered in spring
(3 cr.)

PENG 334 - Reservoir Simulation and Well Testing lab

Data Analysis and Modeling Exercises using the state of the art well testing and reservoir simulation software.

**Prerequisites**
PENG 333 or concurrently.

**When Offered**
Offered in spring.
(1 cr.)

PENG 351 - Natural Gas Engineering

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.

**Prerequisites**
PENG 331.

**When Offered**
Offered in fall or spring.
(3 cr.)

PENG 361 - Thermodynamics

Fundamental Concepts and Definitions; Properties of Pure Substances; First and Second Law of Thermodynamics; Reversed Cycles; Reversibility and Entropy; Vapor and Gas Power Cycles.

**Prerequisites**
ENGR 261 and CHEM 105

**When Offered**
Offered in fall or spring.
(3 cr.)

PENG 363 - Heat Transfer


**Prerequisites**
PHYS 111 and PENG 361

**When Offered**
Offered in spring.
(3 cr.)
**PENG 373 - Principles of Energy Engineering**

Basic energy calculations; material, mass, and energy balance; reaction rates during chemical transformations in energy systems. Energy storage; Regeneration.

**Prerequisites**
ENGR 261 and PENG 363

**When Offered**
Offered fall or spring.

(3 cr.)

**PENG 374 - Corrosion and Oxidation Protection**

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.

**Prerequisites**
CHEM 105, PENG 227 and PENG 361

**When Offered**
Offered in fall or spring.

(3 cr.)

**PENG 375 - Hydrogen and Fuel cells**

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.

**Prerequisites**
PENG 218 and PENG 374

**When Offered**
Offered fall or spring.

(3 cr.)

**PENG 411 - Drilling Engineering II**

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.

**Prerequisites**
PENG 320

**When Offered**
Offered in fall
(3 cr.)

**PENG 412 - Enhanced Oil Recovery**

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

**Prerequisites**
PENG 331

**When Offered**
Offered in spring.
(3 cr.)

**PENG 451 - Petroleum and Gas Transmission and Storage**

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.

**Prerequisites**
PENG 322 and PENG 374

**When Offered**
Offered every other semester.
(3 cr.)

**PENG 461 - Reservoir Economics, Management, & Risk Analysis**

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.

**Prerequisites**
PENG 322 and ENGR 345

**When Offered**
Offered in spring.
(3 cr.)

**PENG 462 - Renewable and Alternative Energy**

**Prerequisites**  
PENG 373 and PENG 375

**When Offered**  
Offered in fall or spring.  
(3 cr.)

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**PENG 463 - Energy conversion and materials**

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.

**Prerequisites**  
PENG 462

**When Offered**  
Offered fall or spring.  
(3 cr.)

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**PENG 470 - Environmental Protection & Chemical Pollution**

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.

**Prerequisites**  
PENG 373

**When Offered**  
Offered every other semester.  
(3 cr.)

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**PENG 471 - Reservoir Simulation and Modeling**

Reservoir simulation fundamentals, data required, model design concepts, simulation results interpretation, History matching, Field wide Simulation, Future performance prediction, Reservoir Management, and Optimization techniques using economic analysis.

**Prerequisites**  
ENGR 313 and PENG 333

**When Offered**  
Offered in fall.  
(3cr.)
PENG 472 - Ground Water Hydrology and Contamination

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.

Prerequisites
PENG 363 and PENG 374

When Offered
Offered occasionally.
(3 cr.)

PENG 474 - Energy and the Environment

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.

Prerequisites
PENG 218 PENG 373 and PENG 374

When Offered
Offered in fall or spring.
(3 cr.)

PENG 475 - Greenhouse Technology and Emission Reduction

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 green house gases; Energy efficiency in combating emissions NOFA (non fossil fuel agreements) Kyoto and beyond.

Prerequisites
PENG 218 ,PENG 373 and PENG 374

When Offered
Offered fall or spring.
(3cr.)

PENG 476 - Principles of Nuclear Engineering

Introduction to nuclear engineering; Global and nationals energy requirements; Radioactivity; Atomic models; Fission and fusion reactor concepts; Neutron diffusion theory; Radiation protection and safety.

Prerequisites
PENG 373 and PENG 462

When Offered
Offered fall or spring.
(3 cr.)

**PENG 480 - Special Problems in Petroleum and Energy Engineering**

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.

**Prerequisites**
Consent of instructor and department chair on the basis of a well-defined proposal.
(1-3 cr.)

**PENG 490 - Senior Project I**

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.

**Prerequisites**
Prerequisite: Senior standing.

**When Offered**
Offered fall and spring.
(1cr.)

**PENG 491 - Senior Project II**

Continuation of the capstone project. Oral presentation and report submission required.

**Prerequisites**
Prerequisite: Senior standing and PENG 490.

**When Offered**
Offered fall and spring.
(2cr.)

**PENG 494 - Selected Topics in Petroleum and Energy Engineering**

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.

**Prerequisites**
Senior standing.

**When Offered**
Offered fall and spring.
(3cr.)
**PENG 497 - Industrial Training**

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.

**Prerequisites**
Prerequisite: Completion of 110 credits including 18 credits in PENG.

**When Offered**
Offered fall and spring.

(1cr.)

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**PHDE 691 - Advanced Research Seminar**

- All Ph.D. students should attend a common class. This class will be a series of general lectures having a broad interdisciplinary nature.
- Each student should give a presentation in this series on a topic that shows how his/her capability of dealing with more than one discipline.
- The student will be evaluated based on:
  - Reports submitted at the end of each class.
  - The quality of the presentation and the extent of diversity.
- The first four lectures will be given by faculty members or renowned researchers conducting diverse interdisciplinary research. This will give the students guidance on how to select their topics and how to link to other disciplines.
- The maximum number of students who can register in the Ph.D. seminar must not exceed 10.
- The Ph.D. seminar will be offered only once every academic year.

**Prerequisites**
Graduate Seminar I (BIOT 590, CHEM 590, CSCE 590, ENGR 590, NANO 590, RCSS 590).

(1 cr.)

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**PHDS 691 - Advanced Research Seminar**

- All Ph.D. students should attend a common class. This class will be a series of general lectures having a broad interdisciplinary nature.
- Each student should give a presentation in this series on a topic that shows how his/her capability of dealing with more than one discipline.
- The student will be evaluated based on:
  - Reports submitted at the end of each class.
  - The quality of the presentation and the extent of diversity.
- The first four lectures will be given by faculty members or renowned researchers conducting diverse interdisciplinary research. This will give the students guidance on how to select their topics and how to link to other disciplines.
- The maximum number of students who can register in the Ph.D. seminar must not exceed 10.
- The Ph.D. seminar will be offered only once every academic year.

**Prerequisites**
Graduate Seminar I (BIOT 590, CHEM 590, CSCE 590, ENGR 590, NANO 590, RCSS 590).  
(1 cr.)

**PHDS/PHDE 601 - Systems and Computational Biology**

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.  
(3 cr.)

**PHDS/PHDE 612 - Design and analysis of Experiments**

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.  
**Prerequisites**  
ENGR 518 or equivalent.  
(3 cr.)

**PHIL 100 - Reading Philosophy**

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.220, 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.  
(3 cr.)

**PHIL 199 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective to major.  
**When Offered**  
Offered occasionally.  
(3 cr.)
PHIL 220 - Philosophical Thinking (core curriculum requirement)

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.

Prerequisites
RHET 102 or concurrent.

When Offered
Offered in fall and spring.
(3 cr.)

PHIL 221 - Informal Logic

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.
(3 cr.)

PHIL 224 - Self and Society

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.
(3 cr.)

PHIL 226 - Philosophy of Religion

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.
(3 cr.)
PHIL 230 - Introduction to Ethics

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.
(3 cr.)

PHIL 234 - Philosophy of the Social Sciences

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.

When Offered
Offered occasionally.
(3 cr.)

PHIL 238 - World Philosophy

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.

When Offered
Offered occasionally.
(3 cr.)

PHIL 242 - Philosophical Anthropology

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.

When Offered
Offered occasionally.
(3 cr.)
**PHIL 258 - Political Philosophy**

What is the justification of state power and legal authority? What is a good political system? How do we relate our judgments about how the political world should be to the way it actually is at present? This course will examine such questions, which will involve a study of the genesis and structure of political entities and the mutual responsibilities of citizen and government.

*When Offered*
Offered in alternate years.

(3 cr.)

**PHIL 299 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

*Prerequisites*
RHET 101

*When Offered*
Offered occasionally.

(3 cr.)

**PHIL 310 - Philosophy and Art**

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.

(3 cr.)

**PHIL 312 - Ancient Philosophy**

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.

*Prerequisites*
Prerequisite: Two philosophy courses or consent of instructor.

*When Offered*
Offered every year.

(3 cr.)

**PHIL 313 - Medieval Philosophy**

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.

**Prerequisites**
Two philosophy courses or consent of instructor.

**When Offered**
Offered every year.

(3 cr.)

**PHIL 314 - Modern Philosophy**

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.

**Prerequisites**
Two philosophy courses or consent of instructor.

**When Offered**
Offered every year.

(3 cr.)

**PHIL 315 - Nineteenth Century Philosophy**

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.

**Prerequisites**
Two philosophy courses or consent of instructor.

**When Offered**
Offered occasionally.

(3 cr.)

**PHIL 316 - Twentieth Century Philosophy**

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.

**Prerequisites**
Two philosophy courses or consent of instructor.

**When Offered**
Offered every year.

(3 cr.)
PHIL 317 - Current Trends in Philosophy

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.

Prerequisites
Two philosophy courses or consent of instructor.

When Offered
Offered occasionally.
(3 cr.)

PHIL 318 - Theory of Knowledge

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.

Prerequisites
Two philosophy courses or consent of instructor.

When Offered
Offered in alternate years.
(3 cr.)

PHIL 319 - Development and Responsibility

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.
(3 cr.)

PHIL 330 - Advanced Ethics

This course will explore the theoretical underpinnings of ethical judgments and behavior. It will involve a more complex set of reading than the Introduction to Ethics and apply ethical theories to particular issues.

Prerequisites
Two philosophy courses or consent of instructor.

When Offered
Offered in alternate years.
(3 cr.)

PHIL 344 - Literature and Philosophy
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 344.

When Offered
Offered occasionally.

Repeatable
May be repeated for credit if content changes
(3 cr.)

PHIL 354 - Islamic Philosophy

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.

Prerequisites
HIST 246 or ARIC/HIST 343 or consent of instructor.

Cross-listed
Same as ARIC 354.

When Offered
Offered occasionally.
(3 cr.)

PHIL 356 - American Philosophy

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.

Prerequisites
Two philosophy courses or consent of instructor.

When Offered
Offered occasionally.
(3 cr.)

PHIL 360 - Philosophy of Language and Communication

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.

Prerequisites
Prerequisite: Two philosophy or consent of instructor.

When Offered
Offered in alternate years.
(3 cr.)
PHIL 362 - Formal and Mathematical Logic

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.

Prerequisites
PHIL 221 or MACT 200 or permission of the instructor.

Cross-listed
Same as MACT 362.

When Offered
Offered occasionally.
(3 cr.)

PHIL 382 - Philosophy of Science and Technology

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 alternative years.
(3 cr.)

PHIL 402 - Metaphysics

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.

Prerequisites
Two philosophy courses on the 300 or 400 level or consent of instructor.

When Offered
Offered occasionally.
(3 cr.)

PHIL 403 - Selected Topics in Philosophy

According to special interest of faculty and students.

Prerequisites
One philosophy course on the 300 or 400 level or consent of instructor.

When Offered
Offered occasionally.

Repeatable
May be repeated for credit if content changes.
(3 cr.)
PHIL 405 - Independent Study in Philosophy

Independent research projects in Philosophy.

**Prerequisites**
Three philosophy courses and consent of instructor

(1-3 cr.)

PHIL 410 - Advanced Seminar in Aesthetics

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.

**Prerequisites**
PHIL 310 or consent of instructor.

**When Offered**
Offered occasionally.

(3 cr.)

PHIL 418 - Philosophical Masterpieces

This course will be an in-depth study of a single great work of philosophy and its place in the history of ideas.

**Prerequisites**
One philosophy course on the 300 or 400 level or consent of instructor.

**When Offered**
Offered in alternate years.

**Repeatable**
May be repeated for credit if the content changes

(3 cr.)

PHIL 420 - Philosophical Figures

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.

**Prerequisites**
Prerequisites: One philosophy course on the 300 or 400 level or consent of instructor.

**When Offered**
Offered in alternate years.

**Repeatable**
May be repeated for credit if content changes.

(3 cr.)
PHIL 500 - Classical Western Philosophy

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 501, the course will generally run in the Fall Semester.

(3 cr.)

PHIL 501 - Advanced Seminar in Islamic Philosophy

This course will survey the classical tradition of Islamic Philosophy. It will constitute a close study of the works of figures such as Al-Farabi, Ibn Sina, Al-Ghazali, and the Andalusian thinkers such as Ibn Tufayl and Ibn Rushd. Ibn Al-Arabi and the Sufi tradition, as well as selective writings by Shihab al-Din Suhrawardi and Mulla Sadra, may also be studied. Some consideration may also be given to the significant status of Islamic Philosophy within the History of Science. Additionally, towards the end of the course, some contemporary work in the field of Islamic Philosophy may also be considered. Because PHIL 500 provides valuable material for PHIL 501, the latter will generally run in the Spring Semester.

(3 cr.)

PHIL 502 - Metaphysics

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.

(3 cr.)

PHIL 503 - Selected Topics in Philosophy

According to special interest of faculty and students.

When Offered
Offered occasionally.

Repeatable
May be repeated for credit if content changes.

(3 cr.)
**PHIL 504 - Kant and Idealism**

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.

(3 cr.)

**PHIL 505 - Advanced Seminar in Phenomenology**

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.

(3 cr.)

**PHIL 510 - Advanced Seminar in Aesthetics**

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.

(3 cr.)

**PHIL 517 - Current Trends in Philosophy**

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.

(3 cr.)

**PHIL 518 - Philosophical Masterpieces**

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.
(3 cr.)

**PHIL 520 - Philosophical Figures**

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.

(3 cr.)

**PHIL 530 - Advanced Ethics**

This course will explore the theoretical underpinnings of ethical judgments and behavior. It will involve a more complex set of reading than the Introduction to Ethics and apply ethical theories to particular issues.

(3 cr.)

**PHIL 560 - Philosophy of Language and Communication**

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.

(3 cr.)

**PHIL 562 - Formal and Mathematical Logic**

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.

(3 cr.)

**PHIL 599 - Research Guidance and Thesis**

(3 cr.)
PHYS 100 - Physics for Poets

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.

(3 cr.)

PHYS 111 - Classical Mechanics, Sound and Heat

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.

Prerequisites
Prerequisites: Thanawiya Amma MACT or Science, or IGCSE O-level physics, or German Abitur, or French Baccalaureate, or International Baccalaureate, or PHYS 100. MACT 131 or concurrent enrollment. Concurrent enrollment with PHYS 123L

When Offered
Offered in fall, spring and summer.

(3 cr.)

PHYS 112 - Electricity and Magnetism

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.

Prerequisites
PHYS 111, PHYS 123L, MACT 132 or concurrent. Concurrent with PHYS 124L

When Offered
Offered in fall, spring and summer.

(3 cr.)

PHYS 123L - General Physics Laboratory I

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.

Prerequisites
Concurrent with PHYS 111

Hours
One three-hour laboratory period

When Offered
Offered in fall, spring and summer.
(1 cr.)

**PHYS 124L - General Physics Laboratory II**

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.

**Prerequisites**
Concurrent with PHYS 112

**Hours**
One three-hour laboratory period

**When Offered**
Offered in fall, spring and summer.
(1 cr.)

**PHYS 199 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**
Offered occasionally.
(3 cr.)

**PHYS 204L - Optics Laboratory**

Basic experiments in physical optics with special emphasis on laser optics.

**Prerequisites**
PHYS 214 or concurrent.

**When Offered**
Offered in fall and spring.
(1 cr.)

**PHYS 211 - Modern Physics**


**Prerequisites**
PHYS 112 and MACT 231 or concurrent.

**When Offered**
Offered in fall and spring.
(3 cr.)
**PHYS 212 - Quantum Mechanics I**


**Prerequisites**
MACT 233 or concurrent.

**When Offered**
Offered in fall and spring.
(3 cr.)

**PHYS 214 - Waves and Optics**

Wave phenomena; EM waves, geometrical and physical optics.

**Prerequisites**
PHYS 112 and PHYS 204L concurrent.

**When Offered**
Offered in fall and spring.
(3 cr.)

**PHYS 215 - Introduction to Electronics**

Foundation of circuit analysis, AC theory, introduction to semiconductor devices, amplifiers, feedback oscillators.

**Prerequisites**
PHYS 112 and PHYS 221L concurrent.

**When Offered**
Offered in fall, spring and summer.
(3 cr.)

**PHYS 221L - Electronics Laboratory I**

Basic experiments in electronics.

**Prerequisites**
Prerequisite: concurrent with PHYS 215.

**When Offered**
Offered in fall, spring and summer.
(2 cr.)

**PHYS 222L - Electronics lab for Computer Scientists & Computer Engineers**

Basic experiments in electronics for the Computer Science & Engineering majors.

**Prerequisites**
Concurrent with PHYS 215

**When Offered**
Offered in fall and spring.
(1 cr.)

**PHYS 279 - Computational Methods in Physics**

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.

**Prerequisites**
CSCE 106 and MACT 231.

**Hours**
Two credits lectures and one credit computer lab.

**When Offered**
Offered in spring.
(2 cr. + 1 cr.)

**PHYS 305L - Modern Sensors Laboratory**

Experiments in instrumentation illustrating material covered in PHYS 315.

**Prerequisites**
Concurrent with PHYS 315

**When Offered**
Offered in fall.
(1 cr.)

**PHYS 307L - Electronics Laboratory II**

Basic experiments in instrumentation electronics.

**Prerequisites**
Concurrent with PHYS 327

**When Offered**
Offered in spring.
(1 cr.)

**PHYS 309L - Digital Logic Design Laboratory**

The laboratory will cover experiments in digital design and experiments illustrating material of course PHYS 319.

**Prerequisites**
Concurrent with PHYS 319

**Cross-listed**
Same as EENG 218L.
**PHYS 311 - Thermodynamics and Statistical Mechanics**

A macroscopic and microscopic study of equilibrium thermal physics, fundamental laws of thermodynamics, and statistical mechanics applied to various systems.

**Prerequisites**  
PHYS 212 and MACT 233

**When Offered**  
Offered in spring.  
(3 cr.)

**PHYS 312 - Theoretical Mechanics**

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.

**Prerequisites**  
PHYS 212, MACT 233

**When Offered**  
Offered in fall.  
(3 cr.)

**PHYS 314 - Optical Systems and Instruments**


**Prerequisites**  
PHYS 204L, PHYS 214

**When Offered**  
Offered in spring.  
(3 cr.)

**PHYS 315 - Modern Sensors**

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.

**Prerequisites**  
PHYS 215, PHYS 221L. Concurrent with PHYS 305L
**PHYS 316 - Electromagnetic Theory**


**Prerequisites**
PHYS 112, MACT 232

**Cross-listed**
Same as EENG 341.

**When Offered**
Offered in spring.

(3 cr.)

**PHYS 318 - Instrumentation Systems and Control**

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.

**Prerequisites**
MACT 233

**When Offered**
Offered in fall.

(3 cr.)

**PHYS 319 - Digital Logic Design**

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.

**Prerequisites**
CSCE 106. Concurrent with PHYS 309L

**Cross-listed**
Same as EENG 210.

**When Offered**
Offered in fall, spring and summer.

(3 cr.)

**PHYS 321L - Nuclear Physics Lab**
Experiments in atomic and nuclear physics.

**Prerequisites**
PHYS 211 or concurrent.

**When Offered**
Offered in fall and spring.
(1 cr.)

**PHYS 322L - Solid-State Physics Lab**

Experiments in solid-state physics and semiconductor devices.

**Prerequisites**
PHYS 325

**When Offered**
Offered in fall and spring.
(2 cr.)

**PHYS 323L - Semiconductor Technology Lab**

Experiments in semiconductor and electronics technology.

**Prerequisites**
PHYS 215 and PHYS 221L

**When Offered**
Offered in fall and spring.
(2 cr.)

**PHYS 325 - Introduction to Solid-State Physics**

Classification of materials and their structural characteristics, symmetry and properties of materials, free-electron theory, band theory, dielectric processes, optical processes in material.

**Prerequisites**
PHYS 212

**When Offered**
Offered in spring.
(3 cr.)

**PHYS 327 - Operational Amplifiers and Applications**

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.

**Prerequisites**
PHYS 215 concurrent with PHYS 307L

**When Offered**
PHYS 333 - Introduction to Applied Geophysics

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.

**Prerequisites**
PHYS 214 and PHYS 315 or concurrent.

**When Offered**
Offered in spring.

(3 cr.)

PHYS 401 - Senior Thesis and Seminar

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.

**Prerequisites**
Senior standing.

**When Offered**
Offered in fall and spring.

(3 cr.)

PHYS 402 - Independent Study

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.

**Prerequisites**
Prerequisites: consent of the instructor, senior standing.

(1-3 cr.)

PHYS 404L - Photonics and Optical Communication Laboratory

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.

**Prerequisites**
PHYS 204L or consent of instructor.

**When Offered**
Offered in fall.
(1 cr.)

PHYS 407L - Process Instrumentation and Digital Control Laboratory

Experiments on process measurement, digital process control and programmable logic controllers.
Prerequisites
PHYS 417 concurrent.
When Offered
Offered in spring.
(1 cr.)

PHYS 409L - Computerized Instrumentation Laboratory

Experiments in computerized instruments illustrating material covered in PHYS 429.
Prerequisites
Concurrent with PHYS 429
When Offered
Offered in spring.
(1 cr.)

PHYS 412 - Semiconductor Physics

Fundamental theory and characteristics of elemental and compound semiconductors. Semiconductor technology. P-N junctions and transistors.
Prerequisites
PHYS 325
When Offered
Offered in fall.
(3 cr.)

PHYS 413 - Nuclear Physics

Nuclear Structure and Nuclear Properties; Nuclear models; deuteron, liquid drop model, shell model; hyperfine structure. Nuclear decay and radioactivity. Nuclear reactions; Nuclear fission and fusion; reactors. Nuclear astrophysics. Nuclear medicine. Particle physics and fundamental interactions.
Prerequisites
PHYS 211 PHYS 212 and PHYS 421 (recommended).
When Offered
Offered in fall.
(3 cr.)
PHYS 414 - Photonics


Prerequisites
PHYS 214 or consent of instructor.

When Offered
Offered in fall.
(3 cr.)

PHYS 415 - Selected Topics in Physics

Topics chosen according to special interest, such as temperature physics, vacuum physics, solid-state electronics, electronics and communications.

Prerequisites
Prerequisite: Junior standing or consent of instructor.

When Offered
Offered occasionally.

Repeatable
May be repeated for credit more than once if content changes.
(3 cr.)

PHYS 416 - Experimental Methods in Undergraduate Research

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.

Prerequisites
Prerequisites: Junior standing. Consent of instructor.

When Offered
Offered in fall and spring.
(3 cr.)

PHYS 417 - Process Instrumentation

Basic concepts in process measurement and control; process controllers; Final control devices; Typical applications; Programmable logic controllers; Distributed control systems; Process safety and alarming.

Prerequisites
PHYS 215 and PHYS 407L concurrent.

When Offered
Offered in spring.
(3 cr.)
PHYS 421 - Quantum Mechanics II


Prerequisites
PHYS 212

When Offered
Offered in spring.
(3 cr.)

PHYS 426 - Industrial Physics

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.

Prerequisites
Prerequisites: Junior standing. Consent of instructor.

When Offered
Offered in spring

Notes
Students field trips to several factories and manufacturing firms.

(3 cr.)

PHYS 427 - Analytical Techniques in Instrumentation

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.

Prerequisites
PHYS 215 and PHYS 221L.

When Offered
Offered in fall.
(3 cr: 2 cr. lecture, 1 cr. lab)

PHYS 429 - Computerized Instrumentation


Prerequisites
PHYS 319 or consent of instructor. Concurrent with PHYS 409L.
PHYS 501 - Mathematical Physics


Prerequisites
MACT 233 or equivalent.

When Offered
Offered in fall.
(3 cr.)

PHYS 502 - Classical Electrodynamics

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.

Prerequisites
PHYS 316 or equivalent and PHYS 501.

When Offered
Offered in spring.
(3 cr.)

PHYS 504 - Classical Mechanics

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.

Prerequisites
PHYS 312 or equivalent.

When Offered
Offered in fall.
(3 cr.)

PHYS 506 - Advanced Quantum Mechanics
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.

**Prerequisites**
PHYS 421 or equivalent.

**Cross-listed**
Same as NANO 501.

**When Offered**
Offered in fall and spring.

(3 cr.)

**PHYS 507 - Computational Physics**

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.

**Prerequisites**
MACT 233 MACT 304 or consent of instructor.

**When Offered**
Offered in fall.

(3 cr.)

**PHYS 508 - Advanced Experimental Techniques**

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.

**Prerequisites**
PHYS 321L PHYS 322L and PHYS 323L or equivalent.

**When Offered**
Offered in spring.

(3 cr.)

**PHYS 509 - Advanced Thermodynamics and Statistical Mechanics**

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.

**Prerequisites**
PHYS 311 or equivalent.

**When Offered**
Offered in spring.

(3 cr.)
**PHYS 510 - Introduction To Solids**

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.

**Prerequisites**
PHYS 325 or equivalent.

**When Offered**
Offered in fall.
(3 cr.)

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**PHYS 512 - Electronic Transport in Semiconductor**

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.

**Prerequisites**
PHYS 215 and PHYS 325 or equivalent.

**When Offered**
Offered in fall.
(3 cr.)

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**PHYS 513 - Theory of Solids**

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.

**Prerequisites**
PHYS 325 or equivalent.

**When Offered**
Offered in spring.
(3 cr.)
PHYS 549 - Passive Microwave Circuits

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.

Prerequisites
PHYS 316 or equivalent.

When Offered
Offered in spring.
(3 cr.)

PHYS 556 - MEMS/NEMS Technology and Devices

This course will cover basic MEMS/NEMS fabrication technologies, various transduction mechanisms such as piezoelectric, pyroelectric, thermoelectric, thermionic, piezoresistive, etc. In addition, the theory of operation of few sensors will be covered this will include infrared detectors, radiation sensors, rotation and acceleration sensors, flow sensors, pressure and force sensors, and motion sensors. Finally, the course will give insight of different techniques for analyzing experimental data.

Prerequisites
PHYS 215 and consent of instructor.

Cross-listed
Same as NANO 521 and RCSS 542.

When Offered
Offered in spring.
(3 cr.)

PHYS 561 - Independent Studies

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.

Prerequisites
Prerequisite: Consent of supervisor, graduate standing.

Notes
Maximum of 3 credit hours of independent studies can be used towards the M. Sc. degree in physics.

(1-3 cr.)

PHYS 562 - Selected topics in Physics
Topics to be chosen according to specific interests. Maybe taken for credit more than once if content changes.

**Prerequisites**
Consent of the faculty advisor.

**Cross-listed**
PHYS 662.

**When Offered**
Offered in fall and spring.
(3 cr.)

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**PHYS 590 - Graduate Seminar I**

**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.
(1 cr.)

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**PHYS 591 - Graduate Seminar II**

Presentations and discussions of results obtained by the graduate students during research work.

**Prerequisites**
PHYS 590

**When Offered**
Offered in spring.
(1 cr.)

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**PHYS 599 - Research Guidance and Thesis**

Thesis consultation for qualified students. Two semesters are required, with credit being given each time.
(3 cr. + 3 cr.)

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**PHYS 602 - Classical Electrodynamics II**

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.

**Prerequisites**
PHYS 502

**When Offered**
Offered in fall and spring.
(3 cr.)
PHYS 641 - Integrated Photonics

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.

**Prerequisites**
PHYS 414 or equivalent.

**When Offered**
Offered in fall and spring.
(3 cr.)

PHYS 642 - Computational Electromagnetics


**Prerequisites**
PHYS 502, PHYS 507 or equivalent.

**When Offered**
Offered in fall and spring.
(3 cr.)

PHYS 662 - Advanced Selected Topics in Physics

Topics to be chosen according to specific interests. May be taken for credit more than once if content changes.

**Prerequisites**
Consent of the faculty advisor.

**Cross-listed**
PHYS 562.

**When Offered**
Offered in fall and spring.
(3 cr.)

POL 101 - Introduction to Political Science

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.

**Prerequisites**
ENGL 100
(3 cr.)
POLS 199 - Selected Topic in Political Science

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.
(3 cr.)

POLS 203 - Introduction to Political Science II

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 101. See the description of POLS 101.

Prerequisites
ENGL 100
(3 cr.)

POLS 204 - Research Methods in Political Science

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.

Prerequisites
RHET 101, POLS 101 or POLS 203
(3 cr.)

POLS 205 - Europe in the Age of Revolution and Reform (1789-1914)

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 205.
(3 cr.)

POLS 206 - Europe in International Politics in the Twentieth Century

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 206.

When Offered
Offered in fall and spring.
(3 cr.)

POLS 299 - Selected Topics for Core Curriculum

Course addressing broad intellectual concerns and accessible to all students, irrespective of major

Prerequisites
RHET 101

When Offered
Offered occasionally.
(3 cr.)

POLS 301-302 - History of Political Theory

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.

Prerequisites
RHET 101 and POLS 101 or POLS 203

When Offered
POLS 302 is not offered in the fall semester.
(3 cr. per semester)

POLS 303 - American Government and Politics

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.

Prerequisites
RHET 101 and POLS 101 or POLS 203

When Offered
Offered occasionally.
(3 cr.)

POLS 305 - Politics and Society in Contemporary Africa

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.

Prerequisites
RHET 101 and 6 hours of social sciences.

When Offered
Offered occasionally.
(3 cr.)
POLS 308 - Comparative Politics of the Middle East

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.

Prerequisites
RHET 101 and POLS 101 or POLS 203.

When Offered
Offered in fall and spring.

(3 cr.)

POLS 310 - Introduction to Development

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.

Prerequisites
RHET 101 and POLS 101 or POLS 203.

When Offered
Offered in fall and spring.

(3 cr.)

POLS 313 - Introduction to Comparative Politics

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.

Prerequisites
RHET 101 and POLS 101 or POLS 203.

(3 cr.)

POLS 320 - International Relations

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.

Prerequisites
RHET 101, POLS 101 or POLS 203 and POLS 206.

When Offered
Offered in fall and spring.

(3 cr.)
POLS 323 - Comparative Government and Politics: Developing Systems

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.

Prerequisites
RHET 101 and POLS 101 or POLS 203

When Offered
Offered in fall.
(3 cr.)

POLS 324 - Comparative Government and Politics in Contemporary Eastern Europe and Russia

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.

Prerequisites
RHET 101 and POLS 101 or POLS 203

When Offered
Offered in spring.
(3 cr.)

POLS 325 - Government and Politics of Egypt

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.

Prerequisites
RHET 101.
(3 cr.)

POLS 350 - Introduction to Political Economy

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.

Prerequisites
RHET 101, POLS 101 or POLS 203 and ECON 201
(3 cr.)

POLS 351 - Theory and History of Political Economy
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.

**Prerequisites**
RHET 101
(3 cr.)

**POLS 354 - Political and Social Thought in the Modern Arab World**

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.

**Prerequisites**
RHET 101
**When Offered**
Offered in fall and spring.
(3 cr.)

**POLS 400 - Honors Seminar: Political Theory and Current Issues in World Affairs**

This seminar aims at training the honors students in the use of various political theories in the course of understanding some of the major world issues of our time. It seeks to establish the relevance of a range of political frameworks to our great issues of today's world with focus on conflict, crises situations and environmental, demographic and ecological changes.

**Prerequisites**
Pre-requisites: Honors Status, PS 301 or 302
(3 cr.)

**POLS 402 - The Political Economy of Egypt**

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

**Prerequisites**
RHET 201, POLS 310 and POLS 350
(3 cr.)

**POLS 404 - Introduction to Political Science Methods**

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.

**Prerequisites**
RHET 201 POLS 204 and 3 credit hours at 300 level in POLS.

Cross-listed
Same as POLS 504.
(3 cr.)

**POLS 405 - International Politics in the Middle East**

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.

**Prerequisites**
RHET 201, POLS 308 and POLS 320.
(3 cr.)

**POLS 409 - Seminar: International Organization**

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.

**Prerequisites**
RHET 201 and POLS 320

**When Offered**
Offered in spring.
(3 cr.)

**POLS 410 - International Security**

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.

**Prerequisites**
RHET 201 and POLS 320.
(3 cr.)

**POLS 411 - Contemporary Foreign Policies**

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.

**Prerequisites**
RHET 201 and POLS 320.
(3 cr.)
POLS 413 - International Financial Institutions

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.

Prerequisites
RHET 201, ECON 201 and POLS 320.
(3 cr.)

POLS 414 - Egyptian Foreign Policy

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.

Prerequisites
RHET 201 and POLS 320
(3 cr.)

POLS 415 - U.S. Foreign Policy

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.

Prerequisites
RHET 201 and POLS 320.
(3 cr.)

POLS 416 - Race, Class and Gender: Theorizing Political Identity

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.

Prerequisites
Six credits at 300 level in POLS.
(3 cr.)

POLS 420 - Issues in Middle East Politics
Selected Topics in Middle East Politics investigated under the guidance of a faculty member. May be offered as a seminar.

**Prerequisites**
RHET 201 and POLS 308.

**When Offered**
Offered occasionally.

**Repeatable**
May be repeated for credit if content changes (3 cr.)

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**POLS 422 - Contemporary Egypt**

This course examines the current Politics of Egypt, including elections, civil society activism and changing power relations between social forces.

**Prerequisites**
RHET 201 and POLS 308

**When Offered**
Offered in fall.

(3 cr.)

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**POLS 423 - The Political Economy of Poverty and Inequality**

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.

**Prerequisites**
RHET 201, POLS 310 and POLS 350

(3 cr.)

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**POLS 424 - Political Economy of the Middle East and North Africa**

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.

**Prerequisites**
RHET 201, POLS 310 and POLS 350

(3 cr.)

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**POLS 425 - Global Political Economy**

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
POLS 426 - Contemporary Political Islam

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.

Prerequisites
RHET 201
(3 cr.)

POLS 430 - Seminar: Special Topics in Political Science

Selected topics to be investigated under the guidance of a faculty member.

Prerequisites
RHET 201 and 6 credit hrs at 300 level in POLS.
When Offered
Offered in fall and spring.
Repeatable
May be repeated for credit if content changes
Notes
May be offered as a seminar.

(3 cr.)

POLS 431 - Political Sociology

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.

Prerequisites
Prerequisites: 9 hours of social science, and junior or senior standing.
Cross-listed
Same as SOC 431.
When Offered
Offered in fall.
(3 cr.)

POLS 432 - Seminar: Comparative Politics and/or Policies
Selected topics in the field of comparative politics or policies, with concentration on a single country, problem, or policy.

**Prerequisites**
RHET 201 and one of POLS 308 POLS 323 POLS 324.

**When Offered**
Offered in fall and spring.

**Repeatable**
May be repeated for credit if content changes.

(3 cr.)

**POLS 433 - Individual Study and Selected Reading**

Guided reading, research, and discussion based on a subject of mutual interest to a student and faculty member.

**Prerequisites**
RHET 201 and consent of instructor and department on the basis of a well-defined proposal.

**When Offered**
Offered in fall and spring.

(1-3 cr.)

**POLS 435 - The State and Society**

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.

**Prerequisites**
RHET 201 and 6 credit hrs. at 300 level in Political Science.

(3 cr.)

**POLS 438 - Modern China**

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.

**Prerequisites**
RHET 201

**When Offered**
Offered occasionally.

(3 cr.)

**POLS 439 - Government and Politics in the Modern Caucasus and Central Asia**
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.

**Prerequisites**
RHET 201, POLS 101 and POLS 203  
(3 cr.)

**POLS 440 - Seminar: Special Topics in International Relations**

A special issue or theme in international relations investigated under the guidance of a faculty member.

**Prerequisites**
RHET 201 and POLS 320  
**Repeatable**
May be repeated for credit if content changes.  
(3 cr.)

**POLS 442 - Environmental Politics**

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.

**Prerequisites**
RHET 201  
(3 cr.)

**POLS 450 - Business -Government Relations**

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.

**Prerequisites**
RHET 201 and POLS 350 .  
(3 cr.)

**POLS 460 - Development Studies Seminar**

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.

**Prerequisites**
RHET 201 and 12 hours of social science.  
**Cross-listed**
Same as ANTH/ECON/SOC 460.  
**When Offered**
Offered occasionally.
(3 cr.)

**POLS 470 - The Politics of Human Rights**

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.

**Prerequisites**
RHET 201 and 6 credit hrs at 300 level in Political Science.
(3 cr.)

**POLS 471 - International Law**

Introduction to the study of international law. Exposes students to the practical and theoretical foundations of contemporary international law by analyzing such issues as customary law, the law of treaties, jurisdiction, international legal personality, and state responsibility.

**Prerequisites**
RHET 201 and POLS 320

**When Offered**
Offered in fall and spring.
(3 cr.)

**POLS 472 - International Law in the Middle East**

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.

**Prerequisites**
RHET 201 and POLS 471.

**When Offered**
Offered in spring.
(3 cr.)

**POLS 473 - Special Topics in Public Law**

Topics drawn from constitutional and administrative law, including related jurisprudence and judicial institutions.

**Prerequisites**
RHET 201 and 6 credit hrs at 300 level in POLS.

**Repeatable**
May be taken a second time if content changes.
(3 cr.)
**POLS 474 - Special Topics in Public International Law**

Specialized areas of international law, such as human rights and humanitarian law.

**Prerequisites**
RHET 201 and POLS 471

**Repeatable**
May be taken if content changes.
(3 cr.)

**POLS 475 - Egyptian Law**

The Egyptian legal system will be considered according to its present structure and historical development, including institutions, processes, laws, and the courts. The specific role of the Supreme Constitutional Court in contemporary political and legal context will also be examined. This course may be counted towards the requirements of the Specializations in Public and International Law.

**Prerequisites**
RHET 201
(3 cr.)

**POLS 477 - Law and Development**

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.

**Prerequisites**
RHET 201, POLS 310 and POLS 471
(3 cr.)

**POLS 480 - Israeli Politics and Society**

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.

**Prerequisites**
RHET 201 and 6 credit hrs. of Social Science.
(3 cr.)

**POLS 481 - The Politics of Palestinian–Israeli Relations**

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.

**Prerequisites**
RHET 201 and POLS 320.
(3 cr.)

**POLS 499 - Senior Year Thesis**

This course provides students enrolled in the department’s Honors Program the opportunity to write an original research thesis with faculty supervision.

**Prerequisites**
The pre-requisites for POLS 499 is being enrolled in the Honors Program and accumulating the requisite credits in the prescribed courses, including, but not limited to, POLS 400 and POLS 404
(3 cr.)

**POLS 501 - Comparative Theory**

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.

**Prerequisites**
Prerequisite: graduate standing.
(3 cr.)

**POLS 502 - Scope and Method of Developmental Analysis**

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.
(3 cr.)

**POLS 503 - International Relations Theory**

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.
(3 cr.)
POLS 504 - Introduction to Political Science Methods

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.

Prerequisites
RHET 201, POLS 204 and 3 credit hours at 300 level in POLS.

Cross-listed
Same as POLS 404.
(3 cr.)

POLS 505 - Identity, Culture and Norms in World Politics

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.
(3 cr.)

POLS 510 - Global Governance and World Order(s)

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.
(3 cr.)

POLS 520 - Protracted Social Conflicts

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.

(3 cr.)

POLS 525 - International Political Economy

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.
POLS 526 - The Political Economy of Regionalism

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.

(3 cr.)

POLS 530 - Regime Change and Democratization

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.

Prerequisites
POLS 501
(3 cr.)

POLS 534 - Middle East Conflicts

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.
(3 cr.)

POLS 535 - Middle East Politics

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.
(3 cr.)
POLS 536 - Contemporary Issues in Political Islam

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.
(3 cr.)

POLS 540 - Politics of Modern Egypt

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.
(3 cr.)

POLS 544 - European Politics

Considers the governance structures, processes, and patterns of politics in major states, institutions of the EU, and international organizations.
(3 cr.)

POLS 545 - Politics and Development

Domestic and international contexts within which development occurs: ethnicity, class, gender, dependence; central institutions involved in decision making (the state, international donors, international financial institutions); contemporary policy sectors such as rural development, industry, health, etc.

When Offered
Offered occasionally.
(3 cr.)

POLS 550 - Politics In Asia

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.
(3 cr.)

POLS 551 - African Politics
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.

(3 cr.)

**POLS 552 - Arab-American Relations**

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.

(3 cr.)

**POLS 554 - Comparative Foreign Policy: Theories and Applications**

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.

(3 cr.)

**POLS 555 - Conflict and Security in Global Politics**

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.

(3 cr.)

**POLS 558 - Comparative Politics and the Middle East**

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.

**Prerequisites**
POLS 501 or POLS 502 and POLS 535 or POLS 540

(3 cr.)
POLS 561 - Public Policy and Development

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.

Prerequisites
ECON 201 and POLS 502 or POLS 535
(3 cr.)

POLS 562 - International Development Organizations

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.

Prerequisites
POLS 502
(3 cr.)

POLS 570 - Special Topics in Political Science

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.
(3 cr.)

POLS 571 - Seminar: Special Topics in International Relations

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.
(3 cr.)

POLS 580 - Independent Study and Readings

Guided individual readings and/or research on a subject of mutual interest to student and faculty member.

Prerequisites
Prerequisite: Department approval.

When Offered
Offered in fall and spring.

Repeatable
May be taken only once.
(3 cr.)

**POLS 584 - Practicum: Internship or Research**

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.

**Prerequisites**
Prerequisites: At least eighteen hours of master’s degree work, or adviser's permission.
(3 cr.)

**POLS 585 - Project Seminar**

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.
(3 cr.)

**POLS 586 - Skills in Development Practice**

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.
(3 cr.)

**POLS 599 - Research Guidance and Thesis**

(no cr.)

**PPAD 299 - Selected Topics for the Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**Prerequisites**
RHET 101

**When Offered**
Offered occasionally.
(3 cr.)
PPAD 308 - Management in Government

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.
(3 cr.)

PPAD 490 - Practicum

Students work on an approved individual or team professional assignment with a relevant government, non-profit, or other organization. Class meets weekly 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. 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.

Prerequisites
Junior or senior status and permission of the department.
Cross-listed
Same as PPAD 590.
When Offered
Offered in fall and spring.
(3 cr.)

PPAD 500 - Research Methods for Public Policy and Administration

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.
(3 cr.)

PPAD 501 - Strategic Management for Government and Nonprofit Organizations

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.

(3 cr.)

**PPAD 502 - Economics for Public Policy Analysis**

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.

(3 cr.)

**PPAD 503 - Role of Government in a Market-Oriented Economy**

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.

*Prerequisites*
PPAD 502 or equivalent economic preparation.

*When Offered*
Offered in spring.

(3 cr.)

**PPAD 504 - Essentials of Financial Planning and Management for Government and Nonprofit Organizations**

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.

(3 cr.)

**PPAD 505 - Institutions, Democratization, and Public Policy**
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.
(3 cr.)

**PPAD 506 - Essentials of Public Policy and Administration**

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.
(3 cr.)

**PPAD 507 - Government Finance for Policy Analysis**

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.

**Prerequisites**
Completion of economics core or equivalent economics preparation.

**When Offered**
Offered in alternate years.
(3 cr.)

**PPAD 508 - Qualitative Analysis for Policy and Administration**

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.
(3 cr.)

**PPAD 509 - Applied Quantitative Analysis**
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.
(3 cr.)

PPAD 510 - Organizational Behavior for Government and Nonprofit Management

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.
(3 cr.)

PPAD 511 - Administrative Environment and Public Policy in Egypt and the Middle East

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.
(3 cr.)

PPAD 512 - Management of Development Programs

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.
(3 cr.)

PPAD 513 - Comparative Public Governance

Consideration of public governance and reform of governance systems in a comparative context, with an emphasis on the MENA region and developing countries. Application of comparative analytic tools and models of government
behavior to explore strategies to improve performance in diverse contexts.

**When Offered**
Offered in alternate years.
(3 cr.)

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**PPAD 514 - Human Resource Management for Government and Nonprofit Organizations**

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.
(3 cr.)

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**PPAD 515 - Public Policy Analysis and Program Evaluation**

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.
(3 cr.)

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**PPAD 516 - Core Concepts and Applications for Social and Environmental Policy**

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.

**When Offered**
Offered in spring.
(3 cr.)

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**PPAD 517 - Non-profit Management**

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.
(3 cr.)

**PPAD 518 - Governance, Accountability, and Stakeholder Negotiations**

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.
(3 cr.)

**PPAD 519 - Leadership and Communication for Public Affairs**

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.
(3 cr.)

**PPAD 520 - Global Health Issues and Policies**

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.
(3 cr.)

**PPAD 521 - Core Concepts and Applications for Government Regulation**

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.
(3 cr.)

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**PPAD 522 - Core Concepts and Applications for Government Promotion of the Private Sector**

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.
(3 cr.)

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**PPAD 523 - Citizen-centered government**

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.
(3 cr.)

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**PPAD 524 - Globalization and Development**

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.
(3 cr.)

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**PPAD 525 - Reforming Delivery of Social Services**

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.
(3 cr.)

PPAD 526 - Corporate Social Responsibility and NGO Partnerships

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.
(3 cr.)

PPAD 527 - International Organization in Global Governance

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.
(3 cr.)

PPAD 528 - International Negotiation: Theory and Practice

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.
(3 cr.)
PPAD 529 - Issues in International Security

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.
(3 cr.)

PPAD 530 - Conflict Management and Resolution

This course is about the theoretical underpinnings and policy aspects of conflict management and resolution. It addresses theories of conflict and discusses concepts such as deterrence, early warning, crisis bargaining, negotiations strategies, mediation and peacekeeping. In addressing these issues, the course will examine specific processes of conflict management and/or resolution such as those of the Middle East, Bosnia-Herzegovina, Sri Lanka and the policies and objectives of participant states.

When Offered
Offered in spring.
(3 cr.)

PPAD 531 - Armament, Arms Control and Disarmament

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.
(3 cr.)

PPAD 532 - Issues in regional security in the Middle East and Africa

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.
(3 cr.)

**PPAD 533 - Cooperation for Development in the Multilateral System**

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.
(3 cr.)

**PPAD 534 - Comparative Bilateral Cooperation Policies for Development**

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.
(3 cr.)

**PPAD 535 - Multilateral Cooperation for Development at the Country Level: Issues and Practice**

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.
(3 cr.)
PPAD 536 - Policy for Sustainable Cities

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.

(3 cr.)

PPAD 537 - Greening the Built Environment

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.

(3 cr.)

PPAD 538 - Urban Infrastructure Development for Sustainability

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.

(3 cr.)

PPAD 570 - Special Topics in Public Policy and Administration

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.

Prerequisites
Consent of the instructor and advisor.

When Offered
Offered occasionally.

(1-3 cr.)
PPAD 575 - Independent Study in Public Policy and Administration

Guided readings, research, and discussions on specific selected topics in Public Policy and Administration

Prerequisites
Pre-requisites: Permission of the instructor and unit head
(1-3 cr.)

PPAD 590 - Practicum

Students must complete an approved individual or team professional assignment with a relevant government, non-profit, or other organization. Class meets weekly 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. 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.

Prerequisites
Completion of at least 3 courses or approval of department and instructor.

Cross-listed
Same as PPAD 490.

When Offered
Offered in fall and spring.
(3 cr.)

PPAD 598 - Thesis Research Seminar

Support to students in research phase of the thesis. Weekly meetings and assignments to support ongoing analysis, research, and writing, guided discussions, peer-to-peer assessment, and critique of thesis components. Ungraded; required for all students.

Prerequisites
Supervisor approval of a thesis proposal or permission of the supervisor and instructor.

When Offered
Offered in fall and spring.
(0 cr.)

PPAD 599 - Research Guidance and Thesis

When Offered
Offered in fall and spring.
(no cr.)

PSYC 201 - Introduction to Psychology

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.
(3 cr.)

PSYC 207 - Introduction to Psychological Statistics

Basic statistical procedures used in psychological research. Includes central tendency, variability, parametric and nonparametric techniques. Emphasis will be on conceptual understanding and practice.

When Offered
Offered in fall and spring.
(3 cr.)

PSYC 208 - Research Methods for Psychology

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.

Prerequisites
PSYC 201 and PSYC 207

When Offered
Offered in fall and spring.

Notes
This course is designed for psychology majors.

(3 cr. + 1 cr. lab)

PSYC 240 - Introduction to Community Development

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/SOC 240.

When Offered
Offered in fall.
(3 cr.)

PSYC 299 - Selected Topics in Psychology
Topics will vary depending on contemporary trends in the field of psychology.

**Prerequisites**
PSYC 201, sophomore or junior standing and permission of the instructor.

**When Offered**
Offered occasionally.

**Repeatable**
May be repeated for credit if content changes.

(3 cr.)

**PSYC 301 - Social Psychology**

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.

**Prerequisites**
PSYC 201

**Cross-listed**
Same as SOC 301.

**When Offered**
Offered in fall and spring.

(3 cr.)

**PSYC 302 - Personal Growth and Adjustment**

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.

**Prerequisites**
PSYC 201

**When Offered**
Offered in fall and spring.

(3 cr.)

**PSYC 304 - Lifespan Development**

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.

**Prerequisites**
PSYC 201

**When Offered**
Offered in fall and spring.

(3 cr.)
PSYC 308 - Cognitive Psychology

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.

Prerequisites
PSYC 208

When Offered
Offered in fall.
(3 cr.)

PSYC 310 - Educational Psychology

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.

Prerequisites
PSYC 201

When Offered
Offered occasionally.
(3 cr.)

PSYC 313 - Learning and Behavioral Psychology

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.
(3 cr.)

PSYC 315 - Psychological Testing and Assessment

Nature of individual differences, methods and rationale of their assessment, with emphasis upon widely used psychological tests of intellectual function and personality.

Prerequisites
PSYC 201 and PSYC 207

When Offered
Offered in spring.
(3 cr.)

PSYC 327 - Theories of Personality
The study of the development and dynamics of personality from a variety of theoretical perspectives. The following theoretical viewpoints and theorists are studied: Psychoanalytic (Freud, Jung), Socio-cultural (Adler, Horney, Erikson), Trait (Allport, Cattell, Eysenck), Learning (Skinner, Dollar, Miller, Bandura, Mischel), Sociobiological (Wilson), and Existential-Humanistic (Kelly, Rogers, Maslow, May).

**Prerequisites**
PSYC 201

**When Offered**
Offered in fall and spring.
(3 cr.)

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**PSYC 330 - Community Psychology**

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.

**Prerequisites**
PSYC 201 or permission of instructor.

**When Offered**
Offered in fall.
(3 cr.)

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**PSYC 340 - Participatory Action Research in Community Settings**

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.

**Prerequisites**
ANTH 240 or consent of the instructor.

**Cross-listed**
Same as ANTH/SOC 340.

**When Offered**
Offered in spring.
(3 cr.)

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**PSYC 342 - Abnormal Psychology**

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.

**Prerequisites**
PSYC 201

**When Offered**
Offered in fall and spring.
(3 cr.)
PSYC 380 - Biopsychology

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.

Prerequisites
BIOL 103 or BIOL 104 and PSYC 201 and PSYC 208.

When Offered
Offered in fall.
(3 cr.)

PSYC 400 - Selected Topics in Psychology

Topics to be chosen according to specific interest, for example: learning theory, conflict and stress, psycholinguistics, ethnopsychology.

Prerequisites
Prerequisite: junior or senior standing, and permission of the instructor.

When Offered
Offered occasionally.

Repeatable
May be repeated for credit if content changes.
(3 cr.)

PSYC 401 - Supervised Research in Psychology

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.

Prerequisites
PSYC 208, minimum B average, and permission of instructor.

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.
(1-3 cr.)

PSYC 402 - Independent Study

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.
Prerequisites
Prerequisites: a minimum B average, consent of the instructor, and approval by the Unit Head and the Department Chair.

When Offered
Offered in fall and spring.

Repeatable
May be repeated for credit if content changes
(1-3 cr.)

PSYC 403 - History and Systems of Psychology

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.

Prerequisites
Prerequisites: junior or senior standing and 15 hours of psychology, or permission of instructor.

When Offered
Offered in spring.
(3 cr.)

PSYC 407 - Psychological Anthropology

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.

Prerequisites
Prerequisites: 6 hours of anthropology, 6 hours of psychology, and junior or senior standing

Cross-listed
Same as ANTH 407.

When Offered
Offered occasionally.
(3 cr.)

PSYC 410 - Cultural Psychology

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.

Prerequisites
PSYC 201 and junior or senior standing.

When Offered
Offered occasionally.
(3 cr.)
PSYC 412/512 - Psychosocial Issues in Forced Migration

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.

Prerequisites
Prerequisites: Permission of the instructor.

Cross-listed
Same as MRS 512

When Offered
Offered occasionally.

(3 cr.)

PSYC 414 - Child Psychology

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.

Prerequisites
PSYC 304 or permission of instructor.

When Offered
Offered occasionally

(3 cr.)

PSYC 420 - Industrial/Organizational Psychology

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.

Prerequisites
PSYC 301 and PSYC 327

When Offered
Offered occasionally.

(3 cr.)

PSYC 430 - Advanced community psychology: Applied research and service

This course provides an advanced introduction to theory and practice in community psychology, incorporating hands-on community service as an integral part of the course requirements. This course will build upon the theories and concepts covered in Psychology 330 (Community Psychology) by covering advanced research and program development strategies, and by introducing special topics of particular importance to Egypt. For example, internal
migration, public policy, refugee integration and the importance of religion and religious-based services to community programs will be covered in this course. This service-learning course will combine theoretical readings, class discussions, and guest lectures by service providers from the Cairo area with experiential learning in the form of direct community service.

**Prerequisites**
PSYC 201, PSYC 330 and permission of instructor.
(3 cr.)

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**PSYC 440-441 - Practicum in Community Development**

Two semester, nine month field experience in an approved international development agency, local NGO or other professional setting approved by faculty supervisor. Supervised by a professional and faculty supervisor.

**Prerequisites**
ANTH 240 and ANTH 340

**Cross-listed**
Same as ANTH/SOC 440-441.

**When Offered**
Offered in fall (440) and spring (441).
(6 cr.)

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**PSYC 442 - Clinical Psychology**

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.

**Prerequisites**
PSYC 327, PSYC 342 and PSYC 380 or permission of instructor.

**When Offered**
Offered occasionally.
(3 cr.)

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**PSYC 500 - Fundamentals of Counseling**

This course is an introduction to culturally sensitive interviewing, listening, and report writing skills required of professional helpers. The course will also cover counseling theories and different schools of thought, combined with an overview of the techniques used by some of the theorists.

(3 cr.)

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**PSYC 502 - Community Psychology and Systems Theory**

This course examines the core theories, values, and methodologies of community psychology and systems theory.
(3 cr.)
PSYC 503 - International and Multicultural Psychology

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.
(3 cr.)

PSYC 504 - Advanced Human Growth and Development

This course provides an in-depth examination of special topics in human development. Biological, cognitive, social, emotional, personality development through the life span will be examined.
(3 cr.)

PSYC 505 - Ethics and Professional Issues

This course provides students with a multicultural working knowledge of ethical issues in mental health care practice and will introduce the concept of professional development. Students will discuss and role play ethical and legal dilemmas and solutions
(3 cr.)

PSYC 506 - Psychopathology and Resilience across Cultures

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.
(3 cr.)

PSYC 508 - Applied Research Design and Statistical Analysis

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.
(3 cr.)

PSYC 510 - Counseling: Models and Methods

This course reviews the history, present applications, and future trends in counseling. Students will be introduced to the principles assumptions and approaches associated with major theoretical schools including traditional and post-modern approaches.
(3 cr.)
PSYC 515 - Counseling Assessment: International Perspectives

This course reviews commonly used methods for assessing and writing reports on dyadic relationships (couples, parent-child), and individuals across diverse cultural settings. These methods can be utilized during the intake, as an integrated component in counseling, or in clinical research.
(3 cr.)

PSYC 520 - Psychology in the Schools

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.
(3 cr.)

PSYC 525 - Consultation to non-Profit Organizations

The purpose of this course is to provide students with the knowledge and skills necessary to engage in consultation, collaborative problem solving, and systems level intervention in non-profit settings, such as non-governmental organizations (NGOs).
(3 cr.)

PSYC 530 - Community Assessment and Program Evaluation

This course will cover readings explicating concepts in and providing examples of ecological needs assessments and program evaluation.
(3 cr.)

PSYC 535 - Prevention and Intervention in Communities

The purpose of this course is to provide students with structured readings and explorations of 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.
(3 cr.)

PSYC 540 - Community and Group Interventions

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.
(3 cr.)
PSYC 545 - Seminar in Cross-Cultural Family Studies

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.

(3 cr.)

PSYC 550 - Couples Counseling and Human Sexuality

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.

(3 cr.)

PSYC 551 - Arabic for Mental Health Professionals

This course is an overview of basic Arabic phrases that can help mental health professionals in their clinical interventions with Arab-speaking clients.

(0 cr.)

PSYC 552 - Professional Development Seminar

This course is an overview of topics that can enhance professional success of graduate students.

(0 cr.)

PSYC 570 - Special Topics in Psychology

In-depth examination of a specific topic in psychology of current theoretical, research, or clinical interest. Topics will vary depending on instructor.

**Prerequisites**
Approval of advisor.

**When Offered**
Offered Occasionally.

**Repeatable**
May be repeated for credit if content changes.

(3 cr.)

PSYC 575 - Independent Study and Guided Readings
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.

**Prerequisites**
Minimum 3.0 GPA, consent of instructor, and approval of graduate advisor.

**When Offered**
Offered occasionally.
(1-3 cr.)

**PSYC 580 - Practicum I in Counseling Psychology**

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.

**Prerequisites**
PSYC 500 PSYC 502 PSYC 504 PSYC 505 PSYC 510 PSYC 515 and approval of advisor.
(3 cr.)

**PSYC 581 - Practicum II in Counseling Psychology**

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.

**Prerequisites**
PSYC 500 PSYC 502 PSYC 504 PSYC 505 PSYC 510 PSYC 515 and approval of advisor.
(3 cr.)

**PSYC 586 - Practicum I in Community Psychology**

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.

**Prerequisites**
Approval of Advisor.
(3 cr.)
PSYC 587 - Practicum II in Community Psychology

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.

Prerequisites
Approval of Advisor.
(3 cr.)

PSYC 589 - Professional Portfolio

Diploma students will be responsible for completing and presenting a final capstone project under the supervision of a faculty advisor. This project is meant to provide diploma students with additional training in a specialization area such as schools, children, domestic violence, and HIV prevention. The portfolio includes a written paper and may be based on case studies, clinical work, or research.

Prerequisites
Approval of Advisor.
(1 cr.)

PSYC 590 - Internship in Counseling Psychology

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.

Prerequisites
Completion of PSYC 506 PSYC 508 PSYC 540 PSYC 550 PSYC 580 and PSYC 581
(3 cr. + 3 cr.)

PSYC 596 - Internship in Community Psychology

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.

Prerequisites
PSYC 500 PSYC 502 PSYC 505 PSYC 508 PSYC 530 PSYC 535 and approval of advisor.
(3 cr.)

PSYC 599 - Research Guidance and Thesis
Supervision in the preparation and writing of the Masters thesis. May be repeated for credit.

**Prerequisites**
Approval of advisor.
(3 cr.)

**RCSS 501 - Robotics: Kinematics, Dynamics and Control**


**Cross-listed**
Same as MENG 561.
(3 cr.)

**RCSS 502 - Embedded Real Time Systems**


**Cross-listed**
Same as MENG 562.
(3 cr.)

**RCSS 503 - Modern Control Design**


**Cross-listed**
Same as MENG 563.
(3 cr.)
RCSS 504 - Applied Estimation


(3 cr.)

RCSS 521 - Intelligent and Autonomous Robotic Systems


Cross-listed
Same as MENG 564.
(3 cr.)

RCSS 522 - Mechatronics Innovations and Experimental Robotics


(3 cr.)

RCSS 523 - Bioinspired Robotics and Multi Robotic Systems


(3 cr.)
RCSS 524 - Robotics and Intelligent Automated Manufacturing


(3 cr.)

RCSS 531 - Teleoperation, Haptic Systems and Collaborative Control


(3 cr.)

RCSS 532 - Robust and Optimal Control


(3 cr.)

RCSS 533 - Nonlinear and Adaptive Control


Prerequisites
Consent of instructor.

Cross-listed
Same as MENG 620.
(3 cr.)

RCSS 534 - Networked Control Systems: Design and Applications

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.

Prerequisites
EENG 321 and EENG 432
Cross-listed
Same as EENG 556.
(3 cr.)

RCSS 541 - Smart Systems and Computational Intelligence

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.

(3 cr.)

RCSS 542 - MEMS/NEMS Technology and Devices

This course will cover basic MEMS/NEMS fabrication technologies, various transduction mechanisms such as piezoelectric, pyroelectric, thermoelectric, thermionic, piezoresistive, etc. In addition, the theory of operation of few sensors will be covered this will include infrared detectors, radiation sensors, rotation and acceleration sensors, flow sensors, pressure and force sensors, and motion sensors. Finally, the course will give insight of different techniques for analyzing experimental data.

Prerequisites
PHYS 215 and consent of instructor.
Cross-listed
Same as PHYS 556 and NANO 521.
(3 cr.)

RCSS 543 - Image Analysis and Computer Vision

(3 cr.)

**RCSS 544 - Sensors, Perception and Smart Systems**


(3 cr.)

**RCSS 545 - Advanced Artificial Intelligence**


*Cross-listed*
Same as CSCE 565.
(3 cr.)

**RCSS 590 - Graduate Thesis Seminar I**

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 590.
(2 cr.)

**RCSS 591 - Graduate Thesis Seminar II**
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.

**Prerequisites**
RCSS 590

**Cross-listed**
Same as ENGR 591.

(1 cr.)

**RCSS 592 - Selected Topics in RCSS**

Topics to be chosen according to specific interests. Maybe taken for credit more than once if content changes.

**Prerequisites**
Consent of the faculty advisor.

(3 cr.)

**RCSS 593 - Capstone Project**

Students are required to attend the library and the writing modules of RCSS 590 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.

(3 cr.)

**RCSS 599 - Research Guidance Thesis**

Consultation on problems related to student thesis. Must be taken at least twice for credit.

**Prerequisites**
RCSS 590

(3 cr.)

**RCSS 692 - Advanced Selected Topics in Robotics, Control and Smart Systems (RCSS)**

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.

(3 cr.)

**RHET 101 - Approaches to Critical Writing**
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.
(3 cr.)

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**RHET 102 - Effective Argument**

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.

**Prerequisites**
RHET 101

**When Offered**
Offered in fall, spring and summer.
(3 cr.)

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**RHET 199 - Selected Topics**

Course addressing broad intellectual concerns and accessible to all first year students irrespective of major.

**When Offered**
Offered occasionally.
(3 cr.)

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**RHET 201 - Research Writing**

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.

**Prerequisites**
RHET 102 or its equivalent.

**When Offered**
Offered in fall, spring and summer.
(3 cr.)

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**RHET 225 - Public Speaking**

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.

**Prerequisites**
RHET 201 or its equivalent.
(3 cr.)
RHET 299 - Selected Topics

Course addressing broad intellectual concerns and accessible to all students irrespective of major.

Prerequisites
RHET 101

When Offered
Offered occasionally.

(3 cr.)

RHET 310 - Effective Rhetoric: Discourse and Power

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.

Prerequisites
RHET 201 or its equivalent.

(3 cr.)

RHET 320 - Business Communication

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.

Prerequisites
RHET 201 or equivalent; junior standing or instructor approval.

When Offered
Offered in fall, spring and summer.

(3 cr.)

RHET 321 - Technical Communication

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.

Prerequisites
RHET 201 or equivalent; junior standing or instructor approval; science and engineering majors or instructor approval.

When Offered
Offered in fall, spring and occasionally in summer.
(3 cr.)

**RHET 322 - Writing in the Social Sciences**

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.

**Prerequisites**
RHET 201 or equivalent; consent of instructor, consent of Chair/Associate Chair, junior or senior standing.
(3 cr.)

**RHET 323 - Changing Words, Changing Worlds**

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.

**Prerequisites**
RHET 201 or equivalent.
(3 cr.)

**RHET 325 - The Rhetoric of Argument in the Humanities and Social Sciences**

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.

**Prerequisites**
RHET 201 or equivalent.
(3 cr.)

**RHET 330 - Writing and Cognition**

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.

**Prerequisites**
RHET 201 or equivalent.
(3 cr.)
RHET 332 - Presentation and Persuasion in Business

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.

Prerequisites
RHET 201 or equivalent.
(3 cr.)

RHET 334 - Digital Rhetoric

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.

Prerequisites
RHET 201 or equivalent.
(3 cr.)

RHET 340 - Life Narratives: Reading as Writers

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.

Prerequisites
RHET 201 or equivalent.
(3 cr.)

RHET 341 - Travel Writing

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.

Prerequisites
RHET 201 or equivalent.
(3 cr.)

RHET 342 - Writing Children’s Literature
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.

**Prerequisites**
RHET 201 or equivalent.
(3 cr.)

**RHET 345 - The Writer's Workshop**

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.

**Prerequisites**
RHET 201 or equivalent.
(3 cr.)

**RHET 380 - Poetry Writing**

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.

**Prerequisites**
ECLT 370
(3 cr.)

**RHET 399 - Selected Topics**

Course addresses broad intellectual concerns, and is accessible to all students irrespective of major.

**Prerequisites**
RHET 201 or equivalent.
(3 cr.)

**RHET 400 - Writing and Editing for Publication**

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.

**Prerequisites**
RHET 201 or equivalent.
(3 cr.)

**RHET 410 - Grant Writing for Community Building**

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.

**Prerequisites**
RHET 201 or equivalent.
(3 cr.)

**RHET 450 - Imagining the Book**

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.

**Prerequisites**
At least one 300-level RHET course and/or instructor permission solicited through a project proposal.
(3 cr.)

**RHET 460 - Independent Study**

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.

**Prerequisites**
Pre-requisites: Consent of Instructor, Consent of Chair/Associate Chair, Junior or Senior Standing.
(1-3 cr.)

**RHET 480 - Research and Writing Internship**

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.

**Prerequisites**
RHET 201 or equivalent; B in 300 or 400-level RHET course.
(3 cr.)

**RHET 490 - Advanced Scientific and Technical Writing**

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.

**Prerequisites**
RHET 201 or equivalent. Engineering and Science Majors only; junior or senior standing.
(3 cr.)

**SCI 105 - Science and Technology of Ancient Egypt**

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.

**Prerequisites**
Prerequisite: Not for credit for Science, Engineering and Computer Science students.

**When Offered**
Offered in fall and spring.
(3 cr.)

**SCI 109 - Exploration of the Universe**

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.

**Prerequisites**
Prerequisite: Not for credit for Science, Engineering and Computer Science students.

**When Offered**
Offered in fall and spring.
(3 cr.)

**SCI 120 - Scientific Thinking**

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.

(3 cr.)

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**SCI 150L - General Science Laboratory**

Introduction to experimental techniques of measurement in the general fields of physics, chemistry, and other sciences.

**Prerequisites**
SCI 120 or concurrently and not for credit for Science, Engineering and Computer Science students.

**Hours**
One three-hour lab period.

**When Offered**
Offered in fall, spring, and occasionally in winter and summer

(1 cr.)

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**SCI 199 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**When Offered**
Offered occasionally.

(3 cr.)

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**SCI 240 - Chemistry, Art and Archaeology**

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.

(3 cr.)

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**SCI 250 - Introduction to Geology**

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.

(3 cr.)
SCI 251L - Introduction to Geology Lab

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.
(1 cr.)

SCI 260 - Environmental Geology

Environmental geology is applied geology focussing briefly on the entire spectrum of possible interactions between people and the physical environment.

When Offered
Offered occasionally.
(3 cr.)

SCI 302 - Science, Technology and the Environment

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.

Prerequisites
Prerequisites: Junior standing or higher.

When Offered
Offered occasionally.
(3 cr.)

SCI 450 - Geology of Raw Materials

An interdisciplinary study. The geology of naturally occurring minerals, methods for determining the utility of natural resources, and the environmently sound industrial conversion of raw materials. Particular attention given to the natural resources of Egypt, especially to their importance in economic development.

Prerequisites
SCI 250 or consent of instructor

When Offered
Offered occasionally.
(3 cr.)
**SEMR 111 - The Human Quest: Exploring the “Big Questions”**

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.

(3 cr.)

**SEMR 112 - “Who Am I?”: Explorations in Consciousness and Self Across the Disciplines”**

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.

(3 cr.)

**SEMR 123 - Celebrating Ideas: A Voyage Through Books, film, Art and Theater**

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.

(3 cr.)

**SEMR 199 - Selected Topics in Core Curriculum**

(3 cr.)

**SEMR 200 - Core Seminar**

**SEMR 299 - Selected Topics in the Humanities**

(3 cr.)
SEM 300 - Core Honors Seminar

(3 cr.)

SEM 310 - Cross-Cultural Perceptions and Representations

This is an interdisciplinary course, which draws upon literary, political, cultural, and sociological sources. It attempts to understand how our conceptions of the other (and of the self) have contributed to some of the abiding political, sociological and cultural issues which animate our global world – especially where these issues implicate both the west and the Middle East; and, second, to articulate our own hopes for a more promising relationship with the Other. Each week a videoconference will be held to bring together students from AUC and students from various US universities to discuss a pressing issue of concern to both east and west and a shared set of texts that address the issue.

(3 cr.)

SOC 199 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.

(3 cr.)

SOC 201 - Introduction to Sociology

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.

(3 cr.)

SOC 203 - Social Problems of the Middle East

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.

(3 cr.)

SOC 204 - Social Statistics

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
Prerequisites: Students must have taken SOC 201, no exceptions

When Offered
Offered in fall.
(3 cr.)

SOC 206 - Arab Family Structure and Dynamics

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.
(3 cr.)

SOC 210 - Arab Society

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.

Prerequisites
RHET 201 or concurrent.

Cross-listed
Same as ANTH 210.

When Offered
Offered in fall and spring.
(3 cr.)

SOC 240 - Introduction to Community Development

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/PSYC 240.

When Offered
Offered in fall.
(3 cr.)

SOC 299 - Selected Topic for Core Curriculum

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

Prerequisites
SOC 301 - Social Psychology

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.

**Prerequisites**
PSYC 201
**Cross-listed**
Same as PSYC 301.

**When Offered**
Offered occasionally.
(3 cr.)

SOC 303 - Social Movements

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.

**Prerequisites**
Three hours of Social Sciences.

**Cross-listed**
Same as ANTH 303.

**When Offered**
Offered in spring.
(3 cr.)

SOC 304 - Development Agencies

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.
(3 cr.)

SOC 306 - Sociology of Literature
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.
(3 cr.)

**SOC 307 - Social Class and Inequality**

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.
(3 cr.)

**SOC 309 - History of Social Theory**

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.

**Prerequisites**
Prerequisites: 9 hours of social sciences, and junior or senior standing, or consent of instructor.

**Cross-listed**
Same as ANTH 309.

**When Offered**
Offered in fall.
(3 cr.)

**SOC 310 - Contemporary Sociological Theory**

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.

**Prerequisites**
SOC 309 or consent of instructor.

**Cross-listed**
Same as ANTH 310.

**When Offered**
Offered in spring.
(3 cr.)

**SOC 321 - The Urban Experience**
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?

**Prerequisites**
Three hours of Social Sciences.

**Cross-listed**
Same as ANTH 321.

**When Offered**
Offered occasionally.

(3 cr.)

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**SOC 322 - Rural Sociology**

The Middle Eastern rural community and its relation to agricultural development, tenure systems, ecological processes, urbanization, migration, and changing technology.

**When Offered**
Offered occasionally.

(3 cr.)

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**SOC 323 - Fundamentals of Population Studies**

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.

(3 cr.)

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**SOC 332 - Social Constructions of Difference: Race, Ethnicity, and Class**

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.

**Prerequisites**
Three hours of Social Sciences.

**Cross-listed**
Same as ANTH 332

**When Offered**
Offered occasionally.

(3 cr.)
SOC 340 - Participatory Action Research in Community Settings

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.

**Prerequisites**
ANTH 240 or consent of the instructor.

**Cross-listed**
Same as ANTH/PSYC 340.

**When Offered**
Offered in spring.

(3 cr.)

SOC 370 - Environmental Issues in Egypt

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.

**Prerequisites**
Three hours of Social Sciences.

**Cross-listed**
Same as ANTH 370.

**When Offered**
Offered in alternate years.

(3 cr.)

SOC 381 - Doing Survey Research in the Social Sciences

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.

**Prerequisites**
SOC 201 and SOC 204. For sociology minors only: An equivalent statistics course may be substituted for SOC 204 only with the permission of the instructor.

**When Offered**
Offered in spring

**Notes**
Students will be encouraged to conduct mini-scale surveys on the campus and beyond.

(3 cr.)

SOC 400 - Selected Topics in Sociology

Topics to be chosen according to specific interests, such as sociology of medicine, sex roles, symbolic interaction, applied sociology.

**Prerequisites**
Prerequisites: 9 hours of social sciences, and junior or senior standing.
When Offered
Offered occasionally.
Repeatable
May be repeated for credit if content changes.
(3 cr.)

**SOC 402 - Independent Study**

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

**Prerequisites**
Prerequisites: a minimum B average, consent of the instructor, and approval by the Unit Head and the Department Chair.

**When Offered**
Offered in fall and spring.

**Repeatable**
May be repeated for credit if content changes

(3 cr.)

**SOC 405 - Sociology of Work**

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.

**Prerequisites**
Prerequisites: Junior or senior standing, 6 hrs. of social science or the permission of the instructor.

**When Offered**
Offered occasionally.

(3 cr.)

**SOC 406 - Educational Sociology**

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.

**Prerequisites**
Prerequisites: 9 hours of social sciences, and junior or senior standing.

**When Offered**
Offered occasionally.

(3 cr.)

**SOC 408 - Criminology**

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.
Prerequisites
Prerequisites: 9 hours of social sciences, and junior or senior standing.

When Offered
Offered occasionally.
(3 cr.)

**SOC 422 - Religion in a Global World**

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.

Prerequisites
Prerequisites: 9 hours of social sciences and junior or senior standing.

Cross-listed
Same as ANTH 422 and EGPT 546.

When Offered
Offered in fall.
(3 cr.)

**SOC 431 - Political Sociology**

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.

Prerequisites
Prerequisites: 9 hours of social sciences, and junior or senior standing

Cross-listed
Same as POLS 431.

When Offered
Offered in fall.
(3 cr.)

**SOC 435 - Gender and Power in Development**

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.

Prerequisites
Prerequisite: nine hours of social sciences, at least junior standing or the consent of the instructor.

When Offered
Offered annually.
(3 cr.)
**SOC 440-441 - Practicum in Community Development**

Two semester, nine month field experience in an approved international development agency, local NGO or other professional setting approved by faculty supervisor. Supervised by a professional and faculty supervisor.

**Prerequisites**
ANTH 240 and ANTH 340

**Cross-listed**
Same as ANTH/PSYC 440-441.

**When Offered**
Offered in fall (440) and spring (441).

(6 cr.)

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**SOC 445 - Selected Topics in Coptic Studies**

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, EGPT, HIST, ANTH 445.

**When Offered**
Offered in fall.

**Notes**
Students in these majors may petition preferably before registration to have the course included in their major requirements.

(3 cr.)

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**SOC 450 - Third World Development**

Contemporary theories of development as they apply to and illuminate the problems of development in underdeveloped countries. The approach will be interdisciplinary.

**Prerequisites**
Prerequisites: 9 hours of social sciences and junior or senior standing.

**Cross-listed**
Same as ANTH 450.

**When Offered**
Offered in fall and spring.

(3 cr.)

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**SOC 455 - Seminar in African Studies**

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.
Prerequisites
9 hours of Social Sciences and Junior or Senior standing.

Cross-listed
Same as ANTH 455.

When Offered
Offered occasionally.

(SOC 460 - Development Studies Seminar)
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.

Prerequisites
Prerequisites: 12 hours of social science

Cross-listed
Same as ANTH/ECON/POLS 460.

When Offered
Offered occasionally.

(SOC 495 - Senior Seminar)
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.

Prerequisites
Senior standing and SOC 381 or ANTH 380 or 12 hours of Social Sciences.

Cross-listed
Same as ANTH 495.

When Offered
Offered in spring.

Notes
The student will be required to write a methodologically sound senior paper, preferably based on field research.

(SOC/ANTH 500 - Classical Social Thought)
An in-depth examination of classical sociological and anthropological theories of culture and society.

When Offered
Offered in fall.

(SOC/ANTH 501 - Contemporary Social Thought)
An in-depth examination of contemporary sociological and anthropological theories of culture and society.

**Prerequisites**
SOC/ANTH 500

**When Offered**
Offered in spring.

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**SOC/ANTH 502 - Structure and Process in Egyptian Society**

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 in occasionally.

(3 cr.)

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**SOC/ANTH 503 - Middle Eastern Societies and Cultures**

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.

(3 cr.)

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**SOC/ANTH 505 - Ethnographic Fieldwork**

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.

(3 cr.)

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**SOC/ANTH 506 - Survey Research**

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.

(3 cr.)

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**SOC/ANTH 507 - Introduction to Forced Migration and Refugee Studies**
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.

**Prerequisites**
Prerequisite: Graduate standing or advanced undergraduate standing and permission of instructor.

**Cross-listed**
Same as MRS 507.

**When Offered**
Offered in fall.

(3 cr.)

**SOC/ANTH 508 - Special Topics in Migration and Refugee Issues**

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 508.

(3 cr.)

**SOC/ANTH 510 - Problems in Sociology-Anthropology**

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.

(3 cr.)

**SOC/ANTH 515 - Kin, Friends and Neighbors**

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.

(3 cr.)

**SOC/ANTH 520 - Sex Roles, Gender and Society**

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.
(3 cr.)

SOC/ANTH 525 - Religion, Ideology and Society
The relation of ideology and world religions to social action; special emphasis on the integrative aspects of society as well as their potential for change and transformation.

When Offered
Offered in alternate years.
(3 cr.)

SOC/ANTH 530 - Theorizing the State
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.
(3 cr.)

SOC/ANTH 535 - World Systems and Development
Theories of the growth of the new international division of labor and its relationship to socioeconomic change in both developed and developing societies.

When Offered
Offered in alternate years.
(3 cr.)

SOC/ANTH 540 - Revisiting the Rural
This course examines the remaking of rural communities in relation to historical shifts in capital and state dynamics, the organization and practice of everyday life, the politics of labor and property, and the production of desire and subjectivity.

When Offered
Offered in alternate years.
(3 cr.)

SOC/ANTH 545 - Cities: Structure and Dynamics
The structure of urban forms, patterns of city life, and the relationship of cities to the wider societies of which they are part.

When Offered
SOC/ANTH 550 - Sociology of Knowledge

The epistemological foundations and social framework of knowledge; what is involved in “having knowledge” about society.

When Offered
Offered in alternate years.

(3 cr.)

SOC/ANTH 555 - Comparative Health and Healing Systems

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.

(3 cr.)

SOC/ANTH 560 - Population Dynamics

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.

(3 cr.)

SOC/ANTH 565 - Ethnicity, Identity and Nationalism

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.

(3 cr.)

SOC/ANTH 570 - Environment and Society
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.

**When Offered**
Offered in alternate years.
(3 cr.)

**SOC/ANTH 575 - Modern Social Movements**

The emergence of modern social movements based on such issues as gender, ecology, race, ethnicity, community control, and identity. The relation between "new" social movements and earlier social movements based on class, national liberation, and revolutionary transformation, with comparison between First and Third World movements.

**When Offered**
Offered in alternate years.
(3 cr.)

**SOC/ANTH 580 - History and Memory**

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.

(3 cr.)

**SOC/ANTH 591 - Guided Research**

Fieldwork under the supervision of the Social Research Center or a member of the departmental staff.
(1-3 cr.)

**SOC/ANTH 598 - Thesis Writing Seminar**

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.

**Prerequisites**
SOC/ANTH 500 ,SOC/ANTH 501 and either SOC/ANTH 505 ,SOC/ANTH 506 or the consent of the instructor.
(3 cr.)

**SOC/ANTH 599 - Research Guidance and Thesis**
Consultation for students in problems related to their theses.

**When Offered**
Offered in fall and spring.
(no cr.)

**TAFL 501 - Principles of Linguistic Analysis**

Concepts fundamental to linguistic analysis in the areas of syntax, semantics, phonology, historical linguistics, sociolinguistics, and language acquisition.

**Cross-listed**
Same as TESL 501.

**When Offered**
Offered in fall.
(3 cr.)

**TAFL 502 - Assessment in Language Learning**

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 TESL 502.

**When Offered**
Offered in fall.
(3 cr.)

**TAFL 503 - Second Language Acquisition**

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.

**Prerequisites**
TAFL 501 or permission of the department. Recommended prerequisite: TAFL 520

**Cross-listed**
Same as TESL 503.

**When Offered**
Offered in fall and spring.
(3 cr.)

**TAFL 507 - Computer Assisted Language Learning (CALL)/Computer Operations Techniques**

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.

**Prerequisites**
TAFL 510
TAFL 510 - Methods of Teaching a Foreign Language I

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 TESL 510.

When Offered
Offered consecutively with TAFL 511.

(3 cr.)

TAFL 511 - Methods of Teaching a Foreign Language II

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.

Prerequisites
TAFL 510
When Offered
Offered consecutively with TAFL 510.

(3 cr.)

TAFL 515 - The Phonetics of Arabic

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.

(3 cr.)

TAFL 516 - The Linguistics of Arabic

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.

(3 cr.)

**TAFL 520 - Research Methods in Applied Linguistics**

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.

_Cross-listed_
Same as TESL 520.

(3 cr.)

**TAFL 525 - Language Transfer, Contrastive Analysis, and Error Analysis**

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._

**Prerequisites**
TAFL 501

_Cross-listed_
Same as TESL 525.

**When Offered**
Offered once a year.

(3 cr.)

**TAFL 540 - Selected Topics in Applied Linguistics**

Special topics and current issues in linguistics and language teaching with special reference to Arabic.

_Cross-listed_
Same as TESL 540.

_Repeatable_
May be taken more than once if content changes.

(1, 2, or 3 cr.)

**TAFL 550 - Language Pragmatics**


**Prerequisites**
TAFL 501.

_Cross-listed_
Same as TESL 550.

**When Offered**
Offered once a year.
(3 cr.)

TAFL 551 - Advanced Arabic Grammar

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.
(3 cr.)

TAFL 553 - Sociolinguistics


Cross-listed
Same as TESL 553.

When Offered
Offered once a year.
(3 cr.)

TAFL 555 - Seminar on Challenges Facing AFL Teachers

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.

Prerequisites
TAFL 553.
(3 cr.)

TAFL 560 - Supervised Study in TAFL

Individual research on specific area of interest to the student.

Prerequisites
Prerequisite: consent of instructor.

When Offered
Offered in fall and spring.

Repeatable
TAFL 563 - Language Variation and Change

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.

Prerequisites
TAFL 553
(3 cr.)

TAFL 588 - Comprehensives

Individual consultation for students preparing for the comprehensive examination.

When Offered
Offered occasionally.
(no cr.)

TAFL 599 - Research Guidance and Thesis

Consultation for students on matters related to their thesis.

When Offered
Offered in fall and spring.
(no cr.)

TESL 500 - English Grammar

(3 cr.)

TESL 501 - Principles of Linguistic Analysis

Concepts fundamental to linguistic analysis in the areas of syntax, semantics, phonology, historical linguistics, sociolinguistics, and language acquisition.

Cross-listed
Same as TAFL 501.
(3 cr.)
**TESL 502 - Assessment in Language Learning**

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 502.
(3 cr.)

**TESL 503 - Second Language Acquisition**

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.

*Prerequisites*
TESL 501 or permission of the department. Recommended prerequisite: TESL/TAFL 520.

*Cross-listed*
Same as TAFL 503.
(3 cr.)

**TESL 507 - Computer Assisted Language Learning (CALL)**

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.

*Prerequisites*
TESL 510
(3 cr.)

**TESL 510 - Methods of TESOL I**

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 TAFL 510.
(3 cr.)

**TESL 511 - Methods of TESOL II**

Survey of approaches to the design and implementation of foreign language curricula and teaching materials. This teaching practicum is a capstone course and includes foreign language classroom observations, supervised practice teaching, and materials development, selection, and adaptation.

*Prerequisites*
TESL 510
(3 cr.)
TESL 520 - Research Methods in Applied Linguistics

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.

Cross-listed
Same as TAFL 520.
(3 cr.)

TESL 521 - English Syntax

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.

Prerequisites
TESL 501
(3 cr.)

TESL 525 - Language Transfer, Contrastive Analysis, and Error Analysis

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.

Prerequisites
TESL 501

Cross-listed
Same as TAFL 525.
(3 cr.)

TESL 530 - Supervised Study in TESOL

Individual research on a specific area of interest to the student in consultation with the instructor.

Prerequisites
Consent of instructor.

Repeatable
May be taken a second time if content changes.
(3 cr.)

TESL 540 - Selected Topics in Applied Linguistics

Special topics and current issues in linguistics and language teaching.

Cross-listed
Same as TAFL 540.

Repeatable
May be taken more than once if content changes.
(1, 2, or 3 cr.)

TESL 548 - Corpus Linguistics

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.

Prerequisites
TESL 501
(3 cr.)

TESL 550 - Language Pragmatics


Prerequisites
TESL 501
Cross-listed
Same as TAFL 550.
(3 cr.)

TESL 553 - Sociolinguistics


Cross-listed
Same as TAFL 553.
(3 cr.)

TESL 570 - Proposal Writing

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.

Prerequisites
TESL 520
(3 cr.)
**TESL 588 - Comprehensives**

Consultation for students preparing for the comprehensive examination.
(no cr.)

**TESL 599 - Research Guidance and Thesis**

Consultation for individual students on matters related to their theses.
(no cr.)

**THTR 125 - Acting for Non-Majors**

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.

(3 cr.)

**THTR 130 - The World of the Theatre**

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.

(3 cr.)

**THTR 199 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all first-year students as part of the Primary Level Core.

*When Offered*
Offered occasionally.

(3 cr.)

**THTR 203 - The Art of the Theatre**
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.

(3 cr.)

**THTR 204 - Introduction to Technical Theatre**

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.

(3 cr.)

**THTR 225 - Acting I**

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.

**Prerequisites**
THTR 203

**When Offered**
Offered in fall and spring, and occasionally in the summer.

(3 cr.)

**THTR 226 - Acting in Arabic I**

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.

**Prerequisites**
THTR 203

**When Offered**
Offered in fall or spring.

(3 cr.)

**THTR 227 - Acting II**
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.

**Prerequisites**
THTR 225

**When Offered**
Offered once a year.
(3 cr.)

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**THTR 230 - Play Analysis**

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.
(3 cr.)

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**THTR 240 - Production Practicum**

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. 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.

(1 cr. per production)

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**THTR 242 - Rehearsal and Performance Practicum**

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.

(1 cr. per production)

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**THTR 299 - Selected Topic for Core Curriculum**

Course addressing broad intellectual concerns and accessible to all students, irrespective of major.

**Prerequisites**
RHET 101.

**When Offered**
Offered occasionally.
(3 cr.)
THTR 324 - Design for the Theatre

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.

Prerequisites
THTR 203 and THTR 204

When Offered
Offered once a year.

(3 cr.)

THTR 325 - Acting Styles

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.

Prerequisites
THTR 227

When Offered
Offered once every other year.

(3 cr.)

THTR 326 - Acting in Arabic II

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.

Prerequisites
THTR 226

When Offered
Offered in fall or spring.

(3 cr.)

THTR 327 - Special Topics in Acting

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.

Prerequisites
THTR 227

When Offered
Offered occasionally.

Repeatable
May be repeated for credit if content changes

(3 cr.)
THTR 328 - Directing I

The fundamental directorial controls, as well as theoretical and practical training, leading to the production of single scenes.

Prerequisites
THTR 225 and THTR 230

When Offered
Offered in fall.

Repeatable
May be repeated once for credit as content changes.

(3 cr.)

THTR 340 - Advanced Theatre Practicum

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.

Prerequisites
THTR 204, THTR 240 and consent of instructor.

When Offered
Offered fall and spring.

Repeatable
Repeatable for credit. No maximum.

(3 cr.)

THTR 344 - Design Practicum

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.

Prerequisites
Prerequisites: Selection by application and interview.

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.

(3 cr.)

THTR 350 - Survey of Dramatic Literature

A study of major periods and distinctive styles and genres of drama from the Greeks to pre-Ibsen nineteenth century drama.

When Offered
THTR 351 - History of The Theatre

A survey of the history of the development of theatre architecture, scenic and costume practices, staging conventions, and acting troupes from the Greeks to the present. The course is taught in a combination of lecture and slide-show presentation.

When Offered
Offered in alternate springs.
(3 cr.)

THTR 360 - Playwriting I

A workshop in which students develop basic technical skills of playwriting through exercises culminating in the production of a working scenario for a short one-act play.

When Offered
Offered in fall.
(3 cr.)

THTR 361 - Playwriting II

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.

Prerequisites
Prerequisite: THTR 360.

When Offered
Offered in spring.
(3 cr.)

THTR 370 - Selected Topics in Theatre

In-depth examination of specific topics in theatre determined by the special interests and expertise of the faculty.

Prerequisites
Prerequisite: consent of the instructor.

When Offered
Offered occasionally.

Repeatable
May be repeated for credit if content changes
(3 cr.)

THTR 402 - Independent Study
In exceptional circumstances, some senior majors may arrange, with departmental approval, to study beyond the regular course offerings.

**Prerequisites**
Minimum B average required.

**When Offered**
Offered in fall and spring.

(1-3 cr.)

**THTR 428 - Directing II**

Advanced theoretical and practical, production-oriented training in play direction culminating in the presentation of a directorial project.

**Prerequisites**
THTR 328 and completion of all 200-level requirements.

**When Offered**
Offered occasionally.

(3 cr.)

**THTR 460 - Modern and Contemporary Drama**

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.

(3 cr.)

**THTR 461 - Dramatic Theory and Criticism**

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.

(3 cr.)

**THTR 470 - Senior Seminar**

In-depth examination of advanced topics in theatre determined by the special interests of the faculty.

**Prerequisites**
Prerequisite: consent of the instructor.

**When Offered**
Offered occasionally.

**Notes**
Designed for senior majors.
THTR 490 - Senior Thesis

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.

Prerequisites
THTR 324 THTR 328 THTR 350 THTR 460 THTR 461 (or currently enrolled). Some projects will have additional prerequisites. Course should be taken in final semester at AUC.

(3 cr.)

THTR 495 - Senior Honors Project

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.

Prerequisites
Prerequisite: consent of the instructor.

When Offered
Offered in fall and spring.

Notes
Projects will be chosen by students in consultation with a faculty advisor.

(3 cr.)