

# AUS Repository

## Catalog 2006-2007

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American  
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of Sharjah

AUS

**Catalog**  
2006-2007

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**His Highness Sheikh Dr. Sultan Bin Mohammed Al Qassimi**

Supreme Council Member, Ruler of Sharjah  
Founder and President of the American University of Sharjah



# Academic Calendar 2006–2007

Fall Semester 2006			
<b>July</b>	22	Saturday	Fall semester admission application deadline
<b>August</b>	17	Thursday	Residential halls open
	18	Friday	Parents' orientation (new students)
	19	Saturday	TOEFL test
	20	Sunday	New students' academic and school orientation
	20–22	Sunday–Tuesday	Registration for all returning students
	22	Tuesday	Al Israa Wal Miraj holiday
	21–22	Monday–Tuesday	Placement tests (new students)
	23–24	Wednesday–Thursday	Registration for new students
	27	Sunday	First day of classes
	27–31	Sunday–Thursday	Add/drop week
<b>September</b>	5	Tuesday	Application for fall graduation due
<b>October</b>	19	Thursday	Classes end for Eid Al Fitr holiday 10 p.m.*
	29	Sunday	Classes resume at 8 a.m.
	31	Tuesday	Honors Convocation
<b>November</b>	9	Thursday	Last day to withdraw from a course without penalty
	27	Monday	Deadline for enrolled students to apply/renew financial aid
	30	Thursday	Classes end at 10 p.m. for National Day holiday
<b>December</b>	5	Tuesday	Classes resume at 8 a.m.
	5–18	Tuesday–Monday	Advising and early registration for Spring 2007 courses
	6	Wednesday	Transfer students' application deadline for Spring 2007
	18	Monday	Fall semester classes end 10 p.m.
	19	Tuesday	Study and examination period begins
	20	Wednesday	Deadline for new students to apply for financial aid
	24	Sunday	Spring semester admission application deadline
	25	Monday	Christmas holiday
	27	Wednesday	Fall semester final examinations end 10 p.m.
	28	Thursday	Make-up examination day
	29	Friday	Eid Al Adha holiday and intersession recess begins
Spring Semester 2007			
<b>January</b>	18	Thursday	Residential halls open
	19	Friday	Parents' orientation (new students)
	20	Saturday	Al Hijra holiday
	20	Saturday	TOEFL test
	22	Monday	Registration for all returning students ends 5 p.m.
	21	Sunday	New students' academic and school orientation
	22–23	Monday–Tuesday	Placement tests (new students)
	24–25	Wednesday–Thursday	Registration for new students
	28	Sunday	First day of classes
	28–1	Sunday–Thursday	Add/drop week
<b>March</b>	29	Thursday	Classes end for Al-Mawlid Al-Nabawi holiday and Spring Break 10 p.m.
<b>April</b>	8	Sunday	Classes resume 8 a.m.
	12	Thursday	Last day to withdraw from a course without penalty
<b>May</b>	1–17	Tuesday–Thursday	Advising and early registration for Summer Session and Fall Semester 2007
	15	Tuesday	Deadline for enrolled students to apply/renew financial aid
	17	Thursday	Spring Semester classes end 10 p.m.
	19–24	Saturday–Thursday	Study and examination period
	26	Saturday	Make-up examination day
<b>June</b>	7	Thursday	Commencement Day
Summer Session 2007			
<b>June</b>	10–11	Sunday–Monday	Registration
	12	Tuesday	First day of classes; late registration and Add/Drop begins
	14	Thursday	Late registration and Add/Drop ends
	20	Wednesday	Transfer students' application deadline for Fall 2007
<b>July</b>	9	Monday	Last day to withdraw from a course without penalty
	23	Monday	Summer Session classes end 10 p.m.
	24–26	Tuesday–Thursday	Study and examination period
<b>August</b>	1	Wednesday	Deadline for new students to apply for financial aid

\* Islamic holidays are determined after sighting the moon. Thus, actual dates may not coincide with the dates in this calendar. In the event of loss of teaching days due to unscheduled closings, the semester(s) may be extended.

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**Ms. Lorin Ritchie**, Director of Special Projects

**Mr. Mark Kirchner**, University Architect and Director of Facilities

**Dr. Lubna Yousif, MD**, Director of University Health Center

# Chancellor's Message

The American University of Sharjah is approaching the tenth anniversary of its service to the people of the United Arab Emirates and the Gulf Region. Thanks to the support of the Founder, His Highness Sheikh Dr. Sultan Bin Mohammed Al Qassimi, Member of the Supreme Council and Ruler of Sharjah, as well as the dedication of faculty, staff and students, AUS has gained a reputation that is unsurpassed in the region.

A mature university serves many roles but all of them must be consistent with its primary mission of providing the best possible education to its students. AUS takes that primary mission seriously and strives to improve upon all aspects of its operations to meet that goal. Completion of a magnificent new library building is recent testament of our determination to provide the best possible learning environment to students. Constant attention to curricular modifications to meet changing circumstances is a less obvious example of the same commitment.

This catalog is intended to provide students with a listing of available courses, programs, regulations and services that they may expect at AUS. Most of the information contained in the catalog is also available on our website, [www.aus.edu](http://www.aus.edu), which in some instances provides a more recent summation than is possible in printed form. I encourage you to review the materials in this catalog and to visit our website as well. Additionally, a visit to our magnificent campus will help you gain an even better appreciation for the unique environment at the American University of Sharjah.



Winfred L. Thompson

# University Terminology

<b>Academic Year</b>	The academic year is the period of time beginning with the first day of class of a fall semester up to, but exclusive of, the first day of class of the fall semester of the following year.
<b>Academic Status</b>	Determined by regulations governing good standing, probation and dismissal.
<b>Add and Drop</b>	A period of time beginning the first day of classes when students can adjust schedules by dropping or adding courses or changing sections of a course.
<b>Admission</b>	Formal application and acceptance as a regular student in a degree program.
<b>Advisor</b>	Faculty member assigned by the university to assist each student in planning the proper academic program. The student is called the advisor's "advisee."
<b>Alumni</b>	Those who have attended and graduated from the American University of Sharjah.
<b>Audit, Course</b>	Permission to attend and participate in a course without benefit of a grade or credit.
<b>Audit, Degree</b>	Methodical examination and reviewing of students' compliance with their degree requirements.
<b>Bachelor's Degree</b>	The traditional undergraduate degree.
<b>Calendar, University</b>	Annual listing of all official dates and deadlines for the academic year.
<b>Catalog Year</b>	Refers to the regulations published in that year's catalog. A student's catalog year denotes which specific set of regulations will apply to that student. Unless altered, a student's catalog year is the year when the student first matriculated to study at AUS.
<b>Class Standing</b>	The class ranking determined by the number of credits an undergraduate student accumulates. For example, 0-14 is Freshman I, 15-29 is Freshman II, 30-44 is Sophomore I, 45-59 is Sophomore II, etc.
<b>Common Examinations</b>	Examinations for courses with multiple sections scheduled at a common time at the request of the college/school.
<b>Concentration</b>	Sub-specialization within a major that allows a student to focus on a particular aspect of the major field of study.
<b>Co-requisite</b>	A course required to be taken simultaneously with another course.
<b>Course</b>	A unit of study that may utilize lecture, discussion, laboratory, recitation, seminar, workshop, studio, independent study, internship or other similar teaching formats to facilitate learning for a student.
<b>Course Load</b>	Total credits for which a student is registered in a given period.
<b>Credit</b>	Described in semester credit hours, a credit is commonly defined as the equivalent to a one-hour lecture or three hours of laboratory or recitation work per week for one regular semester.
<b>Curriculum</b>	A structured set of learning objectives contained in a specified set of courses.
<b>Department</b>	An academic unit of a college or school.
<b>Dismissal</b>	The involuntary separation of a student from the university for unacceptable conduct or unsatisfactory academic achievement.
<b>Education Records</b>	Records directly related to a student and maintained by the Office of the Registrar.
<b>Elective Course</b>	A course selected at a student's discretion with the approval of the advisor.
<b>Extracurricular</b>	Enrichment and leadership development activities that are part of student life but are not part of the academic program, such as student activities, athletics and music.
<b>Fee</b>	Charges for courses and services.
<b>Full-Time Student</b>	A student that is registered for 12 or more credit hours in a given semester.
<b>General Education Requirement</b>	University-wide requirement of the basic studies that form the foundation of all undergraduate degree programs.
<b>Good Standing, Academic</b>	Requires a cumulative GPA of 2.0 or higher.

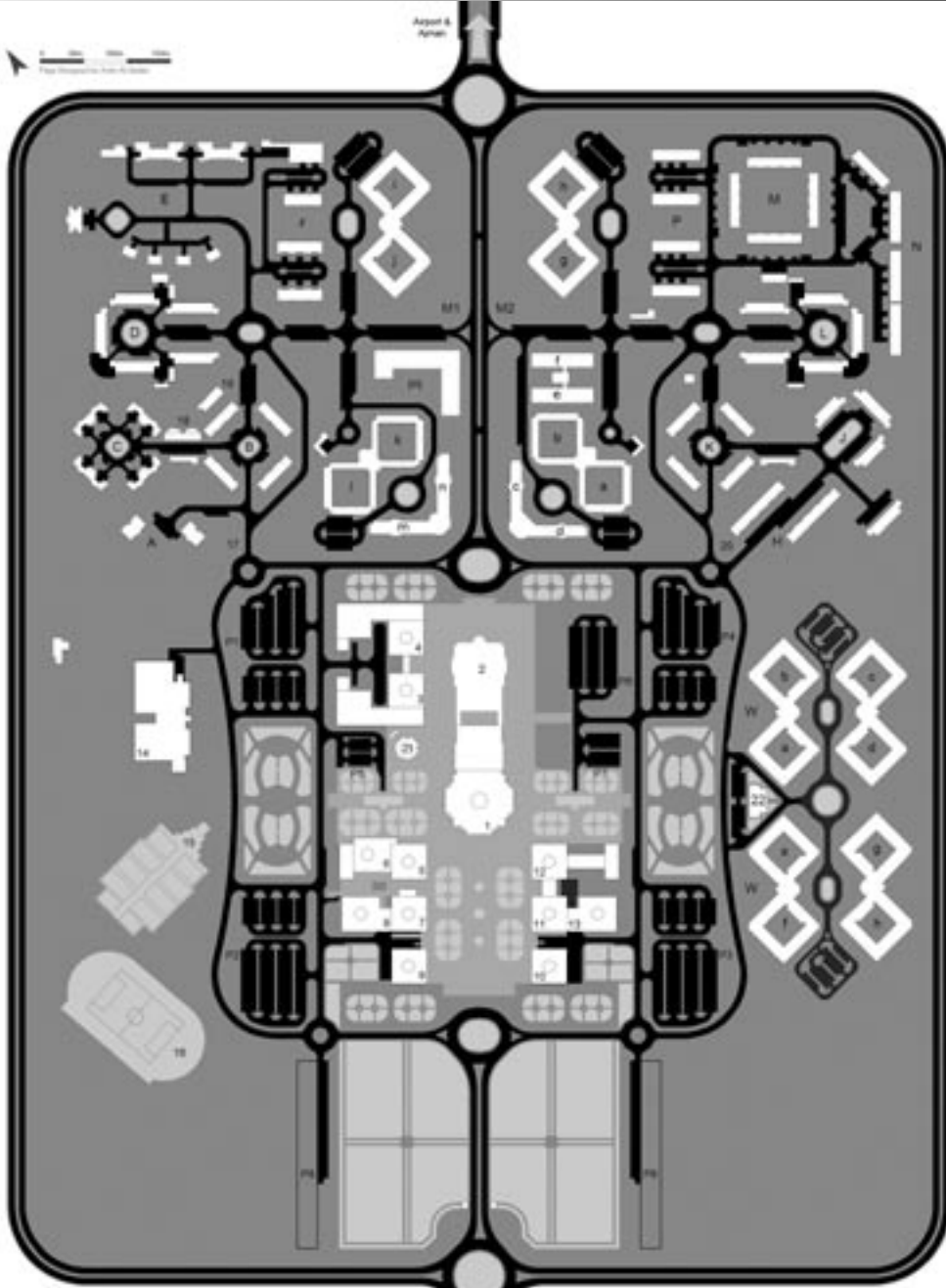
<b>GPA</b>	Grade point average of the grades of AUS courses taken for university credit.
<b>Grade Points</b>	Numerical value associated with each grade.
<b>Graduate Student</b>	One who has completed an undergraduate degree and is pursuing postgraduate studies.
<b>ID Card</b>	University student identification card, showing name, photo and student identification number.
<b>Independent Study</b>	Voluntary individual research proposed by a student under the supervision of a designated faculty member.
<b>Major</b>	A student's principal field of study.
<b>Matriculation</b>	Enrollment as an admitted, degree-seeking student.
<b>Minor</b>	A secondary field of study requiring at least 18 credit hours.
<b>Non-degree Student</b>	Designation used for students who are enrolled in credit courses but are not currently pursuing a degree program.
<b>Petition</b>	A written request seeking a waiver of or an exception to a university regulation, policy or deadline.
<b>Placement Test</b>	A proficiency examination given to determine a student's ability in a subject where competence is an important consideration. Passing the placement test waives a student from the preparatory course.
<b>Preparatory Courses</b>	Those courses designated as 00X. Students are waived out of these courses by passing the placement test. Preparatory courses do not count in the credits earned toward a degree, but they do count in the grade point average.
<b>Prerequisite</b>	A course required to be completed before a certain course may be taken.
<b>Prerequisite/Concurrent</b>	A course and its prerequisite may be taken simultaneously.
<b>Probation</b>	A warning status resulting from the student's unsatisfactory academic achievement or conduct.
<b>Probation, Academic</b>	Status of any undergraduate who has less than a 2.0 GPA or any graduate student who has less than a 3.0 GPA.
<b>Registration</b>	The process of enrolling in classes.
<b>Regular Student</b>	A degree-seeking student who is officially admitted to the university.
<b>Required Courses</b>	Courses prescribed by the school or college necessary for the completion of a particular degree program.
<b>Residence</b>	A student's tenure within the university and/or specific college/school.
<b>Schedule, Class</b>	List of courses offered during a semester, including the names of the instructors and the days, hours and locations of classes.
<b>Schedule, Student</b>	A listing of the courses that the student takes each semester.
<b>Semester or Term</b>	Designated periods during which classes and exams are scheduled.
<b>Transcript</b>	A certified copy of the student's permanent academic record on file in the Office of the Registrar listing courses taken and final grade received.
<b>Transfer Credit</b>	Course work completed at another institution that is accepted at AUS and which may be applicable toward a specific AUS degree.
<b>Tuition</b>	The fees charged for courses each semester.
<b>Undergraduate</b>	A student who is working toward completion of a bachelor's degree.
<b>Visiting Student</b>	A student of another accredited institution who receives permission to register (for up to two semesters) as a non-degree seeking student to earn credit to transfer back to his or her home institution.
<b>Withdrawal</b>	The act of officially leaving the university for reasons other than graduation. Students may withdraw from individual courses without withdrawing from the university.

# Directory

UAE Code 971, Sharjah Code 6

www.aus.edu

Department	Telephone	Fax	E-mail
Academic Affairs	515 2281	515 2150	vcaa@aus.edu
Admissions	515 1000	558 5018	admission@aus.edu
Alumni Affairs	515 2001	515 2002	alumni-affairs@aus.edu
Architecture and Design	515 2825	515 2800	docad@aus.edu
Arts and Sciences	515 2412	558 5067	deanofcas@aus.edu
Business and Management	515 2310	558 5065	deanofsbm@aus.edu
Career Advising and Placement Services	515 2036	515 2065	caps@aus.edu
Chancellor	515 2205	558 5858	chancellors_office@aus.edu
Continuing Education Center	515 2020	515 2050	cec@aus.edu
Engineering	515 2948	515 2979	dosome@aus.edu
Finance	515 2185	515 2190	finance@aus.edu
Finance and Administration	515 2192	515 2130	vcfa@aus.edu
Financial Aid and Scholarships	515 2005/60	515 2040	scholarship@aus.edu
General Information	558 5555	558 5858	info@aus.edu
Graduate Studies	515 2265	515 2150	gradstudies@aus.edu
Health Center	515 2699	515 2690	clinic@aus.edu
Human Resources	515 2228	515 2280	hr@aus.edu
Information Technology	515 2119	515 2120	it@aus.edu
Intensive English Program	515 2654	515 2638	iep-office@aus.edu
Learning and Counseling Center	515 2790	515 2711	aalghourani@aus.edu
Library	515 2252	558 5008	auslibrary@aus.edu
Operations	515 2299	558 5009	operations@aus.edu
Public Affairs	515 2207	515 2200	public_affairs@aus.edu
Registrar	515 2031	515 2040	registration@aus.edu
Research	515 2168	515 2150	research@aus.edu
Residential Halls	515 2244	515 2294	res-halls@aus.edu
Student Accounts	515 2233/82	515 2190	studentaccounts@aus.edu
Student Affairs	515 2166	558 5024	studentaffairs@aus.edu
Undergraduate Programs	515 2001	515 2002	ausundergraduate@aus.edu
<b>Emergency Numbers</b>			
Maintenance Emergency	515 2100		
Medical Hotline (24 hour)	050 635 7651		
Security	515 2222		



- 1- Main Building & Auditorium
- 2- Library
- 3- Engineering & Computing I
- 4- Engineering & Computing II
- 5- Student Center
- 6- Cafeteria
- 7- Architecture & Design I
- 8- Architecture & Design II

- 9- Languages, Health Center
- 10- Arts & Sciences: Physics
- 11- Arts & Sciences: Chemistry
- 12- Business & Management
- 13- New Academic Building
- 14- Sports Complex
- 15- Outdoor Courts
- 16- Sports Fields

Green & Blue

- 17- Faculty/Staff Housing (West)
- 18- Day Care Center
- 19- Leisure Center
- 20- Faculty/Staff Housing (East)
- 21- Mosque
- 22- Women's Welcome Center
- W- Women's Dormitories
- M1- Men's Dormitories (West)

- M2- Men's Dormitories (East)
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- P2- Yellow Lot / Paid Parking
- P3- Green Lot / Paid Parking
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# AUS



# The University

## Historical Preamble

The American University of Sharjah (AUS) was founded in 1997 by His Highness Sheikh Dr. Sultan Bin Mohammed Al Qassimi, Member of the Supreme Council of the United Arab Emirates and Ruler of Sharjah. Sheikh Sultan articulated his vision of a distinctive institution against the backdrop of Islamic history and in the context of the aspirations and needs of contemporary society in the UAE and the Gulf region.

AUS was mandated to:

- Reinforce the efforts of the leaders of the UAE “to ensure that science and education regain their rightful place in the building and advancement of our society and shaping the lives of our children”
- Join other institutions of higher education in seeking “to reshape fundamentally the minds of our youth to enable them to address the challenges of life using the scientific method”
- Become a “center of research for

educational development and the solution of social problems”

- Become “organically linked” to the economic, cultural, scientific and industrial sectors of society in “productive cooperation”
- Exercise the “independence and objectivity in teaching and research” necessary for the achievement of these goals.

## Mission Statement

The mission of the American University of Sharjah (AUS) is to achieve and maintain preeminence as a coeducational institution based upon American models and grounded in the history and culture of the Arab Gulf region.

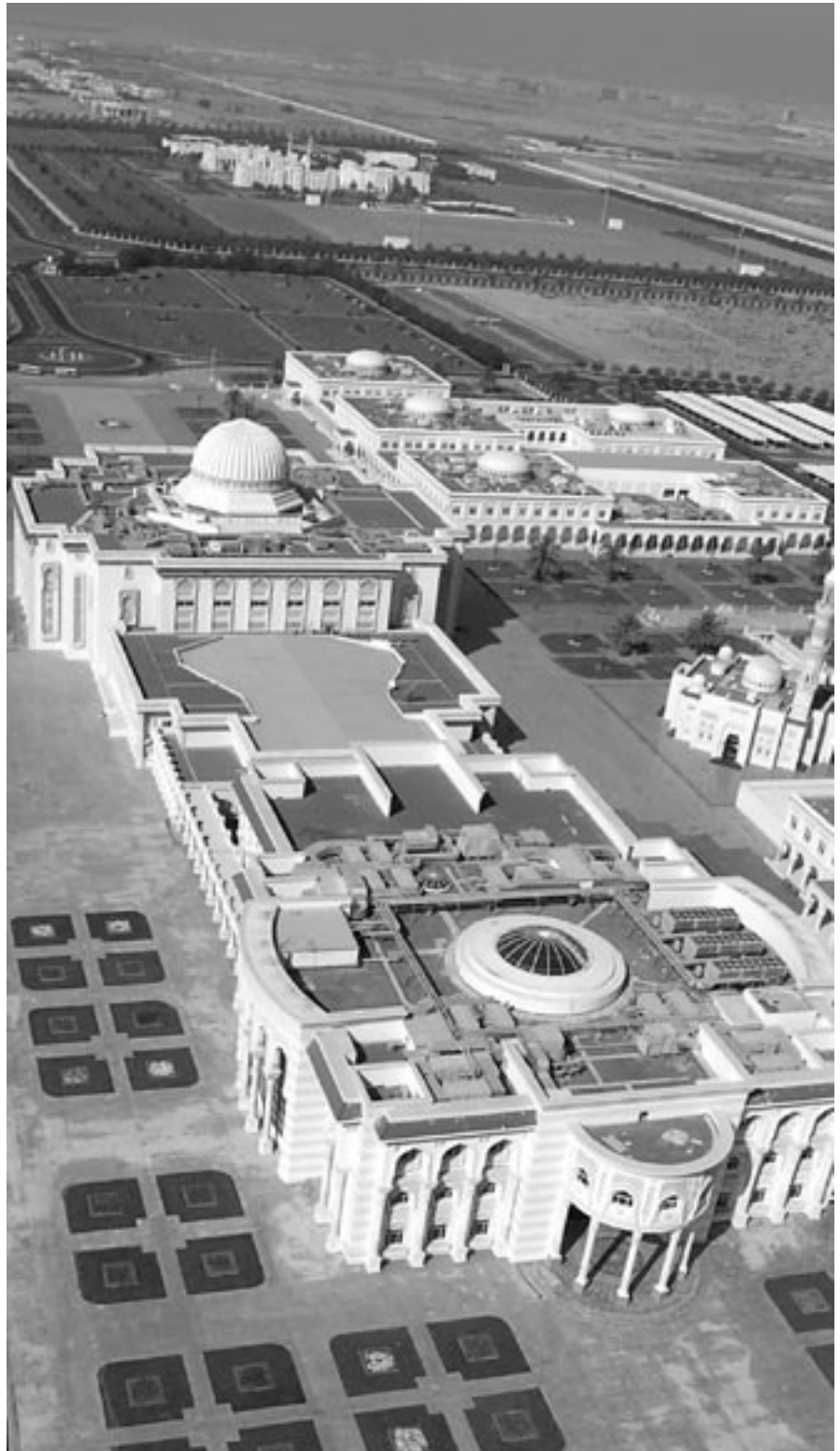
AUS is a not-for-profit university that:

- Admits students on the basis of their academic qualifications regardless of race, color, gender, religion, disabilities, age, or national origin

- Employs faculty and offers academic programs that are equivalent to those at leading institutions of higher education in the United States
- Integrates liberal studies, professional education, and co-curricular and extracurricular learning experiences to provide its graduates both breadth and depth of knowledge
- Values strong relationships with its alumni, the public, the media and appropriate governmental entities
- Encourages and supports research and scholarship by its faculty and students and serves as a resource for the community
- Provides students with a rich and varied campus life that fosters personal growth, maturity and a sense of social responsibility
- Operates effectively and efficiently, develops and uses its fiscal and human resources wisely, and encourages wide participation in its governance.



# AUS



# Overview

## Introduction

The American University of Sharjah (AUS) was founded in 1997 by His Highness Sheikh Dr. Sultan Bin Mohammed Al Qassimi, Member of the Supreme Council of the United Arab Emirates and Ruler of Sharjah, who envisioned AUS as a leading educational institution in the Gulf region. The American University of Sharjah is an independent, not-for-profit, coeducational institution. Although consciously based upon American institutions of higher education, AUS is expected also to be thoroughly grounded in Arab culture and to be part of a larger process of the revitalization of intellectual life in the Middle East.

The American University of Sharjah has succeeded in building a multicultural education environment that brings together people from diverse nations and backgrounds. AUS strives to instill in its students the importance of appreciating and understanding diversity, global issues and their own roles in society.

AUS is emerging as a leading comprehensive coeducational university in the Gulf, serving students from the Gulf region and around the world. AUS students are introduced to a culture of high aspiration and achievement to aid them in leading productive and meaningful lives. AUS is also dedicated to the preservation of the physical environment, free from pollution and neglect. This sense of environmental responsibility is passed on to AUS graduates in order to create ecologically aware citizens.

In keeping with its mission, AUS offers students an education that will enable them to comprehend the dynamism and complexity of contemporary global processes. Through the integration of liberal studies and professional education, students are given both breadth of knowledge and specialization in their chosen fields. Education at AUS runs the gamut from art, poetry and

religions from past civilizations to the latest skills and technologies of today's information age. These are all presented to students in order to produce future leaders with a firm understanding of how society has reached its present state. The combination of traditional and innovative teaching methods provides an educational environment in which students can realize their individual potential and pursue their goals.

AUS is well qualified to meet the challenges inherent in preparing its students for life in the age of electronic communication, global economies, social pluralism and political interdependence.

The university offers 20 bachelor's degrees, 35 minors, six master's degrees and five graduate certificates offered by the faculty of the College of Arts and Sciences and three schools: Architecture and Design, Business and Management, and Engineering.

While Arabic is the official language of the United Arab Emirates, the language of instruction at AUS is English. All classes and administrative functions are conducted in English.

Islam is the official religion of the state, and Arab Islamic culture predominates in the UAE. The nation is also distinguished by its tolerance toward its large expatriate communities, which comprise diverse nationalities, cultures and religious beliefs. Following in this spirit of understanding and acceptance of all peoples, AUS admits students solely on the basis of their academic qualifications regardless of race, color, gender, religion, disabilities, age or national origin. The university's mission is to create a multicultural, international academic community in order to prepare its students to become lifelong learners equipped to adapt to the needs of our changing world.

AUS was established as an "American" university not only in its formal academic and organizational characteristics but also in the

recognition that the total culture and philosophy of the educational community is as significant as the formal program of studies. Students learn the lessons of the classroom and the lessons of life in a coeducational, multicultural and multinational environment. From its inception, AUS was envisioned as a place that would "feel" like an American campus.

## Accreditation and Licensure

American University of Sharjah is licensed in the United States by the Department of Education of the State of Delaware. It is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools (3624 Market Street, Philadelphia, PA 19104, 215 662 5606). AUS is also licensed by the Ministry of Higher Education and Scientific Research of the UAE, and all programs are recognized by the ministry and have been awarded either full or initial accreditation status.

## The Campus Complex

The American University of Sharjah is situated in University City, which is located 16 kilometers (10 miles) from the center of Sharjah. The distinctive architecture of the domes and arches of the academic and administrative buildings is accentuated with graceful Arab motifs.

The center of the AUS campus comprises 10 academic buildings. The academic buildings house classrooms and lecture halls of various sizes; a state-of-the-art library; science, language, computer and engineering laboratories; workshops, digital studios and dark rooms; and offices for faculty, academic administrators and support staff.

The campus includes 12 student residential halls (eight for men and four for women) as well as a large Sports Complex and a Student Center. Approximately 50 percent of the student body lives in campus housing.

Unlike most American campuses, faculty members and their families are required to live on campus. Thus, there is a large and continuous faculty presence at the heart of the campus, providing students with a learning and living environment that allows for on-going interaction with faculty members and their families.

### The City of Sharjah

The location of the university enhances its mission. Sharjah is situated strategically between the Far East and the West, between Africa and Asia. Straddling the breadth of the UAE, the emirate of Sharjah has beautiful beaches on the shores of both the Arabian Gulf and the Gulf of Oman. Its landscape varies from level plains to rolling sand dunes and mountain ranges.

Today, as in ancient times, Sharjah is a global trade center. Modern Sharjah is a city of learning and the arts, as confirmed by its 1998 UNESCO designation as the Cultural Capital of the Arab World. This context facilitates

the university's intention to be an academic center at the intersection of ancient cultural traditions and contemporary intellectual currents. The city of Sharjah boasts over 27 museums with splendid collections of artifacts and art objects as well as exhibits on science and natural history. These institutions are sites for field trips, research and possible internships. Sharjah hosts many cultural festivals, programs, educational conferences, fairs and economic expositions, including the annual book fair and the Sharjah International Biennial art exhibition. These resources permit AUS to broaden students' formal education in a way not possible elsewhere in the region.

## On-Campus Services

### Athletics and Recreation

The Sports Complex meets the needs of nearly all athletic interests. The indoor facilities include an Olympic-size swimming pool, fitness centers

and courts for basketball, volleyball, tennis and squash. A soccer field, a cricket practice ground, and basketball, volleyball and tennis courts are located outside. The Student Center features a billiard room and an eight-lane bowling alley.

The university's intramural sports program complements students' academic, social and cultural education. Involvement in intramural sports activities allows students to develop new friendships and enjoy the benefits of exercise.

### Banking Services

Located on the ground floor of the Main Building, the Sharjah Islamic Bank offers banking services such as checking and saving accounts, ATM transactions and transfer of funds.

### Bookstore

Located on the ground floor of the Library Building, the bookstore sells all required textbooks, other books, art supplies, stationery, notebooks, gifts and many items essential for students.



## Copy Center

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The AUS Copy Center is located on the ground floor of the Main Building. It serves faculty, staff and students by providing a variety of quality and reasonably priced document reproduction services. The center also offers professional binding, lamination, stapling and other related services.

## Dining Services

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Many international franchise restaurants, coffee shops and snack services are located in the Student Center. Most of these outlets offer campus delivery service.

Most residential halls are equipped with kitchenettes, which include refrigerators and hot plates, in addition to vending machines containing snacks and beverages.

## Information Technology

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The Information Technology (IT) Department serves the computer-related administrative, instructional, technical and research needs of students, faculty and staff. It also acts as AUS's gateway to the Internet for academic purposes. Services provided include e-mail accounts and passwords, online courseware (Blackboard), wireless and local area networks and telephone services. Many services are monitored 24 hours a day, seven days a week to maintain availability for on-campus users. The university's computer network uses fiber-optic cables that interconnect the entire campus, including the residential halls and faculty housing. Additional information can be found in the IT section of the university website.

## International Student Services

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Part of the Public Relations Department, the ISS Office provides essential support to international students before and after their arrival. Among its many tasks is to help international students comply with immigration rules and regulations during their time at the university. This

division aids all international students with visa processing, including new students, transfer students, CEC students and SIEP students. Furthermore, the ISS Office provides passport custody and medical test assistance.

## Lost and Found

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The lost and found is located at the Student Center reception desk. Items unclaimed after one semester will be given to charitable organizations, sold or destroyed.

## Campus Cash Program

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Students can use their ID cards for purchases at various AUS outlets through the Campus Cash program at no additional charge. To participate, a student must deposit an initial sum with the university cashier, who will credit that amount to the student's Campus Cash account. The Campus Cash program is very secure, and students may check their balances online. Students can use their ID cards at most AUS outlets. For program details, visit the Campus Cash section on the university website.

## Media and Printing Department

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The Media and Printing Department is the AUS communications team. It promotes the university's visibility by cultivating relationships with the news media, creating publications, and developing and implementing advertising campaigns. This department generates media coverage through press conferences, interviews and press releases. Additionally, the department writes, designs and produces *Campus Report*, which is published monthly for the campus community, and *AUS News*, a quarterly publication distributed on and off campus. Updates to the university's website are coordinated between the Media and Printing and Information Technology departments.

## Mini-Mart

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The Leopard Mini-Mart provides a

large variety of grocery items, fresh fruits and vegetables, and other household items. One outlet is located in the Student Center; a second outlet is located in the Women's Welcome Center.

## Parking and Transportation

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Parking lots, free and paid, are provided for faculty, staff, students and visitors. Vehicles must be registered with the Public Relations Department, and faculty, staff and students must display a valid AUS parking sticker on the windshield. These permits are issued once the vehicle is registered.

AUS also offers a bus shuttle service between the student residential halls and other areas of campus. Students who wish to commute off campus may contact the Transportation Unit, which can provide transportation to the cities of Sharjah, Dubai, Abu Dhabi, Al Ain, the East Coast and the central region. For more information on all routes and schedules, contact the Transportation Unit at 515 2171 or visit the university website. The Transportation Unit also provides information on local taxi and rental car services.

## Personal Services

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A beauty salon is located in the Women's Welcome Center, and a barbershop is located in the Student Center. Regular and dry-clean laundry services are available on the west and east sides of campus near the faculty housing.

## Pharmacy

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Located in the Student Center, the pharmacy is part of the health coverage program and offers a full range of medication.

## Post Office and Mail Service

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AUS provides a full-service post office on the ground floor of the Main Building. Mail is distributed daily to all university offices by the University Post Office. It also maintains individual post office boxes for all resident students. All mail

intended for university offices and for those residing on campus should be addressed to:

American University of Sharjah  
P.O. Box 26666  
Sharjah, UAE

### Public Relations Department

The Public Relations Department ensures a good working relationship between the university and the local public and private sectors. It handles all official government documents and transactions for students, faculty and staff, including the processing of visas and residence permits, driving licenses, car registration, traffic violations and accidents. It also provides official letters that might be required by various government and/or private organizations. This department also issues AUS Identity Cards (IDs) and car stickers. Students must carry their IDs with them at all times and have them available upon request. ID cards must be validated by the Public Relations Department every semester (including summer session) to avoid charges.

### Security

The Security Division is the recognized law enforcement agent on campus. It monitors security on the entire campus, including residential halls and all university-owned buildings, and works to ensure that UAE laws and AUS regulations are implemented. If a violation occurs, the security officers have the right to withdraw any ID.

This division oversees the campus traffic and parking system and is authorized to enforce all related regulations. It also provides security personnel 24 hours a day on university premises, including the residential areas, and for campus events when requested.

### Travel Office

The Travel Office, located in the Student Center, offers efficient and cost-effective services designed

to assist all AUS students, faculty and staff. The office handles all travel arrangements, negotiates the most favorable rates and provides information on special offers.

### University Health Center

The University Health Center (UHC) provides primary health care to all AUS students, and faculty and staff members and their dependents. The center is open Sunday–Thursday from 8:30 a.m. to 4:30 p.m. and provides 24-hour accident and emergency care as well. Depending on the severity of the illness, patients are referred to hospitals for further treatment. Great emphasis is placed on making the campus a healthy and safe place to study, work and live.

The UHC is staffed with a highly qualified medical team, which includes three general practitioners, a psychologist, a nutritionist and four registered nurses. The UHC is equipped with an ECG machine to monitor heart ailments; nebulizers for respiratory problems; a respiratory function test (spirometer); glucometers to check blood sugar levels; and an observation room (day care) to closely monitor patients.

### Health Education Programs

As part of an educational institution, the UHC plays an active role in educating the university community and promotes on-campus health and wellness activities throughout the academic year. UHC programs include lectures and awareness campaigns on health-related issues such as first-aid training and CPR courses, substance abuse, mental health and healthy eating.

### Health Insurance Plans for Students

As part of the registration procedures, every student must enroll in one of two health insurance plans. Plan I is compulsory for AUS-sponsored students but optional for others who are officially enrolled in health insurance plans with their families. Plan II is compulsory for all students who are not enrolled in Plan I. Visit the University Health Center's

section on the AUS website for more information on the health insurance plans.

## University Resources

### Academic Achievement Program

This program provides support to students through their transition to AUS. Academic achievement advisors within certain college/schools advise students individually and in groups on academic matters including study skills, time management, test-taking techniques and strategies for course selection. The program also works with academic advisors in developing a retention plan for students and in following the progress of students on probation.

### Architecture and Design Facilities

Beginning with the sophomore year, School of Architecture and Design students benefit from personally assigned workstations in digital studios. Students accepted into the second year have dedicated individual worktables and desktop computer workstations with network connections. The school provides for the use of both Macintosh and Intel-based platforms. All students have 1:1 access to the 100 Mbs Ethernet. Dedicated ancillary spaces, which are shared by all curricula, include digital classrooms and closed networked studios, a high-end Macintosh lab, an Intel-based lab, input/output labs, a printmaking shop, lighting and photography labs, a dedicated student wood and metal shop, the Visual Resource Center, the Technical Equipment Center, a 3-D lab, the Material Resource Room, an exhibition gallery and dedicated critique rooms. Multimedia, video and sound equipment are featured in the Advanced Digital Laboratory, which includes sound editing booths.

### AUS Writing Center

The AUS Writing Center, located on

the first floor of the Library Building, is dedicated to helping students become independent, confident writers through an interactive approach to writing. Available to all AUS students, the Writing Center offers one-on-one writing conferences by appointment or on a drop-in basis. During these conferences, students and consultants work together on various aspects of writing: thesis development, organization, outlining, paragraph development, vocabulary, sentence structure and mechanics. Students can visit the Writing Center to work on their drafts, to do research or to work with a consultant on particular aspects of their writing. The Writing Center also offers workshops on a variety of writing topics throughout the academic year.

### Career Advising and Placement Services (CAPS)

Located on the mezzanine floor of the Main Building, Career Advising and Placement Services (CAPS) offers students and graduates comprehensive career services to enable them to make good decisions about their future. CAPS works closely with industry in Sharjah and the other emirates in order to promote interaction between potential employers and AUS students and graduates. CAPS organizes corporate briefings, employer receptions and the annual Career Fair. It also provides information on full-time and part-time job opportunities, internships and summer employment. CAPS staff members help students prepare for the world of work through career development workshops, one-to-one interviews, drop-in sessions, career assessments and other activities. Advice on working abroad is also available. CAPS has a career resource library and is constantly updating its database of employers in the UAE and Middle East.

### Computer Learning Resources

All classrooms are networked and most are equipped with data projectors and other technology that enable

faculty members and students to enhance learning with digital and online content. Wireless network access is available in all academic areas of the campus, and its capacity is being increased in selected locations to support wireless laptops.

AUS departments and programs offer a range of specialized computer laboratories with software to support student work. Additionally, the library features an information commons with an expanded range of computers, software and related technology along with support for students' research and other academic work.

### Engineering and Computing Laboratories

The School of Engineering has approximately 30 undergraduate laboratories and workshops. All equipment and instruments are accessible to and extensively used by the students. Laboratory summaries are presented below by department, and may be reviewed in detail on each department's website.

Chemical engineering has unit operation, software, environmental, petroleum, water, materials, fluid flow and heat transfer laboratories.

Civil engineering laboratories are designed for conducting standard construction materials, soil, rocks, water and environmental tests.

Computer engineering has general-purpose programming, digital systems, microprocessor, embedded systems, high-performance computer cluster, computer network, software engineering and database laboratories.

Computer science has three dedicated computer labs, two of which are project labs, and one is a senior project lab. In addition, the computer engineering digital systems lab is used by computer science students for their digital systems laboratory course component.

Electrical engineering laboratories focus on electronics, electric power, control, measurements, machines, communications, nondestructive

testing and medical electronics.

Mechanical engineering has laboratories for measurements and control, engine testing, advanced manufacturing, fluid mechanics, materials testing, mechatronics, vibrations, computer-aided engineering, refrigeration and air-conditioning, thermodynamics and solar energy.

The various departments share three computer labs with more than 100 stations. All labs have dedicated lab instructors and technicians. Additionally, all engineering facilities offer wireless connectivity.

### Library

The AUS Library, a stunning 11,000-square-meter state-of-the-art facility, provides collections, services and programs to support the curricular and research needs of the university community. The majority of the library's rapidly growing physical collections of over 90,000 items are in English; however, there are also materials available in Arabic. An online catalog system can be used to search for library materials from any location on or off campus. Using the library website, students and faculty can access e-books, online databases, full-text journals and other digital resources. Library facilities include the Information Commons, group study rooms, quiet study areas and media viewing rooms. The library offers information literacy courses where students are taught how to use library resources in a computerized classroom. The library works in conjunction with all parts of the university to provide academic resources for all classes taught at AUS. Further information regarding the library is available from the university website.

### Mass Communication Laboratories and Studios

Students in the Department of Mass Communication benefit from a high-tech laboratory with 23 computer stations featuring graphic design and desktop publishing software. The Mass Communication Studio is a state-of-

the-art video studio dedicated to the development of student media skills. It consists of four digital wide-screen cameras, a wide-screen digital video mixer and a digital audio mixer. A variety of sets and studio environments can quickly be created, including a blue screen, an infinity sweep set, a limbo set, a reality set and a news set.

### Office of Alumni Affairs

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The Office of Alumni Affairs is a function of the Office of Undergraduate Programs and Alumni Affairs. It assists alumni, through the AUS Alumni Association, in organizing events, facilitating contact among graduates and maintaining contact between alumni and the university. The Office of Alumni Affairs also oversees worldwide chapters of the AUS Alumni Association and, in conjunction with the association, publishes the quarterly magazine *AUS Connect*. For more information, visit the alumni section of the AUS website.

### Office of Research

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AUS offers its students research opportunities to work on faculty projects, to present papers with faculty at international conferences and to assist faculty in developing research grants.

The Office of Research promotes research, scholarship and creative activity of AUS faculty, staff and students; establishes and maintains policies for and advance research integrity and ethical conduct of research; ensures university compliance with sponsored programs regulations; and promotes technology transfer.

AUS upholds its ethical and legal responsibility to administratively review all proposed research projects involving humans as participants to ensure compliance with internationally recognized principles and regulations governing the protection of research participants. All research studies at AUS involving the participation of humans must be submitted to and approved by the AUS Institutional

Review Board (IRB) before any study is undertaken.

For further information, contact [research@aus.edu](mailto:research@aus.edu) or visit the university website.

### Research Centers

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AUS has established a number of research centers as part of its commitment to research and community outreach.

#### Earthquake Observatory

The AUS Earthquake Observatory uses state-of-the-art equipment and software to record and analyze the region's earthquake activity. The Earthquake Observatory also provides expert opinions on earthquake hazard and related risk in the UAE and the Gulf region; assessment of seismic hazards at construction sites and petrochemical and industrial facilities; assessment of seismic risk of existing structures and recommendations for strengthening and remediation; evaluation of local site soil dynamics effects; geotechnical earthquake engineering design; preparation of macrohazard zonation, microhazard zonation and geohazard maps; evaluation of dynamic soil properties; training workshops for engineers on the analysis and design of structures for earthquake loading; and expertise on the development of earthquake-resistant design codes.

#### Mechatronics Center

The Mechatronics Center leads research and development in advanced engineering systems and high-tech technology transfer in the region. It promotes multidisciplinary research activities among faculty members and graduate students at AUS, and between AUS and universities in the United States, Europe and Japan. It also cooperates with industry and government agencies where extensive integration of instrumentation, control systems, electronics, intelligent software and computers is required. Areas of expertise within the center include modern industrial installations and systems, computer integrated manufacturing systems, maintenance diagnosis and troubleshooting, micro-

electro-mechanical systems, vehicle manufacture and design, robotics, electrical control and drives, and automated production systems.

#### Institute of Materials Systems

The Institute of Materials Systems collaborates with governmental and private sectors in areas of materials research and applications, focusing on quality control, performance, development and use of standard procedures, and quality assurance materials used in the region. Objectives of the institute are to conduct scientific research focused on materials properties and applications in harsh environments; assist governmental departments in establishing local and regional codes of practice; provide independent technical evaluation and consultation services on materials-related issues; enhance education through seminars, conferences and short courses; and establish collaboration with similar centers of excellence worldwide.

#### Institute of Urban and Regional Planning and Design

The Institute of Urban and Regional Planning and Design advances urban planning as it relates to the local culture and identity of the UAE and the Arab Gulf region, and promotes sustainability as integral to all activities pertinent to urban planning and urban design. The institute's objectives are to advance production and accumulation of knowledge in urban and regional planning and urban design; develop and offer educational and training opportunities in urban and regional planning and urban design; collaborate with local governmental, not-for-profit, non-governmental and private agencies concerned with urban planning and development to advance quality of practice and research; advance public discourse on urban planning through public forums (e.g., seminars, conferences, symposia); and increase public awareness in urban planning and urban design.

#### Science Laboratories

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The science programs benefit

from up-to-date laboratories and equipment. Chemistry laboratories are equipped with standard chemical instrumentation, including balances, centrifuges, pH-meters, spectrophotometers, a rapid kinetic apparatus, and electrochemical and chromatographic equipment. The environmental sciences and analytic chemistry laboratories are equipped with the latest sampling and analytical devices, including AA, GC-MS, ICP, FTIR and HPLC equipment. The physics laboratories are supplied with up-to-date standard equipment, including computer interfaces, linear air tracks, photogates, smart timers, projectile launchers, ballistic pendulums, rotational systems, digitometer, electric field mappers, current balance apparatus, signal/function generators, oscilloscopes, magnetic field sensors, Hall effect apparatus, lasers, spectral lamps, photoelectric effect apparatus, Geiger-Muller tubes, radiation counters, h/e apparatus, Frank Hertz apparatus, e/m apparatus, spectrometers, Interferometers, inverted X-ray machines and Millikan oil drop apparatus. The biology laboratories are equipped with the latest stereo inverted and compound microscopes, a microtome, an autoclave, a laminar flow sterile hood, PAGE and agarose electrophoresis equipment, cryostat and microtome units, a workstation with a computer connected to digital microscope cameras, a growth chamber, IDEXX Colilert and a manifold filtration unit for microbiological analysis.

### Interpreting Laboratory

The Department of Language and Literature has a purpose-built interpreting facility. It features simultaneous interpreting booths, a consecutive interpreting table, Internet access and equipment for simulated video teleconferencing. This interpreting facility is also equipped with the latest technology and machine translation software, TRADOS and other relevant, including Internet-based, software needed in language engineering.

## Continuing Education Center

The Continuing Education Center (CEC) offers educational and training programs to meet the ongoing professional needs of the United Arab Emirates' workforce and adult community. The CEC provides a unique combination of experienced personnel, excellent facilities, the latest technology and access to the educational resources of AUS.

### Programs

Programs offered through the CEC range in length from short-term workshop experiences to sets of full-length term courses. The full-term programs provide concentrated study. Students may take course work that will assist in their current job, help prepare for career advancement or learn about an emerging field.

Programs may include courses in business administration, sales and marketing, accounting, finance, computers, human resources, advertising, public relations, translation, environmental awareness and policy, business English and other language courses, or help prepare students to sit for internationally recognized examinations, such as the CMA/CFM, TOEFL, GMAT and others.

In recognition of the schedule of working professionals, CEC courses are delivered mostly in a part-time evening format. At the request of an organization or group of students, programs may be offered at different times or in more intensive formats.

For further information on CEC programs, please contact the CEC through the numbers or e-mail address listed below. Additional information is available at [www.aus.edu/cec/](http://www.aus.edu/cec/).

Examples of typical programs include:

### Certificates of Achievement (1 to 3 months)

- Accounting
- American English Conversation
- Business English

- French Conversation
- Selling Skills

### Certificates of Attendance (3 to 15 days)

- Customer Services
- Developing Corporate E-Strategy
- Effective Communication
- Effective Negotiation
- Executive Programs for Growing Companies
- Finance for Non-Financial Managers
- Managing Diversity and Cross-Cultural Issues
- Professional Project Management
- Professional Selling Skills
- Strategic, Collaborative Leadership
- Stress Management

### Customized Training

The CEC has a history of providing customized training. With access to the faculty and facilities of AUS, CEC is uniquely positioned to serve organizational needs. Customized training is developed in conjunction with the employer in the design and delivery of a training plan tailored to the organization. By working in partnership with key management staff, the CEC can assist with:

- Assessing internal and external needs
- Setting training objectives and plans
- Developing training sessions to achieve specific organizational goals
- Assisting with internal certification programs

### Continuing Education Center

Tel: + (971) 6 515 2020

Fax: + (971) 6 515 2050

E-mail: [cec@aus.edu](mailto:cec@aus.edu)

# AUS



# Undergraduate Studies

## ADMISSIONS

### Dean

Ali Shuhaimy

The American University of Sharjah places particular emphasis on quality education. Applicants are considered based on their qualifications regardless of race, color, gender, religion, disabilities, age or national origin. The most qualified candidates are selected to fill the seats available in any college or school.

The medium of instruction is English and a good command of the language, both oral and written, is essential for students to be successful at AUS.

For admission consideration, secondary school grades and university grade point averages (if applicable) must meet the minimum established standards as set by the university.

Furthermore, applicants with previous college/university experiences applying to AUS as first-year students will be considered only if they were in good academic standing in their previous college/university.

The university requires regular attendance at all classes, lectures, studios, laboratory sessions and seminars. Students are not permitted to pursue AUS degrees through correspondence or by merely passing university examinations. AUS does not offer any degrees by distance education.

The Office of Admissions is responsible for admitting students to all divisions of the university. All inquiries, requests for application forms and subsequent correspondence should be addressed to:

American University of Sharjah  
Office of Admissions  
P.O. Box 26666  
Sharjah, United Arab Emirates  
E-mail: [admission@aus.edu](mailto:admission@aus.edu)  
[www.aus.edu/admissions/](http://www.aus.edu/admissions/)

### General Admission Requirements

Every applicant is required to submit the following documents:

1. An application for admission. Every item on the application must be completed.
2. An official secondary school certificate certified by the appropriate authorities.
3. Official grade reports from the last three secondary school years certified by the appropriate authorities.
4. Four recent passport-size photographs.
5. A photocopy of the applicant's passport.
6. A non-refundable application fee of UAE Dirhams 200.
7. Test of English as a Foreign Language (TOEFL) score, if available at the time of applying.
8. The appropriate documents for the type of admission sought (early, regular or transfer).

Applicants must obtain a score of at least 190 on the Computer-Based TOEFL (CBT) or 68 on the Internet-Based TOEFL (iBT) in order to be admitted to an AUS college/school. Scores are only valid for two calendar years. Students who score below the minimum requirement but who otherwise meet AUS admission standards may be admitted to the Intensive English Program (IEP) at AUS upon meeting the minimum required IEP placement test. They must study for at least one semester in IEP and score the required 190 CBT/68 iBT on TOEFL to be eligible to matriculate into their chosen field of study.

**Note: The AUS TOEFL code is 0526.**

### Procedure for Applying

There are three types of admission: early, regular and transfer. Regardless of the type of admission, all applicants must submit all documents needed to meet the general admission requirements.

### **Early Admission**

A student in his/her final year of

secondary school may apply for early provisional admission by submitting official transcripts from at least the two years previous to the final year of secondary school. Early admission is offered only to highly qualified applicants and is not considered final until students submit a recognized and official secondary school certificate, or equivalent, showing the successful completion of a secondary education and all items as requested in the applicant's letter of admission. Students cannot register for courses until the admissions process has been completed.

### **Regular Admission**

A student who has completed his/her secondary school education and has a secondary school certificate may apply using the regular admission procedure. To do so, a student must submit the following documents in addition to meeting the general admissions documents listed above:

1. A recognized and official secondary school certificate, or equivalent, and the grades of the last three years of secondary schooling showing grade averages and class rank, if available.
2. Students who sat for national secondary school exit (final) exams must provide certified documentation of their results.

### **Deadlines for Regular Admission**

All applications must be on file in the Office of Admissions by the following dates:

**Fall Semester 2006** July 22, 2006  
**Spring Semester 2007** December 23, 2006

Students who need visas should apply at least one month before the established deadlines.

### **Admission as a Transfer Student**

Depending on available seats, candidates transferring from institutions of higher education may be considered for admission subject to the following conditions:

1. They are in good academic standing (i.e., not on probation or dismissed from the institution from which they are transferring). The required minimum cumulative grade point average (CGPA)

depends on the institution the applicant is transferring from. Please contact the Office of Admissions for specific CGPA requirements.

2. They are transferring from a recognized and accredited institution of higher education offering learning experiences equivalent to those offered at AUS and have successfully completed one or more semesters in that institution.
3. Prior to their admission to the institution from which they are transferring, they met the AUS requirements for admission.
4. They meet the English language proficiency requirements at AUS.
5. They submit official transcripts of their high school and college/university records along with the syllabi for and descriptions of courses they seek to transfer.
6. They achieved at their institutions a minimum cumulative grade point average (CGPA) as required by AUS for that type of institution.
7. They pay a non-refundable credit transfer evaluation fee of UAE Dirhams 300. However, this fee is deductible from tuition once the applicant joins AUS.

The complete transfer policy is available from the Office of Admissions.

In addition to the official transcript and the syllabi and descriptions for courses students seek to transfer, some programs may require students to submit samples of their work, assignments and/or examinations. Students who seek transfer credits for studio courses are advised to provide a portfolio of completed course work in photographic, digital or original format. No engineering or computer science courses will be transferred from academic programs not recognized by ABET (Accreditation Board for Engineering and Technology).

Transfer applicants from four-year colleges/universities with a similar mission to AUS may be awarded transfer credits. The minimum required course grade(s) to be considered for credit transfer will depend on the institution the applicant is transferring from.

Courses identified as equivalent in content and level to AUS courses will be transferred as the equivalent AUS course. Other appropriate university-level courses may be transferred as free electives or as unassigned courses in the relevant area of the general university requirements. The decision regarding credits awarded is made solely by the appropriate academic division dean/chairperson at AUS. Transcripts will be evaluated once only. Transfer students must complete their transfer file and be awarded transfer credits before the end of their first semester at AUS.

Courses completed more than five years prior to matriculation as an undergraduate student at AUS are not transferable. Furthermore, at the time of graduation, no course can be more than eight years old if it is to be counted toward the awarding of a degree. No more than 50 percent of the credits required to earn a degree from AUS may be transferred from another institution.

### Deadlines for Transfer Applicants

All transfer applications along with materials for evaluation of transferable courses must be on file in the Office of Admissions by the following dates:

<i>Fall Semester 2006</i>	June 21, 2006
<i>Spring Semester 2007</i>	December 6, 2006
<i>Summer Session 2007</i>	May 2, 2007

Courses will not be evaluated for transfer until the official transcript, syllabi and requested work samples are submitted to the Office of the Registrar. The deadline for admitted students to submit these documents to the Office of the Registrar for evaluation is:

<i>Fall Semester 2006</i>	July 1, 2006
<i>Spring Semester 2007</i>	December 13, 2006
<i>Summer Session 2007</i>	May 9, 2007

Upon receipt, AUS will investigate the authenticity and accuracy of all submitted transcripts and supporting documents/materials.

### Non-Degree Admission

Non-degree status is the designation used for students who are enrolled in credit courses at AUS but who

are not currently pursuing a degree program. Some students begin their studies in non-degree status while others do not wish to pursue a degree program. To be considered for admission, an applicant must meet the same minimum admission criteria established for regular admission and must submit a regular student application with all the required documents to the Office of Admissions on the dates assigned for regular full-time students. American University of Sharjah students who have not completed their degree programs and students who have been dismissed from the university cannot register for non-degree status.

### The Offer of Admission

The offer of admission, regardless of type, is valid only for the semester for which a student applies. If an applicant is granted admission for a certain semester and for some reason fails to register to that semester, the applicant may request, in writing, deferring admission for the following semester only. Admission consideration for the following semester will depend on available seats and the applicable admission criteria.

### Admission Deposit

All admitted students, regardless of type, are required to pay a seat reservation deposit of UAE Dirhams 5,000 and a residential hall room reservation deposit (if applicable) of UAE Dirhams 500. Both deposits are non-refundable and non-transferable to others and must be paid before the established deadline indicated in the letter of admission. These deposits are deductible from the student's bill once the applicant joins AUS. If a student requests to defer admission to the following semester and the request is approved, both deposits will be applied to the following semester's invoice.

### Visiting Student Admission

A visiting student is one who is not formally admitted to the American University of Sharjah but is permitted to take courses at AUS for transfer back to his/her home institution. Applicants seeking visiting student status must submit a visiting student

application (available from the Office of the Registrar and the university website), an official university transcript and a letter of good academic standing from their home institution to the Office of the Registrar. Applicants studying at community colleges in the United States or universities outside the USA must also submit their International TOEFL results. TOEFL may be waived if appropriate communication courses have been successfully completed. If the application is approved, registration is completed through the Office of the Registrar pending available seats. Normally, a student is not allowed to register as a visiting student for more than one academic year. Visiting students should consult with their home institutions about the transferability of AUS credits to their programs.

#### Applicants with Disabilities

Depending on available facilities, the university provides special services to applicants with certain disabilities. Those who have special needs are requested to contact the Office of Undergraduate Programs. This information will be treated confidentially.

#### Recognized Secondary School Certificates

AUS recognizes secondary school certificates awarded by ministries of

education and by private secondary schools that are recognized by their host country. The university also accepts certificates awarded by recognized qualification authorities, and national and international boards. Some countries award two levels of secondary school certificates. In this case, the university recognizes the higher certificate.

#### Examples of Secondary School Certificates

AUS' minimum admission requirements depend on the applicant's type of secondary education program and certificate. In all cases, for non-vocational certificates, only subjects classified as academic are accepted for admission consideration and the calculation of averages. The minimum required average for accepting and considering an application is the equivalent to 75 percent or more in the best two of the last three years or 75 percent or more in the final year (national exams only) of secondary education.

*For admission consideration, secondary school grades must meet the minimum established standards as set by the university. Admission to the university is competitive, and the actual required minimum average for admission will depend on the number of qualified applicants and the number of available seats. Other program-specific requirements or restrictions may apply.*

The following is a list of common certificates and the corresponding minimum levels of performance required for consideration for admission to AUS. These certificates and levels of achievement serve as guidelines for admission to AUS and may differ from other institutions or the standards that are generally accepted in an applicant's native country. The university may consider other types of secondary school certificates.

1. National General Secondary School Certificates:  
Arts or Science Track: Must have a minimum average equivalent to 75 percent or more in the best two of the last three years or 75 percent or more on the final year national exam.
2. American-style High School Diploma: Minimum 2.5 CGPA (or equivalent) on a 4.0 scale in the best two years of the last three years (only subjects classified as academic are considered in the calculation of the CGPA).
3. International Baccalaureate (IB): Must complete any six subjects, with at least three at the higher level.
4. Lebanese Baccalaureate: Completion of Part II required.
5. French Baccalaureate or equivalent: Completion of Part II required.
6. Pakistani Board(s) Certificates: Higher Secondary School Certificate (Part II).
7. Indian Board(s) Certificates: Senior Secondary School Certificate (12th Standard) required.



8. Iranian Certificate: Completion of pre-university year required.
9. German Abitur: Minimum average of four required.
10. IGCSE, GCSE, GCE:
  - a. Minimum of 11 years of schooling (School Leaving Certificate must be provided.).
  - b. To accept an application, an applicant must have a minimum of eight different IGCSE/GCSE subjects with at least a grade of C for each subject. Preference in admission considerations will be given to applicants with higher grades.
  - c. Students who complete advanced supplementary (AS-level) and advanced level (A-level) are given preference in admission considerations.
  - d. Only subjects classified as academic, including arts and creativity group subjects, will be accepted for admission consideration. Subjects submitted must include at least four different groups such as languages, science, mathematics, arts and design, humanities, social studies, etc. Some majors require subjects in specific groups for admission consideration.

Certain types of secondary school certificates are accepted only for specific programs at AUS.

**Literary Certificates**

Admit to College of Arts and Sciences (except for the environmental sciences

major), School of Architecture and Design (except for the architecture and interior design majors) and any major offered by the School of Business and Management.

**Scientific Certificates**

Admit to all majors in any of the three schools or the College of Arts and Sciences.

**Technical and Vocational Secondary School Certificates**

Highly motivated and academically qualified students may be admitted to a major that corresponds to the nature of the technical or vocational secondary school program.

**Advanced Standing**

Students who achieve a minimum grade equivalent to B in the IB Higher Levels, GCE A-Levels, the Lebanese Baccalaureate, the French Baccalaureate, the German Abitur or the American Advanced Placement tests may be awarded course credits for some courses.

**Program Admission Requirements**

**Placement Tests**

All freshman applicants who attain the minimum score or higher on

the TOEFL are required to sit for placement tests appropriate for their intended majors as shown in the following chart. Those who do not sit for the placement tests will be required to take the corresponding preparatory course. No student is allowed to sit for a placement test more than once. The sole exception is for the mathematics placement test if a student is changing programs and the mathematics level is different in the two programs.

**Preparatory Courses**

Students who score low on a particular placement test are enrolled in an appropriate preparatory course (i.e., XXX 001, XXX 002, XXX 003). The course's final grade counts toward the cumulative grade point average, but the course's credits do not count toward degree credits. A failing grade in a preparatory course cannot be changed in the student record by passing the placement test later. Students are allowed to repeat a preparatory course up to Sophomore I (less than 45 credits).

If the student took a preparatory course (i.e., XXX 001, XXX 002, XXX 003, XXX 004) without the placement test and failed it, then the student is not allowed to take the placement test.

<b>Required Placement Tests</b>						
<b>Majors</b>	<b>Placement Test</b>					
	<b>Engineering Math and Science</b>	<b>Business Math</b>	<b>Architecture Math</b>	<b>Physics</b>	<b>English</b>	<b>Computer</b>
<b>English Language &amp; Literature/Mass Communication</b>	No	No	No	No	Yes	No
<b>Environmental Sciences</b>	Yes	No	No	Yes	Yes	No
<b>International Studies</b>	No	Yes	No	No	Yes	No
<b>Architecture/Interior Design</b>	No	No	Yes	No	Yes	No
<b>Design Management/Multimedia Design/Visual Communication</b>	No	Yes	No	No	Yes	No
<b>Business and Management (all majors)</b>	No	Yes	No	No	Yes	Yes
<b>Computer Science</b>	Yes	No	No	Yes	Yes	No
<b>Engineering (all engineering majors)</b>	Yes	No	No	Yes	Yes	No
<b>Undeclared Major</b>	*	*	*	*	Yes	*

*\* The appropriate placement test must be taken before a student can enroll in the first-year course.*

## REGISTRATION AND OFFICIAL RECORDS

### Registrar

Lynda Ataya

The Office of the Registrar is responsible for maintaining timely and accurate records of the academic progress and accomplishments of AUS students in a private and secure manner. The Office of the Registrar is the only official office of records for students pursuing degrees at AUS. It is the only office authorized to issue official transcripts and to certify the enrollment and attendance of students, the awarding of degrees and other matters of record.

### Orientation Program

Prior to registration, an academic orientation is scheduled for all new students to introduce them to the university's general academic regulations, policies and support services. In addition, each college/school has an orientation to familiarize students with its specific regulations and assist them with the registration process. During orientation, the Office of Student Affairs introduces university life through campus tours and visits, meetings, lectures, demonstrations and other activities. Attendance at these programs is mandatory for all new students.

### Registration Procedures

The Office of the Registrar posts on the AUS website a registration guide that is available to every student before the registration period begins. The guide provides pertinent information and indicates the registration steps along with the place, date and time for each step. A continually updated list of courses offered is posted as well. Students should carefully read the registration guide as they prepare for registration and meet with their academic advisor.

Registration involves three main steps:

1. Advisement and consultation
2. Selection and registration of courses
3. Payment of fees

Registration by way of proxy is not

permitted. New students must ensure that all documents required for finalizing their admission, particularly those indicated in the letter of admission, are submitted to the Office of Admissions before registration begins.

Please refer to the Undergraduate Fees section of this catalog for information on fee payment methods.

Students are not allowed to defer fee payments until after the registration period except with special permission. Exceptions are made only if all of the following conditions are met:

- A letter is submitted to the Student Accounts Office by the student's sponsor explaining the reasons for the inability to pay the full fees at registration. This letter must be received before or during the registration period.
- At least 50 percent of the full amount due is paid before or during the specific registration period.
- Approval for deferment and terms of payment are stated in writing and signed by the authorized university official.

A charge of UAE Dirhams 500 is added to the balance if a check is returned due to insufficient funds.

### Transfer Student Registration

Transfer students cannot register for subsequent courses if their transferred courses do not meet the prerequisite requirements. Transfer students must complete their transfer file and be awarded transfer credits before the end of their first semester at AUS.

### Non-degree and Visiting Student Registration

Applicants given non-degree and visiting student admission status may enroll in any university course for which they have the necessary academic background and qualifications. These students must register for courses through the Office of the Registrar and must pay the same fees and charges as regular students. In courses with enrollment limits, priority is given to students pursuing degree programs.

### Academic Standards and Regulations for Non-degree Study

Non-degree students are held to the

same academic standards as degree students and must maintain a 2.0 GPA to continue to take courses at AUS.

### Audit Registration

An AUS student wishing to attend a course but who does not wish to participate, take examinations, receive a final grade or receive credit for the course may register to audit the course with the permission of the instructor. Registration is managed through the Office of the Registrar. A student is not required to take or to pass examinations in a course that he/she audits. The instructor may establish standards of class participation and attendance that must be met if a student is to remain in audit status. Changes to or from audit status must be made before the last day of add/drop period. Tuition and fees for audit students are the same as those for students registering for credit. In courses with enrollment limits, priority is given to students registering for credit.

With the permission of the instructor, senior students (90 and above credits) can audit a graduate course in their field. This course will appear in a student's transcript as audited and carries no credits. Students pay the regular undergraduate fee per credit hour. A student cannot change the "audit" status to "for credit" status.

Undergraduate students in the architecture program who are auditing graduate courses in urban planning may elect to change the audit status to credit status in order to receive full credit for the graduate courses by the end of the add/drop period. See the Department of Architecture section for more information.

### Official Class Standing

Hours	Standing
0-29 credits	Freshman
30-59 credits	Sophomore
60-89 credits	Junior
90 and above credits	Senior

### Change of Major

Students seeking to change their

major within their college/school or to change their college/school must complete the appropriate form available from the Office of the Registrar. Requests for a change of major or change of college/school should be submitted to the Office of the Registrar no later than 48 hours after the last day of final exams. To be eligible for a change of major, a student must meet the requirements for admission to the new major, and the request must be approved by the dean of the new major.

The graduation requirements for any individual student are determined by the catalog that is effective when the student joins the new major or the catalog of graduation. Refer to the college/school for transfer requirements.

**Transferring from Non-degree to Degree Status**

Students wishing to transfer from non-degree to degree status may request to have their non-degree credits applied toward a degree program. To apply to a degree program, students must have completed 15 credits with a cumulative GPA of 2.0 and submit the appropriate application forms and supporting documents to the Office of Admissions. The university rules and regulations governing transfer courses and credits will apply. The graduation requirements will be determined by the catalog that is effective when the student joins a major or the catalog effective the semester of the student's graduation.

**Add and Drop**

Students are allowed to add and/or drop courses during the first week of fall and spring classes. Such changes in courses are not recorded in the students' transcripts. Students interested in adding or dropping courses should first consult with their respective advisors.

**Withdrawal from Courses**

Students are permitted to withdraw from courses without penalty after

submitting the appropriate withdrawal form. Students are expected to maintain a minimum of 12 credits, but, under special circumstances such as medical conditions, may be allowed to drop below 12 credits. Permission must be obtained from the Office of Undergraduate Programs. Withdrawal from courses must occur no later than the end of the 10th week of classes. A grade of W will be recorded on the transcript for the course from which the student has withdrawn. A W grade does not impact the student's GPA.

As of the 11th week of classes and up to the last day of classes, a grade of WF will be recorded for those who withdraw from a course. The student will receive 0.00 grade points for the WF, and this will be used in calculating the student's GPA. Furthermore, faculty members may automatically assign a grade of F for excessive absence or no show.

If a student with documented medical condition (e.g., operation, hospital stay, serious illness, etc.) is withdrawn from a course after the established withdrawal deadline, the student may submit a petition to the Office of the Registrar with the appropriate original medical documents. The Office of the Registrar will verify the claims and approve the change of status from a WF to a W.

**Withdrawal from the University**

In the event a student formally withdraws from the university, a grade of W or WF will be recorded depending on time of withdrawal. The following refund schedule will apply:

Withdrawal from the University*	
	Refund
One week before the first day of classes	100% excluding the seat reservation deposit of new students
Before the end of the first week of classes	100% excluding non-refundable deposits
During the second week of classes	50%
During the third week of classes	25%
After the third week of classes	0%
<i>*Refunds for summer session withdrawals are prorated.</i>	

**Permanent Record**

A permanent record reflecting the academic achievements of each student who registers at the university is maintained in the Office of the Registrar. Students are encouraged to review their records online periodically.

An explanation of the university's grading system is included in the Academic Regulations section of this catalog.

**Students' Privacy Rights**

Students have the right to:

- inspect and review information contained in their educational records. The university is not required to provide (or allow the making of) copies of these documents.
- request changes or updates to their personal data.
- consent to disclosure, within the extent of UAE federal and local laws, personally identifiable information from education records.

**Student Records**

All transcripts and other documents submitted from other institutions are the property of the American University of Sharjah, and, as such, become under the control of the Office of the Registrar. The university is not required to provide (or allow the making of) copies of these documents. Transcripts submitted to AUS for admission or credit transfer become the property of AUS and cannot be returned to the student or forwarded to other institutions.

## Transcripts

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Students may obtain transcripts of their academic records at AUS from the Office of the Registrar. Transcripts will only be released with a signed request from the student concerned. The university will issue only complete transcripts, not parts of the student record. A nominal fee applies. The university will not make copies of transcripts on file from other colleges or universities.

## Graduation

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Candidates for degrees file an Application for Graduation form in the Office of the Registrar during the registration period of the last expected term of study. Only after an Application for Graduation form has been filed can the Office of the Registrar begin processing the necessary information for final certification for graduation.

Only students who have successfully completed degree requirements and have no holds by the end of the term for which they have applied to graduate are certified for conferral of a degree.

Degrees are conferred at the end of the semester in which requirements have been met. Conferral of the degree is noted on the permanent record of the graduate with the date of graduation. Students who fail to complete all degree requirements by the end of the term for which they apply to graduate need not reapply for graduation. Their previous application will be forwarded automatically to the following semester.

### Names on Diplomas and Degrees

The names of AUS students on diplomas and degrees will be spelled in English exactly as they appear on their passports or identity cards. If a name on a passport or an identity card does not appear in English, then the spelling of the name will be printed according to the personal preference of the student concerned.

### Participation in the Commencement Exercises

Normally, the university holds

commencement exercises at the end of the spring semester.

Students who have been certified for conferral of a degree in a previous semester or students registered at the 11th week for courses necessary to complete their degrees may participate in commencement at the end of that semester.

### Attestation of Diplomas and Degrees

The Office of Alumni Affairs is responsible for processing all diplomas and transcripts for attestation by the UAE Ministry of Higher Education and Scientific Research. Students receive their diplomas after this process is completed.

## University Honors and Awards

### Dean's List

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The Office of the Registrar issues a dean's list of honor students at the end

of each semester. To be placed on the dean's list, a student must

- have registered and completed a minimum of 15 hours in the semester
- have at least a 3.5 semester GPA
- be in good academic standing
- have no failing grades in any of his/her courses during that semester
- have no incomplete grades
- have no disciplinary action against him/her

### Graduation Honors

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The university grants Latin honors at graduation. To be eligible for graduation honors, students must have achieved the requisite GPA. These are

Summa cum laude:	3.90-4.00 GPA
Magna cum laude:	3.70-3.89 GPA
Cum laude:	3.50-3.69 GPA

Latin honors are listed in the commencement program and on the student's diploma and permanent record.



## UNDERGRADUATE PROGRAMS

### Dean

Wadiyah Atiyah

### Associate Dean

Pia Anderson

The mission of the Office of Undergraduate Programs and Alumni Affairs is to enhance and support the undergraduate educational experience of AUS students from matriculation to graduation and beyond. The Office of Undergraduate Programs and Alumni Affairs strives to fulfill its mission by:

- Assisting in the creation of university general education requirements that enhance the overall educational experience of the AUS undergraduate by providing a broad and mind-expanding education in the humanities, social sciences, mathematics, languages and sciences
- Providing academic counseling and orientation services that assist students in increasing their academic performance
- Creating and administering international exchange programs to provide AUS students the opportunity to expand their educational experience through semester study abroad programs
- Developing contacts with industry through Career Advancement and Placement Services (CAPS) to provide AUS students opportunities to work in the best national and multinational companies in the region
- Establishing and enhancing relationships between AUS graduates and the university through the American University of Sharjah Alumni Association (AUSAA)

## General University Degree Requirements

The American University of Sharjah has four academic divisions offering both undergraduate and graduate degree programs. Undergraduate degree programs are listed below. Detailed information about concentrations within the majors is given in the catalog section of the

college/school offering the major. Graduate degree offerings are listed in the Graduate Studies section of this catalog.

### College of Arts and Sciences

- Bachelor of Arts in English Language and Literature
- Bachelor of Arts in International Studies
- Bachelor of Arts in Mass Communication
- Bachelor of Science in Environmental Sciences

### School of Architecture and Design

- Bachelor of Architecture
- Bachelor of Science in Design Management
- Bachelor of Interior Design
- Bachelor of Science in Multimedia Design
- Bachelor of Science in Visual Communication

### School of Business and Management

- Bachelor of Arts in Economics
- Bachelor of Arts in Public Administration
- Bachelor of Science in Business Administration
- Bachelor of Science in Finance
- Bachelor of Science in Management Information Systems

### School of Engineering

- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Computer Engineering
- Bachelor of Science in Computer Science
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Mechanical Engineering

Students are governed by the following minimum requirements for the bachelor's degree. Each specific degree program has further major and major-related requirements that are detailed in the catalog section of the department offering the major.

**Caution:** *The course offerings and requirements of the American University of Sharjah are under*

*continual examination and revision for improvement. This catalog is not a contract; it merely presents the offerings and requirements in effect at the time of publication and in no way guarantees that the offerings and requirements will not change. The university specifically reserves the right to change requirements for any major during any particular year. The student assumes full responsibility for compliance with all academic requirements.*

The graduation requirements for any individual student are determined either by the catalog that was effective when the student matriculated in the major or the catalog effective for the academic year when the student graduates. If a required course within a program changes its number of credits, then the number of credits required by the program for graduation may, at the discretion of the college/school, change by the same amount provided the minimum total number of credits for graduation is 120 and the cumulative GPA is at least 2.0. In case of substantial changes in course offerings, equivalent graduation requirements are determined by the dean.

## Major Requirements

Each student in a degree program must complete at least 36 credits in the major and related courses. A grade of C- or better is required for each major, major-related and university requirement. All courses in which a grade lower than C- was earned will have to be repeated, except for free electives. Some major requirements may count toward fulfilling general education requirements. A minimum GPA of 2.0 in major required courses is required for graduation.

Specific grade requirements are listed under individual degree programs.

## Declaration of Major

Normally, students declare their academic major by applying to a particular college/school and to a major program within that college/school for admission. If a student is

admitted with an undeclared major, he/she must formally choose and declare a major by the end of his/her second year (sophomore year) in order to continue as an AUS student.

### Double Majors

Students may select to enroll in two separate majors. To complete a double major, students must satisfy all the degree requirements of the two majors requested. Some courses may be counted toward the fulfillment of both degrees' requirements. The student's diploma and transcript will indicate all majors completed at the time of graduation.

To declare a double major, a student must complete a form and submit it to the Office of the Registrar identifying the two majors. One of the two majors may subsequently be cancelled using the same form. The catalog in effect for the student's primary major will be followed for the degree audit of the second major. One of the two majors must be designated as the primary major, but the student's rights and responsibilities are the same in both majors. The advisor of the primary major will serve as the student's registration advisor. Degree programs and audits are confirmed for each major by the appropriate department or college/school and the Office of the Registrar.

### Concentrations

Some majors allow students one or more concentration areas of study. This option allows students a more in-depth knowledge of a subject area. Please refer to the appropriate major sections for relevant concentration requirements.

### Minors

For those programs offering a minor, the specific course requirements constituting a minor are listed under the departmental programs in this catalog. Most minor programs consist of a minimum of 18 credits including at least 50 percent of the credits in courses at or above the 300 level in the

discipline of the approved minor. Fifty percent of all credits required for the minor must be completed in residence at AUS. Students must meet the prerequisite requirements for courses required for the minor. Free electives may be taken toward the minor.

### Declaration of Minor

To declare a minor, a student should select a minor from the approved minor offerings listed on the following page and complete the minor declaration form, available from the Office of the Registrar, in consultation with the department offering the minor. To declare a minor, students must be in good academic standing. The catalog in effect for the student's major will be followed for the audit of the minor. If the minor is not listed in the student's designated catalog, then the first catalog in which the minor is listed will be applied.

Minors are noted on the student's permanent record (transcript) at the time of graduation. They do not appear on the degree certificate. Graduation requirements for both the major and the minor must be completed at the same time. A student cannot declare a major and a minor in the same program. A student may drop a minor prior to graduation by submitting the appropriate form to the Office of the Registrar. A grade of C- or better is required for each course used to satisfy the requirements of the minor. The minimum GPA for minor courses is 2.0. Of the total credits required for a minor, a maximum of 50 percent of the credits may be completed in residence at another institution.

### Additional Minors

To complete an additional minor, students must satisfy all the requirements of the two minors requested. The catalog in effect for the student's major will be followed for the audit of the minors or the one in which the minor first appears. The student's transcript will designate all minors completed at the time of graduation.

To declare an additional minor, a student must complete a form and submit it to the Office of the Registrar no later than registration period of the last expected term of study. Degree programs and audits must be approved for each minor by the appropriate department or college/school and the Office of the Registrar.

### Minor Offerings

Listed below are the minors offered by the university. Detailed information about the various minors is given in the catalog section of the department offering the major. Refer to the index in this catalog to locate the appropriate department.

#### **College of Arts and Sciences**

- Minor in American Studies
- Minor in Applied and Computational Mathematics
- Minor in Arabic Language and Literature
- Minor in Biology
- Minor in Education
- Minor in English/Arabic Translation and Interpreting
- Minor in English Language
- Minor in English Literature
- Minor in Environmental Policy
- Minor in Environmental Sciences
- Minor in Governmental Studies
- Minor in International Studies
- Minor in Mass Communication
- Minor in Philosophy
- Minor in Physics
- Minor in Psychology
- Minor in Women's Studies

#### **School of Architecture and Design**

- Minor in Architectural Studies
- Minor in Design Management
- Minor in Interior Design
- Minor in Urban Design

#### **School of Business and Management**

- Minor in Accounting
- Minor in Economics
- Minor in Finance
- Minor in Management
- Minor in Management Information Systems
- Minor in Marketing
- Minor in Public Administration

### School of Engineering

- Minor in Biomedical Engineering
- Minor in Computer Engineering
- Minor in Computer Science
- Minor in Electrical Engineering
- Minor in Engineering Management
- Minor in Mechanical Engineering
- Minor in Software Engineering and Security

### General Education Requirements

The university general education requirements (GER) are derived from the AUS mission statement. Liberal studies and professional education are integrated to give students both breath and specialization in their academic programs. The general education program is designed to inspire and invigorate the intellectual and creative potential of students and to encourage them to conceptualize, reflect and act.

Every student must successfully complete a minimum of 42 credits of the following general education requirements with a minimum grade of C- to graduate:

- Arabic heritage requirement (3 credits)
- English language competency requirement (12 credits)
- Mathematics and/or statistics requirement (6 credits)
- Information literacy requirement (0 credits)
- Computer literacy requirement (0 credits)
- Science requirement (6 credits)
- Humanities and social sciences requirement (15 credits)

Some general education courses may count toward the fulfillment of major requirements. In this case, the particular course cannot be counted as double credit for the fulfillment of the total credits required toward completing the degree requirements. Furthermore, a general education course cannot be counted twice in fulfilling the general education requirements.

Students who transfer to the American University of Sharjah may satisfy parts or all of the GER by transferring credits toward the GER.

### Arabic Heritage Requirement

The Arabic heritage requirement

is designed to further students' understanding of the importance and relevance of the Arab culture and civilization in its historical development. Readings draw on Arabic texts from various literary genres and cultural topics.

All students must satisfy the Arabic heritage requirement by passing one of the following courses:

- ARA 101, ARA 201, ARA 206, ARA 207, ARA 302, ARA 304, ARA 310, ARA 312, ARA 401, ARA 405, CSC 303, CSC 402, THM 301 and THM 302
- Any other Arabic literature course with the approval of the Dean of the College of Arts and Sciences prior to registering for the course

### English Language Competency Requirement

All students must be able to write with a level of mastery equal to the demands of university course work. In addition, students need to acquire the critical reading and comprehension skills necessary for all their courses.

All matriculating students must take the English Placement Test to determine which WRI (writing) course they are to be placed into (001, 101 or 102). WRI 101 Academic Writing and WRI 102 Writing and Reading across the Curriculum should be completed in the first year (freshman) or before completion of 30 credits. Students are strongly advised to complete their 12 credits in ENG/WRI courses by the end of their second year (sophomore) or before the completion of 60 credits. The specific courses needed for each program are established by the college/school housing that program.

A student who receives an exemption from one or two of the required writing courses, based on their results in the English Placement Test, will be able to take any English (ENG) courses (XXX 200 and higher) to accumulate the credits required for completing the degree requirements. MCM 209 Dramatic Expression meets English language competency requirements.

### Mathematics and/or Statistics Requirement

All students must have mastery of quantitative reasoning and university-

level mathematical skills. Students are urged to satisfy this requirement by the end of the second year (sophomore). Students may satisfy the mathematics and statistics requirement by passing any two mathematics courses or one mathematics and one statistics courses. The specific courses needed for each program are established by the college/school housing that program.

### Information Literacy Requirement

Information literacy refers to a set of critical research skills that enable students to identify, locate, retrieve and evaluate information resources in a variety of formats. Information literacy competencies are gained through WRI 102, ENG 203 and ENG 204.

### Computer Literacy Requirement

All AUS students must be computer literate. Although computer skills are taught within the context of many courses, students may be required to take additional specific computer courses depending on the requirements of their degree program. Courses satisfying the computer literacy requirement include BIS 101, DES 100, MCM 100, MTH 103, MTH 104, MTH 111, MTH 203, MTH 341, STA 101, STA 201 and STA 202.

### Science Requirement

All AUS students must have university-level knowledge of scientific reasoning and the experimental sciences. Students may satisfy the science requirement by passing any two courses from the disciplines of biology (BIO), chemistry (CHM), environmental sciences (ENV) and physics (PHY). The specific courses needed for each program are established by the college/school housing that program.

### Humanities and Social Sciences Requirement

Participation in the global community and the global economy requires understanding of various cultures. Therefore, AUS students need to become thoroughly grounded in the humanities and social sciences to compete successfully in the global market. Students must satisfy the humanities (H) and social sciences (SS) requirement by completing at

least 15 credits of which at least six credits must be in the humanities and at least six credits must be in the social sciences.

### Humanities (H)

- American studies (AMS)
- Arabic literature (ARA)
- Cultural studies (CSC)
- Education (EDU)
- English language and/or literature (ENG)
- History (HIS)
- Music (MUS)
- Philosophy (PHI)
- Theme courses (THM)
- Women's studies (WST)

### Social Sciences (SS)

- American studies (AMS)
- Economics (ECO)
- Education (EDU)
- Geography (GEO)
- International studies (INS)
- Political science (POL)
- Psychology (PSY)
- Sociology (SOC)
- Theme courses (THM)
- Women's studies (WST)

In addition, the following specific courses may be counted as humanities: DES 121, DES 122, DES 231, ENG/MCM 320, HRM 201, HRM 202 and MCM 102. The following courses may be counted as either humanities or social sciences: MCM 155 and MCM 156.

### Free Electives

To satisfy the free electives requirement, a minimum of six credits of free electives must be completed. A grade of D or higher is required to obtain credit for a course that has been taken to satisfy the free electives requirement. Some schools may restrict the choice of free electives. Preparatory courses (i.e., intensive English courses, preparatory 00X courses) may not be used to fulfill free electives requirement.

### Internships

Internship offerings and requirements are listed under the various program

requirements. All internships have varying registration fees, credits and grading systems.

## Academic Regulations

Academic advising is an essential element of the educational process. The American University of Sharjah requires advisor-student conferences at least once per semester. Students are assigned academic advisors who help them in selecting their courses of study and in planning their schedules. Their advisors also approve their schedules each semester. However, students are responsible for selecting their courses, meeting course prerequisites and adhering to university policies and procedures. The advisor assists the student in obtaining a well-balanced education and in interpreting university policies and procedures. Students may also consult faculty members, department or program chairs, program coordinators and deans.

### Student Responsibility

Students are responsible for their behavior, academic or otherwise, at the American University of Sharjah. The university expects that students, as mature members of the academic community, will adhere to the highest standards of personal and academic integrity and propriety. Students are expected to adhere to the laws of Sharjah and the UAE. Failure to do so may result in the immediate dismissal of the student.

All official university communications are distributed through the AUS-issued e-mail address. These are considered official notifications. Students are responsible for checking their AUS e-mail accounts and for responding to or acting upon messages accordingly.

Students should keep their own records of all transactions with the university (e.g., registration schedules and forms, grade reports, payment records, etc.). It is also advisable to keep copies of all tests, digital files, papers and so forth submitted in fulfillment of course work.

## Courses and Class Schedules

Every course in each discipline or field of study offered by the university is represented by a three-letter prefix followed by a number indicating the level of the course content. Below is an example:

*BIO 230 Ecosystems Management (3-0-3)*

In this example, BIO is the course prefix (which represents biology) and 230 is the course number. This particular course is a second-level course in biology (denoted by the 200 level). This course is more advanced than 100-level introductory courses such as BIO 103 Introduction to Life Sciences. The numbers in parentheses following the title of a course indicate the contact hours and course credit information.

Below is another example:

*PHY 101 General Physics I (3-3-4)*

In this example, the first digit in parentheses refers to the number of class contact hours per week the course requires (three contact hours), the second digit denotes the number of laboratory or practice hours required weekly (here also three hours), and the third digit refers to the number of credits the student will receive upon successfully completing the course (four credits). The biology course above (BIO 230) has three contact hours per week, no lab or practice hours, and the student who successfully completes the course receives three credits.

Courses are offered at the discretion of the department. Students should check with the respective academic departments for information on when courses will be offered.

Certain courses also have prerequisites, co-requisites, prerequisites/concurrent and/or other criteria that are noted immediately following the course description listed in this catalog.

### Course Value

All courses are valued in credits. Normally, each credit represents 50 minutes of class instruction per week each semester, 120 to 180 minutes of laboratory experience per week each semester, or one or two 50-minute

recitation sessions per week each semester. A semester is 16 weeks.

## Class Periods

Except for laboratory, workshop and specialized design and studio courses, classes ordinarily meet three days per week in 50-minute sessions or two days per week in 75-minute sessions. The university operates on a five-day schedule from Sunday through Thursday. University administration offices are closed for the weekend on Friday and Saturday.

Independent reading or research courses, study projects, internships, practicums and similar kinds of study opportunities meet according to the special arrangements of the college/school, department or faculty members concerned.

## Course Descriptions and Syllabi

Descriptions of courses currently in the university curricula are listed by course subject and code by college/school in another section of this catalog and on the university website. Non-recurring topics courses are published on the website each semester in the schedule of classes. Course syllabi are available from the individual course instructor, department or program offices. They include course goals and objectives, content and topics, instructional material and resources, the method of evaluation, the meeting time and place, credit hours and prerequisites.

## Course Prerequisites

Many courses above the introductory level require a minimum background of knowledge, as indicated by prerequisite courses cited in individual course descriptions. Titles and numbers are those of the American University of Sharjah courses. Equivalent courses satisfactorily completed at other institutions may also meet prerequisite requirements by transfer credit. Students should consult the chair of the appropriate department for more information. In general, courses should be taken in an order

of increasing difficulty. Credit may not be awarded for an introductory course after a more advanced course in that subject has been successfully completed. Students are responsible for having the required competence when entering a class. Courses for which a grade below C- was received do not satisfy prerequisite requirements.

## Cumulative Grade Point Average

In order to be considered in good standing, a student must maintain a cumulative grade point average (CGPA) of at least 2.0 out of 4.0. A student must be in good standing to be eligible for graduation.

## Grading System

The grade point average (GPA) is based on a four-point scale. The following grading system is used at the American University of Sharjah:

<b>Excellent</b>	
A	equals 4.00 grade points
A-	equals 3.70 grade points
<b>Good</b>	
B+	equals 3.30 grade points
B	equals 3.00 grade points
B-	equals 2.70 grade points
<b>Satisfactory</b>	
C+	equals 2.30 grade points
C	equals 2.00 grade points
C-	equals 1.70 grade points
<b>Poor</b>	
D	equals 1.00 grade points
<b>Fail</b>	
F	equals 0.00 grade points
<b>Withdrawal Fail</b>	
WF	equals 0.00 grade points

Grades not calculated in the grade point average are:

I	Incomplete
IP	In Progress
AUD	Audit
WV	Waive; no credit
TR	Transfer; credit counted
W	Withdrawal
N	No Grade
P	Pass; credit counted
AW	Non-Academic Administrative Withdrawal

The quality points earned in a course are calculated by multiplying the grade point value of the letter grade by the number of credits the course is worth. The grade point average is calculated by dividing the sum of the quality points of the courses taken by their total credits. The grades obtained in non-credit courses are not included in the computation of a grade point average. Effective June 2004, only the last grade of the repeated course is counted in the calculation of the cumulative GPA. Credits for repeated courses are only counted once.

## Student Academic Load

A student admitted to and enrolled in a degree program usually registers for 15 to 19 credits each semester. The required minimum load for all students is 12 credits per semester, and the maximum load is 19 credits per semester. Under special circumstances, a student with a cumulative GPA of 3.25 or higher may secure the permission of his/her dean to register for up to 21 credits in any one semester. All credits exceeding 16 credits will require a supplemental fee. A student can register for up to seven credits (two courses) in the summer session.

The minimum graduation requirements for a bachelor's degree vary from 120 to 172 credits depending on the program of study. Proposed study plans are provided in this catalog for each program. The degree programs

have been designed to be completed in four years, except for architecture, which is a five-year program. However, some students may require additional time.

### Freshman Academic Load

Freshmen are restricted to five courses to allow time for their adjustment to the learning environment of AUS. Exceptions must be approved by the dean. Freshman students enrolled in two or more preparatory courses (e.g., MTH 001, WRI 001, etc.) may register for up to 13 credits.

### Residence Requirements

Candidates for the bachelor's degree are expected to complete their last year in residence at the university unless registered in an AUS recognized Study Abroad program. Transfer students must complete at least 50 percent of the required credits for a degree in residence at AUS. A minimum of 36 credits of 300- and/or 400-level course work must be successfully completed in residence at AUS to obtain a bachelor's degree.

### Categories of Students

#### **Full-Time Students**

To be considered on full-time status, a student must carry a minimum course load of 12 credits per semester, with the normal load being 15.

Under special circumstances, students may be allowed to drop below 12 credits.

#### **Part-Time Students**

Enrollment as a part-time student is restricted to the following:

- American University of Sharjah staff members who are pursuing a degree (approval of the employee's director or Vice Chancellor is required)
- Those who need fewer than 12 credits to complete an undergraduate degree (approval of the academic advisor is required)
- Those who are enrolled as auditing, non-degree or visiting students

### **Transient Students**

Transient student status covers those who have obtained their undergraduate or graduate degrees from AUS and come back to take extra course(s), those who hold degrees from universities other than AUS who want to take course(s) not toward a degree, and AUS faculty/staff and spouses of faculty/staff who want to take course(s) for reasons other than seeking a degree. One can be a transient student for not more than one academic year. Transient Student Applications are available from the Office of the Registrar and on the university website.

### Time Limit on Duration of Study

Regardless of the catalog by which the student's academic career is governed, all degree requirements must be completed within eight years of admission to AUS as an undergraduate student, inclusive of any leave. A student in good academic standing is allowed no more than one semester of leave. A student who is out for two consecutive semesters must submit a new application for admission to the Office of Admissions.

### University Guidelines for Lateness and Attendance

Attendance and participation in all class, studio, workshop and laboratory sessions are essential to the process of education at the American University of Sharjah. Students benefit from the lectures and discussions with their instructors and fellow students. For this reason, students are expected to attend class regularly. Lateness or absence hinders progress for the individual and the class and affects the student's grade.

University guidelines for lateness and attendance are as follows:

- Any absence may affect the student's grade.
- Instructors need not give substitute assignments or examinations to students who miss classes.
- Three occasions of lateness count as one absence. Lateness is defined by the individual instructor.

- Faculty members may automatically assign students a grade of F for excessive absence or no show. In the event a student misses 15 percent of the sessions in a class for any reason, the instructor may initiate withdrawal of the student from the course. Instructors are to keep attendance records and to draw students' attention to attendance requirements noted in the course syllabus. The specific application of the attendance guidelines is at the instructor's discretion.

### Examinations

Final and common examination schedules are published by the Office of the Registrar in advance of examination week. If a student is scheduled for more than two examinations in one day, or has a time conflict with common examinations, then the student must report to his/her associate dean by the end of week 11 to make the necessary adjustments to his/her schedule.

### Incomplete Grades and Make-Up Examinations

The work for a course must be completed by the end of the final exam day for that course. No incomplete grade (I) is given as a final grade in any course unless there is a compelling medical or other such emergency certified in writing by a medical or other professional. In the case of unexcused incomplete work, an F grade is given for the missing work with the course grade computed accordingly. Only in exceptional cases (such as the emergencies noted above), with written approval of the instructor, chair and the dean, is a student allowed to make up incomplete work. All incomplete work must be submitted before the end of the second full week of classes of the next regular semester. An I grade pending beyond this time limit will revert into an F grade.

It is the responsibility of the student to find out from his/her professor the specific dates by which requirements must be fulfilled. The deadline for the instructor to submit incomplete grades for a course is within 72 hours after the make-up period exam day.

## **Placement on Academic Probation**

All students are placed on academic probation at the end of a semester in which the cumulative GPA falls below C (2.0 CGPA).

A full-time student on probation for the first time is allowed to carry a load of five courses with a maximum of 16 credits. A full-time student who is on a second consecutive probation may only register for four courses with a maximum of 13 credits. Thereafter, a student must be in good academic standing (CGPA of 2.0) to continue at AUS.

Students in the Intensive English Program (IEP) will be placed on academic probation at the end of any semester in which their grade point average is below 2.0. IEP students on probation will have one semester in which to achieve a GPA (non-cumulative) of 2.0 or higher. If they do so in the subsequent semester, they will be removed from academic probation. Failure to do so will result in dismissal from the program.

## **Removal of Probation and Dismissal**

Probation will be removed at the end of any semester in which the student attains a cumulative GPA of 2.0. Students on probation are advised to repeat courses in which they have obtained failing grades.

A student who fails to remove his/her probation by the end of the second semester on probation is academically dismissed and will not be allowed to continue as a student at AUS. Actions involving academic probation and dismissal are entered on the student's permanent record.

## **Reinstatement**

Any student who leaves AUS in good academic standing for one semester must submit a written request for reinstatement to the Office of the Registrar. Courses taken at another institution during this interim period may not be transferable. Any student who leaves AUS for two or more

consecutive semesters must submit a new application for admission to the Office of Admissions.

## **Repeating Courses**

A student may repeat any course, pending seat availability, up to two times without the approval of the student's academic dean. Students are allowed to repeat a preparatory course up to Sophomore I standing (less than 45 credits). Effective June 2004, only the last grade of the repeated course is counted in the calculation of the cumulative GPA.

## **Study Abroad**

AUS offers students the opportunity to study abroad at other institutions and gain full AUS course credit. To study abroad, a student must have a cumulative GPA of 2.5 and have completed at least 59 credits (junior standing) of undergraduate courses in residence at AUS. Interested students must submit an AUS Study Abroad Program form available from the Office of the Registrar. Please visit the AUS website for more information.

## **Student Petitions and Appeals**

### **Petitions**

Students may petition for exceptions to academic policies of the university. Petitions are processed through the Office of the Registrar, and may require action by the Office of Undergraduate Programs.

### **Appeal of a Grade**

Students are entitled to objective, professional evaluation of their academic work and to fair, equitable treatment in the course of their academic relationships with members of the faculty. These criteria are observed by the members of the AUS faculty as a part of their professional responsibilities.

Students who believe they have a

legitimate grievance may pursue the matter by consulting with the professor, department chair, and associate dean and/or dean of the college/school in which the course is offered. Each college/school may have its own internal method of dealing with these matters. Grade appeal requests to the college/school must be submitted no later than five working days after the last day of final examinations week.

After having exhausted these means to resolve the matter and having found the grievance still not reconciled, the student may file a petition with the Office of Undergraduate Programs, setting forth a full, fair account of the incident or circumstances giving rise to the grievance. The student must clearly state the basis upon which the petition is submitted. Grade appeal requests to the Office of Undergraduate Programs must be submitted no later than the end of the first day of orientation week of the following semester.

## **Appeal of Other Academic-Related Issues**

In the event that a student wishes to discuss an issue pertaining to a course, instructor or other academic-related issues, the student may direct his/her concern to the chair of the department and/or dean of the college/school.

If, in the judgment of the dean of the college/school, the grievance is of such gravity or its resolution would have such impact on the welfare of students generally or on the conduct of professional responsibilities in the university as to require even more formal safeguards for the aggrieved student and faculty member involved, the Dean of Undergraduate Programs shall refer the matter to the Academic Appeals Committee or prescribe an appropriate procedure consonant with the university's mission. Academic appeals requests to the Office of Undergraduate Programs must be submitted no later than the end of the first day of orientation week of the following semester.

## Student Academic Integrity Code

Academic integrity lies at the heart of intellectual life. As members of a diverse community committed to the advancement of knowledge, AUS affirms the importance of respecting the integrity of individual work. The Student Academic Integrity Code for the American University of Sharjah describes standards for academic conduct, students' rights and responsibilities as members of an academic community and procedures for handling allegations of academic dishonesty. As an institution of higher learning, the American University of Sharjah views academic integrity as an educational as well as a judicial issue.

*The first obligation of a student is to pursue conscientiously the academic objectives that he/she has chosen. Accordingly, each student is required to conform to the regulations of the university, of the college/school in which he/she has enrolled and of the classes in which he/she is registered. It is further expected that all examinations, tests, papers and other assignments will be completed according to the standards set forth in this code.*

By registering as a student at the American University of Sharjah, all students acknowledge their awareness of the academic integrity code and university registration policies and procedures. At the beginning of the academic year, students will be asked to sign a statement agreeing to abide by the academic integrity code.

Students are responsible for becoming familiar with their rights and responsibilities as defined by the academic integrity code and for understanding the requirements for their particular courses (regarding such issues as collaborative work, use of study aids or take-home examinations). Students are also responsible for learning the conventions of documentation and acknowledgment of sources required in academic discourse.

## Definition of Academic Violations

Members of the academic community are expected to conduct themselves with integrity as a matter of course. Certain violations of ethical conduct relate specifically to academic integrity. Academic violations include, but are not limited to, the following:

### Plagiarism

To plagiarize is to use the work, ideas, images or words of someone else without attribution. Plagiarism may involve using someone else's wording—a distinctive name, a phrase, a sentence or an entire passage or essay—without using quotation marks. It may also involve misrepresenting the sources that were used. The issue of plagiarism applies to all student assignments.

### Inappropriate Collaboration

Close collaboration on academic work requires acknowledgment. Inappropriate collaboration involves working with someone else in developing, organizing or revising a project (such as a paper, an oral presentation, a research or design project or a take-home examination) without acknowledging that person's help. The use of unauthorized assistance must be avoided in the production of all academic work. Specific policies regarding collaborative work, peer review, the use of tutors and editing may vary among individual professors.

### Inappropriate Proxy

Students must attend their own classes and be present for all examinations. Those impersonated and impersonators will be suspended or dismissed from the university.

### Dishonesty in Examinations and Submitted Work

All academic work and materials submitted for assessment must be the sole original work of the student, unless otherwise directed by the instructor. Communication is not allowed between or among students, nor are students allowed to consult books, papers, study aids or notes

without explicit permission. Cheating includes, but is not limited to, copying from another's paper, giving unauthorized assistance, obtaining unauthorized advance knowledge of examination questions, and the use of mechanical or marking devices or procedures for the purpose of achieving false scores on machine-graded examinations. Specific policies regarding examinations may vary with individual professors. Students are prohibited from submitting any material prepared by or purchased from another person or company.

### Work Completed for One Course and Submitted to Another

Students may not present the same work for more than one course. Under exceptional circumstances, faculty members may permit a significant piece of research to satisfy requirements in two courses. However, both professors must agree in advance to this arrangement. Students are reminded that when incorporating their own past research in current projects, they need to reference such previous work.

### Deliberate Falsification of Data

Students may not deliberately falsify data or distort supporting documentation for course work or other academic activity.

### Interference with Other Students' Work

Students may not intentionally interfere with the work of others, such as sabotaging laboratory experiments, research or digital files, or by giving misleading information or disrupting class work.

### Copyright Violations

Copyright laws must be observed. These laws govern practices such as making use of printed materials, duplicating computer software, duplicating images, photoduplicating copyrighted materials and reproducing audio-visual works. The academic integrity code prohibits theft and the unauthorized use of documents and requires adherence to the laws of Sharjah and the federal laws of the UAE.

## Complicity in Academic Dishonesty

Complicity in academic dishonesty consists of helping or attempting to help another person commit an act of academic dishonesty or willfully assisting another student in the violation of the academic code of integrity.

Complicity in academic dishonesty is pre-meditated and intentional. This can include, but is not limited to, (1) doing work for another student; (2) designing or producing a project for another student; (3) willfully providing answers during an exam, test or quiz; (4) calling a student on a mobile phone while taking an exam and providing information; (5) providing a student with an advance copy of a test; (6) leaving inappropriate materials behind at the site of an exam or test; or (7) altering outcome results.

## Adjudication of Academic Offenses

### Jurisdiction

Academic cases resulting from alleged violations of the university's academic integrity code are within the jurisdiction of either a faculty member or the dean of a college/school.

All charges are brought through the university faculty. Faculty members or students wishing to bring charges should do so through the faculty member in whose course or academic activity the alleged code violation occurred. In the case of students bringing charges against other students, the student bringing the charge must identify himself/herself to the faculty member.

### The Adjudication Process

One of two procedures may be followed in the adjudication process. The first grants authority to the faculty member to exercise discretion in those cases involving a student's judgmental error rather than willful dishonesty. The second grants jurisdiction to the dean of the college/school in which the alleged violation has occurred.

### 1. Faculty Authority

If a faculty member is convinced that an alleged offense has resulted from an error in judgment on the student's part rather than from purposeful dishonesty, the faculty member may decide to use the occasion for instructing the student on acceptable standards for academic work. In such cases, the faculty member may, for example, require the student to rewrite or correct the original assignment or to submit a substitute assignment.

When faculty jurisdiction is exercised in the case of an unintentional violation of the Student Academic Integrity Code, the faculty member shall send written notification of the event to the dean (or appointed designee) of the college/school in which the offense has occurred. That dean will then notify the student's dean, if the student is enrolled in another college/school, that the offense has occurred. Through this process, the university can monitor multiple occurrences of such errors of judgment by particular students.

### 2. Administrative Jurisdiction

In all other circumstances, the following procedures will be observed:

- Faculty members reporting an allegation of dishonesty must do so within 10 working days of the date of discovery of the alleged offense. The report should be supported by such documentation as is appropriate and delivered to the dean (or appointed designee).
- The dean (or appointed designee) will promptly notify the student of the charge and will arrange to discuss the charge with the student at a preliminary meeting. The dean (or appointed designee) will also notify the chair of the department or unit in which the offense occurred and the student's dean (if the student is a member of another college/school) that an allegation has been made.
- At the preliminary meeting, the student will be presented with the charge and the evidence submitted by the faculty member. He/she will be advised of the procedures, including his/her rights, and given the opportunity to respond. The student may respond immediately or respond in writing within five days. The signed document will become additional evidence in the case. If the student fails to attend this preliminary meeting, the dean may proceed with the process as appropriate.

- Faculty members, at their discretion, may discuss the alleged case of dishonesty with the student before the case is adjudicated. However, faculty members are not to submit grades for the work in question or for the course until the case has been adjudicated. If the semester grades are due before the adjudication process is complete, a temporary grade of N will be assigned.
- When appropriate, the dean (or appointed designee) will gather additional evidence from the student, the complainant and other concerned parties before the adjudication process.
- After reviewing the charges and the evidence, the dean (or appointed designee) may dismiss the case or refer the case to the faculty member bringing the charge. For cases not dismissed or referred, the dean may assign a penalty. The dean may request a meeting with the student at any time.

### Other Adjudication Issues

While the assignment of penalties is the province of the dean of the college/school, the faculty member making the charge may recommend a grading penalty or other sanctions.

If the student fails to attend a scheduled meeting regarding such changes, the date of which will be made known in advance to him/her, the college/school may hear the case in the student's absence or move for a continuance.

Legal counsel is not permitted at any point during the adjudication process. The standard of proof for any instance of academic dishonesty will be clear and convincing evidence.

### Penalties

Students are advised that violations of the Student Academic Integrity Code will be treated seriously, with special attention given to repeat offenders. A notation of the academic integrity code violation will be entered on the student's permanent record.

- In assigning a penalty, the dean will take into account both the seriousness of the offense and any particular circumstances involved.
- After a second determination of guilt is established through formal review, a student may be suspended or dismissed.

3. Penalties for an academic offense may include one or more of the following:
  - a. Resubmission of the work in question.
  - b. Submission of additional work for the course in which the offense occurred.
  - c. A lowered grade or loss of credit for the work found to be in violation of the integrity code.
  - d. A failing grade of F or WF or denial of credit for the course in which the offense occurred.
  - e. Suspension for one or more academic terms, including the term in which the offense occurred.
  - f. Dismissal (for a specified term or permanently) from the university.
4. Penalties (a)–(c) are levied by the dean hearing the case only with the concurrence of the faculty member bringing the charge. Penalties (d)–(f) are levied by the dean hearing the case only with the concurrence of the student's dean. If consensus cannot be reached, the Vice Chancellor for Academic Affairs or his/her representative will adjudicate.
5. If the penalty levied is (e) or (f), the dean of the college/school to which the student belongs will take the appropriate academic action. Disciplinary actions (d)–(f) will become a permanent part of the student's academic record, with appropriate notation indicating that there has been a violation of the Student Academic Integrity Code.
6. The student may not withdraw from a course in which an infraction has been found and a penalty applied. No refund or cancellation of tuition fees will be permitted in such cases.

### Notifications and Appeals

The dean (or appointed designee) will notify the student in writing of the findings and, as appropriate, the assigned penalty. The faculty member bringing the charge will also be notified in writing of these results, as will the chair of the department in which the case occurred and the student's dean if the student is enrolled in another college/school.

In cases concerning notation to the permanent record [penalties (d)–(f) in item 3 above], students will be notified in writing of their right of appeal. Appeals must be made

in writing within five days of the date of notice. Appeals are limited to grounds of excessive sanction, improper procedure and unavailability of relevant evidence at the time of the original administrative or code of conduct review panel meeting. Appeals will be reviewed by the Vice Chancellor for Academic Affairs or designee, who may consult the case's written record, the appeal request and any person involved in the adjudication process. Following the review, the Vice Chancellor for Academic Affairs may deny the appeal or may lower the sanction or remand the matter to the appropriate dean in the event of improper procedure or new evidence.

### Suspension and Dismissal

The decision as to whether suspension or dismissal is appropriate in a given instance will necessarily depend on the circumstances of each case and usually on the total academic record of the student involved.

Suspension is effective for not less than the term in which the sanction is taken or for not more than one calendar year. The length of a suspension is to be specified precisely at the time the action is taken. A student who is suspended is ordinarily entitled to resume studies in the same college/school at the conclusion of the period of suspension, provided he/she has satisfied all requirements imposed by the dean when the original action was implemented.

Dismissal is a penalty invoked

in cases of serious infractions of rules and regulations and when circumstances indicate that a student's association with the university should be terminated in the interests of maintaining the standards of behavior and conduct normally expected in a university community. A student who has been dismissed but who has not been denied the privilege of returning to the university later may apply for readmission after the expiration of one calendar year. Action will be taken on the application after a total re-evaluation of the record and in accordance with the admission and readmission practices in effect at the time of application. A readmitted student is governed by the academic requirements in effect at the time of readmission. The calendar year that must elapse before an application for readmission may be considered is interpreted as beginning on the final day of the term during which the disciplinary action was taken.

### Records of Disciplinary Actions

All records pertaining to student infringement of the code will be maintained for a period of five years after the student's last registration at the American University of Sharjah. In the event that the penalties become part of the student's permanent record, the record will be maintained indefinitely. These records are subject to university regulations concerning the confidentiality of student records. Upon written request, students have the right to inspect their records of violations of the code.



## INTENSIVE ENGLISH PROGRAM (IEP)

### Interim Director

Deborah Wilson

### Faculty

Jennifah Abu-Hassan

Aftab Ahmed

Diala Awwad

Raja Bahloul

Halina Campa

Edward Carlstedt

David Colbert

John Connell

Tina Joyce Driscoll

Leslie Giesen

Milton Gilbertson (on leave Spring 2007)

Sharon Gilbertson (on leave Spring 2007)

Richard McClane

Laurial Mehdi

Anne Marie Papadakis

Jane Pringle

Olivia Riordan

Scott Rousseu

Thomas Schmitt

Pelly Shaw

Brian Skelton

Mark Stevens

Angela Waigand

Amanda Ward

Krystie Wills

*Note: All AUS policies apply to IEP students except for differences as noted in this section. IEP students are strongly encouraged to become familiar with the Academic Rules and Regulations section of this catalog.*

### Mission Statement

Since English is the medium of instruction at the American University of Sharjah, competence in English is a prerequisite for student success. The mission of the Intensive English Program (IEP) is to increase student language proficiency to a level suitable for study in courses taught in English and to enhance their academic skills to function successfully in their first-year course work.

### Admission and Placement

Students who have an International TOEFL (Test of English as a Foreign

Language) score below 190 on the Computer-Based TOEFL (CBT), 68 on the Internet-Based TOEFL (iBT), or 520 on the Institutional Paper-Based TOEFL given at AUS and who otherwise qualify for admission to AUS are eligible to take the IEP placement test. Students who meet the minimum required IEP placement test score can enroll in the IEP. Assignment to one of the five proficiency levels of the program is based on the IEP placement test.

Students who have no TOEFL score must also take the IEP placement test.

*Note: IEP students may not take any AUS courses outside of the IEP.*

### Progressing through the Program

Students must have a semester GPA of 2.0 (C) or better to be promoted to a higher level in the IEP. Students with a GPA below 2.0 in any semester in the IEP may be required to repeat that level. A student who has a GPA of 2.0 or higher but receives a grade of D or F in any course may be required to repeat that course at that same level while being promoted to a higher level in all other courses.

Additionally, for promotion to the next level, students must also achieve certain scores on the Written English Test (WET) administered each semester to all students in the IEP. Teacher recommendations are also considered in promotion decisions.

### Repeating Courses

Students may not choose to repeat courses in the IEP. Students repeat courses only when required to do so by the IEP.

### Exit from the IEP

Students study English in the IEP until they achieve the TOEFL score required at the time of their admission to matriculate into their chosen major. Students may study in the IEP for a maximum of four semesters (not including the summer session). Students who have not matriculated after four semesters will be dismissed from the IEP.

If the TOEFL score required for

admittance to AUS is raised before an IEP student matriculates, the student will be allowed for the first academic year (two regular semesters) after the new higher score is required to matriculate at the lower score required at the time he/she enrolled in the IEP. This applies only to IEP students who are continuously enrolled in the IEP for the two semesters. If a student has not matriculated on the old score within one year following the adoption of a new TOEFL score, the student will be required to meet the TOEFL requirement in place at the time of matriculation.

### Academic Credit

Each level of study in the IEP carries three academic credits. The credits earned are not part of a student's degree requirements. Only the grades of the last two semesters of IEP count toward a student's cumulative grade point average. IEP credits are not transferable.

### Program Structure

The IEP consists of five levels that are sequenced in terms of language proficiency. The aim of instruction is to improve the English language skills of each student in the areas of reading, writing, listening and speaking, and in the use of grammar and vocabulary. Instruction is also tailored to meet students' individual academic learning needs. The levels are detailed in the IEP program organization table below.

IEP Program Organization				
Level	Class Time	Self-Access	Total Time	University Credit
BSC	20	5	25	0
001	20	5	25	0
002	20	5	25	0
003	20	5	25	0
004	20	5	25	0
005	25	0	25	0

### Pedagogical Format

The focus of instruction at the lower levels is on general English. As language proficiency increases, IEP courses become more academic in nature. By the advanced level, course work begins to simulate credit-bearing undergraduate courses. Courses in reading and writing are given at all levels of the program.

**Reading**

The goals of the reading skills component are twofold: to improve reading comprehension and to increase reading speed. These goals are met through the extended practice of a variety of reading skills within a diverse range of text forms and genres. Students also gain an understanding of, and an appreciation for, the importance of reading both inside and outside the academic setting.

**Writing**

The writing component leads students through the various steps of the writing process, from generating and organizing ideas to writing, editing and revising written work. Students develop a range of skills necessary to produce academic texts, from basic sentences to university papers. The emphasis of instruction is placed on developing fluency, grammatical accuracy and lexical accuracy by analyzing and practicing in the various rhetorical modes needed for academic writing.

**Listening**

The primary goal of the listening component is to develop and improve the ability of each student to effectively comprehend English in academic and social settings. This goal is met through practice in interactive listening activities, which focus on understanding spoken English. The emphasis in lower-level courses is on understanding conversations, determining main ideas and details, and comprehending short lectures. The emphasis in higher-level courses is on improving comprehension of longer and more complex academic lectures, developing clear and accurate methods of taking notes, and organizing information in a useful format.

**Speaking**

The speaking component prepares students to communicate successfully in both the social and academic environments of the university. Improving both fluency and accuracy are the goals of all courses in this area. Instruction is given in how to express an opinion articulately, to agree or disagree effectively and to persuade and argue a point convincingly. The courses

help students develop the ability to make speeches and oral presentations, to gather information, to participate in classroom and panel discussions, and to use computer technology for research and presentations.

**Grammar**

The aim of this component is to integrate grammar into four language skills: reading, writing, listening and speaking. The goal is to develop grammatical accuracy within written and oral contexts and to increase comprehension within listening and reading contexts. Emphasis is placed not only on knowing the forms but also on understanding the functions of grammatical structures in order to produce accurate language in appropriate contexts.

**Vocabulary**

Vocabulary is not specifically associated with a particular skill area; instead, it is an integral part of every language skill. Therefore, its development is integrated into all courses in the IEP. In an effort to best serve the needs of the students, vocabulary instruction focuses primarily on high frequency survival English at the lower proficiency levels of the program, and gradually move along a continuum toward low frequency academic and technical language at the higher levels. By the time the students are ready to exit the IEP, they have become familiar with much of the academic vocabulary necessary for success in their university studies.

**Instructional Time**

Students receive 20 50-minute periods of classroom instruction a week.

**Methods**

All instructors are specially trained and experienced in teaching English across the curriculum. The methods, materials and equipment used are targeted to meet student needs.

**Evaluation**

Progress tests are administered regularly. Practice tests, quizzes, midterms and final examinations are given to assess progress in the courses. Promotion to a higher level in the program is determined by course grades

and instructor assessment.

**Academic Probation Policy**

IEP students will be placed on academic probation at the end of any semester in which their final IEP grade is below a 2.0 (C), and they may be required to repeat the level. Students on probation must achieve a GPA of 2.0 (C) or higher in their next semester in the IEP. If they do so, they will be removed from academic probation. Failure to do so will result in dismissal from the program.

**Duration**

The length of time required to achieve the admissions TOEFL requirement varies with the linguistic background, prior knowledge, work and study habits, and language aptitude of each student. Students who enter the IEP with TOEFL scores below 110 (CBT) will most likely require more than two semesters to achieve the TOEFL score required for admission.

**Attendance**

Classes meet Sunday through Thursday. Because of the intensive nature of the program, regular attendance in all courses is expected, and as a matter of AUS policy, students are required to attend 85 percent or more of all IEP courses. A student who misses 15 percent of classes for any IEP course receives an automatic grade of WF and is dropped from the course. If a student misses 15 percent or more of all IEP classes for the semester, he/she will be dismissed from the program.

**Absence**

According to AUS policy, no absences are excused. Therefore, missing class for any reason (e.g., illness, traffic accident, visa problem) will count as an absence from class.

**Lateness**

Classes begin on time and students are expected to be in class on time. Students who arrive late disrupt whatever activity is being performed. Three occasions of lateness equal one absence.

## Course Descriptions

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### **IEP BSC Basic Level (1 credit).**

Provides students with an introduction to the English language. They learn to understand simplified prose texts dealing with general topics, to develop writing fluency and accuracy at the sentence level, to improve discrete listening and basic conversation skills and to increase their confidence in speaking. They are also introduced to the form and function of simple verb tenses and grammatical structures.

### **IEP 001 Novice Level (3 credits).**

Involves the presentation of large amounts of language. The primary goals are to improve student fluency in both the conversational and written modes, to increase vocabulary as rapidly as possible, to develop basic reading skills and to introduce the mechanics of writing at the sentence and paragraph level.

### **IEP 002 Elementary Level (3 credits).**

Moves from functional, survival English to academic discourse. To that end, important reading skills such as skimming, scanning and predicting are practiced and writing activities extend beyond the paragraph to the multi-paragraph essay. Complex grammatical concepts involving time relationships are also introduced, note taking from authentic materials is practiced and oral presentations are given.

### **IEP 003 Intermediate Level (3 credits).**

Instruction takes on an overtly

academic quality. High-level reading skills such as inferencing and synthesizing information from more than one source are introduced, while writing instruction involves the exploration of various rhetorical modes. Students are also expected to develop an awareness of contextual clues, an understanding of speaker purpose, a recognition of idiomatic usage and an accurate and fluent speech production.

### **IEP 004 Advanced Level (3 credits).**

Prepares students for university studies, although the focus is still on the major language skills rather than the actual content being covered. Students are required to read longer texts and to write longer essays. They study complex grammatical usage at the clause level. Finally, public speaking skills are refined through the discussion of complex source material and through oral presentations on topics involving persuasion and argumentation skills.

### **IEP 005 Bridge Level (3 credits).**

Simulates credit-bearing instruction at the university by integrating academic listening, speaking, reading and writing into the daily classroom pedagogy. Extensive reading is expected and major reading skills are reviewed and reinforced through large amounts of practice. The instruction includes an introduction to writing term papers.



# AUS



# Undergraduate Fees

## Tuition

Tuition for full-time undergraduate students is given in the table below. The full-time course load is 12 to 16 credits. For undergraduate students registering for more than 16 credits, there is a supplementary fee of UAE Dhs. 1,620 per credit over 16. Part-time students registering for less than 12 hours are charged UAE Dhs. 2,125 per credit regardless of their major. Additional undergraduate fees and housing charges are given in the tables that follow.



### Undergraduate Tuition Applicable During the Academic Year 2006–2007

Full-time Undergraduate Students			
		Fees (Dhs.)	
Total Credits	Major	Fees for Fall & Spring Semesters	Fees for Summer Session
Less than 12 credits	All majors except IEP	2,125 per credit hour	2,125 per credit hour
	Intensive English Program (IEP)	19,600	6,100
12 to 16 credits	All majors	24,300	
Over 16 credits	All majors	24,300 + 1,620 per credit hour over 16	

### Undergraduate Fees During the Academic Year 2006–2007

		Fees (Dhs.)		
Fee Type	Compulsory	Per Course	Per Semester	For Summer Session
Lab/Technology Fee A	Applies for each registered course that has Fee A attached as per AUS catalog	440		
Lab/Technology Fee B	Applies for each registered course that has Fee B attached as per AUS catalog	600		
Student Activities	All students		100	50
Reinstatement Fee	If applicable		1,000	1,000
Late Registration	If applicable		400	200
Health Insurance: Plan I	AUS-sponsored students and students not independently insured		550	
Plan II	For all students who are not on Plan I		250	
Other Expenses	Costs of textbooks and supplies are the responsibility of the student.			

Student Housing Fees			
<input type="checkbox"/> information regarding individual cases.		of Student Affairs for	
Refundable Damage Deposit: Dhs. 1,000		Fees (Dhs.)	
Room Type	Description	Per Semester	Per Summer Session
<b>Private</b>	Single occupancy with private bath and kitchenette	9,100	3,640
<b>Semi-Private</b>	Single occupancy with a shared bath and kitchenette	7,080	2,830
<b>Sharing</b>	Double occupancy with a shared bath and kitchenette	4,350	1,750
<b>Single</b>	Single occupancy with a common bath and no kitchenette—for men only	4,060	-
<b>Double</b>	Double occupancy with a common bath and no kitchenette—for men only	2,600	-

### Payment of Fees

All fees are due each semester at or before the time of registration and form an integral part of registration. AUS accepts the following methods of payment:

- Cash in UAE Dirhams (Dhs.) only
- Checks drawn on local banks in UAE Dirhams (If two or more checks return due to insufficient funds, checks will no longer be accepted.)
- Banker's drafts in UAE Dirhams
- Credit cards (including online payment)
- Direct transfers to Sharjah Islamic Bank Account No. 0029-200170-001 (student's name and ID number must be noted on transfer)

A charge of Dhs. 500 is added if a check is returned for insufficient funds.

All student financial transactions with the university are processed through the Student Accounts Office located on the mezzanine floor of the Main Building. Questions concerning student accounts should be directed to the Student Accounts Office by calling 515 2233 or sending e-mail to [studentaccounts@aus.edu](mailto:studentaccounts@aus.edu).

### Late Fees and Fines

All university employees and students must adhere to university deadlines, rules and regulations. Late fees and fines may apply for late book returns, parking violations, breakage/ replacement charges, late tuition payment, etc.



## Financial Aid and Scholarships

Located in the Office of the Registrar, the Office of Financial Aid and Scholarships provides a range of aid packages that help undergraduate students finance their education.

Students may apply for financial aid regardless of their race, gender, religion or national origin. University-funded financial aid is not available in the summer.

Applications for financial aid and scholarships may be collected directly from the Office of Financial Aid and Scholarships (Main Building MG21 and MGB15). For more information, please call 515 2005 or 515 2060.

### Tuition Remission

First-time students with limited financial resources who demonstrate academic excellence by achieving a minimum cumulative average grade score of 85 percent or the equivalent in the last three years of secondary education may apply for a tuition remission. The amount of the tuition remission depends on the financial need and academic qualifications of the applicant. Financial aid applications for new students must be submitted to the Office of Financial Aid and Scholarships by August 1 for the fall semester and December 20 for the spring semester.

Enrolled full-time students with limited financial resources who have completed a minimum of 12 credits at AUS and who achieve a minimum cumulative GPA of 2.5 may apply for a tuition remission. The amount of the tuition remission depends on the financial need and academic qualifications of the applicant. Financial aid applications for enrolled students must be submitted to the Office of Financial Aid and Scholarships by May 15 for the fall semester and November 27 for the spring semester.

### University Merit Scholarships

First-time students who demonstrate



academic excellence by achieving a minimum cumulative average grade score of 95 percent or the equivalent in the final year of their secondary education may apply for a Merit Scholarship. The scholarships granted in this category equal 10 percent of the tuition fees. Scholarship applications must be submitted by August 1 for the fall semester and December 20 for the spring semester.

### Chancellor's Scholarships

First-time students may apply for the highly competitive Chancellor's Scholarships. The scholarships granted in this category are applied to the student's tuition. Scholarship applications must be submitted by August 1 for the fall semester. Applicants should meet the following requirements:

- outstanding personal qualities and leadership abilities in school and the community
- scientific or literary contributions to the community
- special school or community honors or awards
- community service and school extracurricular activities
- a minimum average of 95 percent or equivalent in the last three years of secondary education
- limited financial resources

### Family Tuition Grant

For families with more than one daughter/son enrolled simultaneously

in AUS as full-time undergraduates in a degree program, a tuition discount of 25 percent is given to each sibling after the first.

If any sibling drops below 12 credits or is dismissed from the university, the family grant will be discontinued.

To receive the family tuition grant, students must complete an application available from the Office of Financial Aid and Scholarships. Applications must be received by the end of the first week of classes.

### Rules for Maintaining Financial Aid

Financial aid is awarded for two consecutive semesters. No financial aid is awarded for the summer session.

Students who are placed on conduct probation, dismissed/suspended from the university or drop below 12 credits (15 for Chancellor's Scholars) at any time during the semester may not be eligible for aid/grants in the following semester.

### For Enrolled Students on Tuition Remission (Reviewed annually)

- Minimum cumulative GPA of 2.5
- Full-time student status (minimum of 12 credits)

### For Chancellor's Scholars

- Minimum semester GPA of 3.0
- Minimum cumulative GPA of 3.3
- Full-time student status (minimum of 15 credits)

### For Merit Scholarship

- Minimum semester GPA of 2.5
- Minimum cumulative GPA of 3.0
- Full-time student status (minimum of 12 credits)

### External Sponsorship

Some students are sponsored by government organizations, public institutions or private individuals. These sponsors are sent student schedules twice a semester and academic transcripts at the end of each semester for students under their sponsorship. Students under such sponsorship and sponsors may contact Student Accounts at 515 2233 for more details if required.

# OSA



# Office of Student Affairs

## Vice Chancellor

Moza Al Shehhi

The mission of the Office of Student Affairs (OSA) is to provide state-of-the-art resources and a congenial atmosphere to a multicultural AUS student body in order to bring about all-around personality development and fulfill students' educational and personal goals.

Creating a healthy learning environment and enriching learning experiences for students has always been at the heart of Student Affairs' work. OSA facilitates cultural, social, emotional, physical, ethical and intellectual development of all students so that they may become responsible and effective individuals. Student Affairs engages students in active learning in order to develop coherent values and ethical standards. By providing support, counseling and accessibility, OSA fosters learning and personal development. Student Affairs makes a positive difference in the lives of students, providing many opportunities for them to exhibit talents leading to personal growth regardless of their backgrounds, stage of life or abilities. OSA advises students on issues related to diversity, adjusting to the AUS environment and developing their leadership skills. It also guides students at every step to enhance their personal growth, providing a variety of quality student services and encouraging them to participate in co-curricular activities that channel their energy in the right direction.

The services and programs provided by OSA are designed to support the academic mission of AUS. OSA is the main hub for welcoming students and enforces the rules and regulations concerning student life at the university. This office has the moral and legal responsibilities of upholding and promoting the highest academic and behavioral standards among AUS students.

The Office of Student Affairs contains

the following departments: Judicial Affairs, Residential Halls, the Learning and Counseling Center, and Student Activities. The Student Activities Department is further divided into Sports and Athletics, Student Activities, Student Employment and Community Services.

The services and programs OSA offers help students adjust to university life and smooth their way toward the successful completion of their educational programs.

## Judicial Affairs

Judicial Affairs is responsible for educating students about their rights and responsibilities and the university rules they must follow. Allegations of misconduct under the Student Code of Conduct are resolved by Judicial Affairs in a manner consistent with the core values of fairness, honesty and integrity. Judicial Affairs is located on the first floor of the Student Center in offices A233, 254–256.

## Student Code of Conduct

The American University of Sharjah is a community of individuals living, working and studying together in order to create the ideal conditions for learning. Mutual respect and responsibility are imperative if each individual is to flourish and grow in this environment.

In order for the purpose of the university and its community to be realized, the rights, responsibilities and reasonable standards of conduct essential to a university community must be delineated. The legally established principles, rules and regulations of the university constitute the basic standards and guidelines for conduct on and off campus. The Office of Student Affairs establishes and enforces those rules and regulations. The basic tenets of these rules and regulations are given below while the full text of the Student Code of Conduct is in the *Student Handbook*.

## PART I

### Rights and Responsibilities

- No member of the university community shall be deprived of academic freedoms, personal rights and liberties without due and fair processes of applicable university regulations.
- No disciplinary sanctions may be imposed upon any member of the university community under authority of the university without fair and due process provided.
- Each student has a duty to understand the rules and regulations set forth by the university. Ignorance of a rule or regulation shall not be an acceptable defense by the Conduct Council Hearing Board.

## PART II

### Code of Conduct

AUS expects its students, wherever they are, to adhere to high standards of honor and to conduct themselves in a responsible manner that brings credit to themselves and the university. The following misconduct is subject to disciplinary action:

- Physical abuse of any person, including, but not limited to, assaults and abuse on university premises or at university-sponsored events or functions.
- Physical contact between males and females is strictly prohibited in keeping with the cultural norms of Sharjah and the UAE.
- Inappropriate dress for both males and females is prohibited. This includes tank tops and clothing that is tight, suggestive, provocative, or exposes the waist.
- Alcohol and drug violations as defined by university policy and the laws of Sharjah and the UAE. Possessing or consuming alcoholic beverages is strictly prohibited. This also includes possessing, selling, transmitting or using any dangerous drug, controlled substance or drug paraphernalia on university premises or at university-sponsored activities.
- Sexual abuse: attempting or making sexual contact, including, but not

- limited to, inappropriate touching or fondling, against a person's will.
- f. Conduct that threatens or endangers the health or safety of any person on university premises or at university-sponsored events or functions.
  - g. Theft or unauthorized taking of university property or property of an AUS student, faculty member, staff member or visitor on university premises. This includes knowingly possessing such stolen property.
  - h. Willful, wanton or reckless damage to university premises or property.
  - i. In nonacademic university matters, dishonesty or knowingly furnishing false information.
  - j. Fraud, forgery, alteration or unauthorized use of documents, university records or instruments of identification with the intent to defraud or deceive.
  - k. Possession or sale of fraudulent, forged or altered instruments of identification on university premises or at university-sponsored events or functions.
  - l. Intentional obstruction or disruption of teaching, research, administration, disciplinary proceedings or other university activities, including public service functions and other authorized activities on university premises.
  - m. Tampering with or unauthorized or fraudulent use of campus telephones or access codes or falsely using telephone credit cards. This includes accessing the answering machines or voice mail of any other student, faculty member or staff member on campus.
  - n. Entering or attempting to enter without lawful authority any dwelling, building or facility on university premises against the will of the lawful occupant or of the person lawfully in charge thereof; or, being therein or thereon, without lawful authority to remain and refusing to quit the same on demand of the lawful occupant or of the person lawfully in charge thereof. Entering or utilizing university academic buildings after official university working hours are over without written permission from the dean of that college or school.
  - o. Failure to comply with published university policies or regulations including rules governing the residential halls, the residential hall contract or regulations relating to use of university facilities.
  - p. Using, possessing, selling or distributing any firearms, fireworks, explosives or weapons, or possessing any object produced as a weapon on university premises or at university-sponsored functions, or of any other materials or substances that are prohibited by law, with the sole exception of law enforcement officials duly authorized by law to possess firearms for the performance of their duties.
  - q. Distributing or posting any printed materials (including in electronic form) in the name of the American University of Sharjah or from any registered organization on campus without the prior approval of the Office of Student Affairs, the Office of Public Affairs and the Office of the Chancellor.
  - r. Gambling or other illegal or unauthorized games or contests of chance on university premises and in university residential halls or at university-sponsored functions.
  - s. Unauthorized soliciting or canvassing by any individual, group or organization on university premises or in university residential halls.
  - t. Unauthorized use of the university's corporate name, which is the property of the university, by any person, persons or organizations. This includes any off-campus functions, which may not be reserved in the name of the university.
  - u. Failure to be fully responsible for the behavior of guests during university functions or activities, and on university premises or in university residential halls. A guest is defined as any person who is not a university staff member, student or faculty member.
  - v. Harassment: conduct (physical, verbal, graphic, written or electronic) or intimidation that is sufficiently severe, pervasive or persistent so as to threaten an individual or limit the ability of a student to work, study or participate in an activity.
  - w. Abuse of computer equipment (e.g., computer stalking and harassment, stealing, deleting information, Internet theft or knowingly introducing a computer virus) or gaining unauthorized access to computer resources on campus. Tampering with or unauthorized or fraudulent use of university computers, network systems or computer files as defined by university policy. (See the university policy on the abuse of information technology at <http://www.aus.edu/admin/it/policies/prohibited.php>).
  - x. Failure to comply with the direction of university officials acting in performance of their duties.
  - y. Violations of traffic laws, including reckless driving and parking in unauthorized spaces.
  - z. Violations of Sharjah or UAE laws.
  - aa. Willfully failing to comply with the directions of the university security officials acting in performance of their duties.
  - ab. Violating the terms of any disciplinary sanction imposed in accordance with the code.

## Residential Halls

The main objective of the Residential Halls Department is to support and complement the mission of the university and its academic programs by creating a comfortable and safe environment that contributes to the success of resident students' educational progress and personal growth. The AUS residential halls offer a unique multicultural environment in which students from different parts of the world can learn from one another.

Because residential hall living is seen as a positive educational experience, students are encouraged to live on campus. Living on campus complements the overall learning experience by fostering independence and tolerance of others in students.

The university offers a variety of rooms at different rates. All residential hall rooms have Internet and direct telephone connections. In addition, the residential halls offer students many resources, including study rooms, computer labs, dining areas, recreational areas, TV rooms, laundry facilities and fitness centers. The Women's Welcome Center, located

in front of the women's residential halls, features a hair salon, a TV room/reception area and a mini-mart.

Living on campus is encouraged because it allows students to make the most of what AUS has to offer, such as sports and dining facilities, the library and laboratories. Furthermore, it gives students convenient access to the many activities that take place during the day and in the evening. The university offers a convenient bus service between the residential halls and other areas on campus.

The residential halls for male and female students are completely separate. All hall residents are expected to spend every night in the halls, unless they have written authorization from their parents or guardian indicating otherwise. To ensure the security of all students, the residential halls are protected by security patrols. Residential halls staff members are available around the clock for the safety and comfort of all residents. Regulations for the residential halls are available in the *Student Handbook* and on the university website.

## The Learning and Counseling Center

For most students, their time at the American University of Sharjah represents a significant period of transition. Although change can be exciting, it also requires adjustment, which can sometimes be difficult. The Learning and Counseling Center (LCC) offers support services to enhance the success of students. The staff members of the LCC are dedicated to assisting students in their pursuit of academic and personal growth, to helping students gain a better understanding and appreciation of themselves and to supporting students as they make important decisions about their lives. The services help students achieve their educational goals, learn the processes of problem solving and decision making, enhance their capacity for satisfying interpersonal relationships, define their career goals and maximize the ability

for continued emotional growth beyond their educational experience.

The Learning and Counseling Center offers a variety of services to students. Students may choose to include any member of their family or other significant persons in the process. The following services are offered through the center:

### Individual Counseling

Counselors allow students to explore any academic or personal problems or concerns they may be experiencing. Examples of common issues that bring students to the LCC include adjusting to university life, study skills or time management issues, confusion about life or career goals, identity concerns, relationship conflicts, depression, anxiety, grief and loss. The counselors are prepared to deal with a multitude of issues or concerns. Students who have been counseled at home or off-campus may also wish to continue with counseling at the university. Students are encouraged to identify personal goals, to develop coping skills and to generate solutions to current difficulties.

### Self-Help Resources

The LCC has extensive self-help resources on many subjects in the form of handouts, books, videos and links on its section of the university website. Topics include coping with stress, depression, sleep disturbance, loneliness, anxiety, eating disorders, grief and loss, substance abuse, relationship building, assertiveness, career choices, study skills, concentration and memory, motivation, time management, test-taking strategies and more. These resources can help students understand issues they are facing and are often used alongside individual counseling.

### Student Workshops

Throughout the academic year, workshops on topics such as time management, study skills, communication skills, anxiety and stress management, anger

management, alcohol and drugs, eating and body image concerns, and more are presented for AUS students. Workshop topics and dates are advertised around campus, or students can call to learn about future workshops. Students are encouraged to contact the LCC with ideas for future workshops.

### Consultation Service

Private consultation is available for faculty members, staff members and students who would like advice about how to help a student through a difficult time. The LCC counselor will give advice on how to help the individual or will refer an appropriate service.

LCC staff members recognize and respect the diverse backgrounds, experiences, values, beliefs and abilities of every student with whom they interact. Counseling through the Learning and Counseling Center is strictly confidential. The information shared with a counselor will not be disclosed to another individual or organization without the written consent of the student. Services are free, voluntary and available to all undergraduate and graduate students currently enrolled at AUS. Appointments may be arranged by calling 515 2767, 515 2790 or 515 2792, or by visiting the LCC on the first floor of the Student Center (offices A202–204 and A206–208).

## Student Activities Department

This division is responsible for providing various opportunities to students through its state-of-the-art facilities and resources and for the all-around development of students.

### Sports and Athletics

The AUS athletic facilities are available for the benefit of the entire AUS community. The Sports Complex fosters the continuing development of collegiate sports in the UAE through organizing and hosting athletic championships, symposia and training

courses. Students, staff members and faculty members are entitled to free participation, regardless of their abilities, in a variety of sports and leisure activities including football, basketball, handball, volleyball, table tennis, tennis, squash, track and field games, self-defense sports and other athletic pursuits

The Office of Student Affairs believes that students should have ongoing opportunities to develop their talents through a wide variety of sports. To achieve this goal, full-time and part-time coaches and trainers are available to help students develop team play, sportsmanship and healthy lifestyles. More than 20 activities are offered, featuring both team and individual sports and leisure activities, which offer broad-based competitive and instructional programs for both genders.

#### **AUS Sports Complex**

The Sports Complex facilities include indoor sports courts (basketball, tennis, squash and volleyball) and multipurpose halls for use in both organized sports and free recreation; a 50-meter swimming pool; saunas; a fitness center with free weights and exercise machines; an exercise hall for aerobics and self-defense events; outdoor courts (tennis, volleyball and basketball); a soccer field; a

cricket practice net and ground; and a gymnastics hall. Details on the university's athletic facilities are available in the *Student Handbook* and in the Athletics section of the AUS website.

#### **Student Activities**

AUS students are active in governing and shaping campus life. The Student Activities Office, located in the Student Center, plays an important part in providing students with extracurricular opportunities that allow them to gain leadership experience and develop their intellectual curiosity. The Student Activities Office supports the student population through various programs and services, creating an environment that extends beyond the classroom and encourages students' personal growth. Under the supervision of the Student Activities Office, students are encouraged to organize many events that offer cultural and entertainment fare to the entire university community. These events and programs include the Global Day festivities, Club Fair, music nights, poetry nights, intra-university competitions, the UAE National Day celebration and many more. Visit the Student Activities section of the university website for details.

#### **Student Center**

The Student Center plays a broad role in the extracurricular life of the university. It houses the Student Activities Office and offices of various campus clubs and organizations. It is also a comfortable and inviting place where students relax. The Student Center contains several meeting rooms, student lounges, a women's lounge, the Student Council office, activity rooms, a TV room, multipurpose rooms, an arcade, a student courtyard, a full-size eight-lane bowling alley, the Leopard Mini-Mart, a barbershop, a pharmacy, a travel office and numerous food outlets.

#### **Orientation to Student Life**

Prior to registration at the beginning of each semester, the Office of Student Affairs, through the Student Activities Office, conducts an orientation-to-university-life program for all new students. The program is aimed at helping new students adjust to AUS, meet other new students and speak with senior students who assist with the orientation program. Orientation includes campus tours, meetings, lectures and other relevant activities.

#### **Student Organizations**

Student-sponsored organizations are an integral part of the learning process at most institutions of higher education.



The academic experience is enriched by participation in activities that allow students to pursue their personal interests outside the classroom.

The Student Activities Office is the central support for the numerous student organizations on campus. Its role includes supervising and providing assistance with program planning and implementation. The organizations at AUS span a wide range of interests, including sports, music, literature, recreation, culture and social issues. There are also many ethnic/national organizations that reflect the varied backgrounds of AUS students. These organizations offer students opportunities for leadership development and for involvement in university life. Student organizations have easy access to all the facilities they may need to plan, organize and implement their activities. Each organization has access to an office that is equipped with all necessary tools to conduct their business. Conference rooms, meeting rooms and a multipurpose room are also available for student organizations' use.

Interest-oriented and ethnic/national clubs represent the diversity of the AUS community's professional and extracurricular interests and cultural backgrounds. They organize numerous professional and cultural activities throughout the academic year and play a vital role in fostering a rich multicultural environment on campus. For a complete listing of student clubs, visit the Student Affairs section of the university website.

Participation in student organizations is strongly encouraged. Students are also encouraged to form organizations/clubs that promote their interests and hobbies.

### Student Publications

Practical journalism experience is available to AUS students through two student publications, the *Leopard* and *Realms*. Students interested in contributing to or working on these publications should contact the departments of Mass Communication or Language and Literature for further information.

**The Leopard Newspaper: "A Reason to Roar":** The *Leopard* is an official university newspaper and a voice of AUS students. All students are encouraged to contribute to this publication. The leopard is the official AUS mascot and was chosen because the UAE preserves and protects the Arabian leopard, which is currently on the brink of extinction.

**Realms:** This magazine was founded as a literary outlet for AUS students. *Realms* gives all students a chance to read the stories, poems and essays of their classmates, as well as to contribute their creative work. *Realms* aims to foster an interest in creative writing and literature and to help students view the English language as a means of expressing their thoughts and feelings and not merely as an academic tool.

### Student Council

His Highness Sheikh Dr. Sultan Bin Mohammed Al Qassimi strongly encouraged AUS students to establish a student government in order to ensure student representation on campus. A Student Union Charter was drafted by students and approved by the Administrative Committee of the Board of Trustees during the 1997–1998 academic year. The AUS Student Council is an elected body that articulates student views and interests in the university. The Student Council is a vehicle for ensuring that students can have a voice in formulating university priorities and policies. It also provides a structure for greater student involvement on campus. The Vice Chancellor for Student Affairs advises the Student Council.

### Student Employment

Opportunities for on-campus employment are available to all AUS students. Working on campus enhances students' awareness of their surroundings and helps them learn new skills outside the classroom. Students gain hands-on experience while working in various departments on campus. This helps in honing their job-related skills and gets them

accustomed to an office environment. Students may work no more than 10 hours per week. Hourly rates vary depending on what kind of job the student is doing (i.e., clerical or computer-related) and on seniority. In addition to working in the university departments and campus outlets and facilities, students can work off-campus during exhibitions and important events in UAE. This kind of part-time job helps students put theory into practice and get to know the outside world. Further information on all campus employment opportunities is available through the Student Employment Office located in the Student Center (offices A249–251).

### Community Services

AUS Community Services is a link between students and the various needs found in society. Community Services allows students to experience first-hand the value of serving others. It involves them personally in community events that enrich their life experiences. Community Services coordinates a variety of volunteer programs and strongly encourages students to contribute to the development of new ones. Current volunteer programs are listed in the Student Affairs section of the university website and in the *Student Handbook*. Students who are interested in learning more about these programs should visit the Community Services Office located in the Student Center (offices A249–251), call 515 2794 or send e-mail to [communityservices@aus.edu](mailto:communityservices@aus.edu).

The Community Services Office is the primary agent for providing access for AUS students who have physical disabilities. The office works with those who have temporary or permanent disabilities in order to promote their full participation in academic programs and on-campus activities. AUS promotes a barrier-free environment. Students who need further information should contact the Community Services Office in the Student Center (offices A249–251), call 515 2794 or send e-mail to [disabilityservices@aus.edu](mailto:disabilityservices@aus.edu).

# CAS



# College of Arts and Sciences

## Dean

William Heidcamp

## Associate Dean

Ibrahim El-Sadek

## Mission Statement

The mission of the College of Arts and Sciences is to provide students with the intellectual, cultural and scientific foundation for academic and professional education and training. Its programs, including the general education programs, are designed to inspire and invigorate the intellectual and creative potential of students and to encourage them to conceptualize, reflect and act. Through the university's graduation requirements, including the general education program that is provided by the college, students learn to examine the varied aspects of Arab, Islamic, Western and non-Western cultures. They also master written and oral expression in English, learn to appreciate quantitative reasoning, scientific inquiry and method, and to develop the critical ability to analyze and synthesize data and information. Finally, they build an understanding of moral and ethical dimensions that create a foundation for individual and collective lifelong decision making.

Graduates of the College of Arts and Sciences will be prepared to achieve their personal and professional aspirations in the short term. They will also be well qualified to pursue their studies and professional training toward graduate degrees in their chosen fields.

## General Education Requirements (42 to 44 credits)

- English language competency requirement (four courses): WRI 101, WRI 102, ENG 203 or ENG 204, and ENG 2XX or MCM 209. Students who have advanced placement in the English language competency sequence must replace the exempted course(s) by a course(s) in ENG or MCM 209.

- Arabic heritage requirement (one course): ARA 101, ARA 302, ARA 310, ARA 312, ARA 405, CSC 303, CSC 402, THM 301 or THM 302 or another approved course in Arabic literature
- Mathematics and/or statistics requirement (two courses):
  - For BS degree: MTH 103 and STA 201
  - For BA degree: MTH 100 or MTH 101 and STA 202
- Science requirement (two courses):
  - For BS degree: two from CHM 101, CHM 102, PHY 101, PHY 102, BIO 101, BIO 102
  - For BA degree: two from BIO 103, CHM 103, CHM 105, ENV 100, PHY 100, PHY 103
- Humanities and social sciences requirement (five courses): 15 credits to be selected from the courses listed in the humanities and social sciences requirements with at least six credit hours taken from the humanities area and at least six from the social sciences area
- Computer literacy requirement: satisfied through one of the courses listed in the computer literacy requirement
- Information literacy requirement: satisfied through WRI 102, ENG 203 or ENG 204

For information about designated requirements, please refer to the General University Degree Requirements section.

## Department of Biology and Chemistry

Fawwaz Jumean, Chair

### Faculty

Imad Abu-Yousef  
 Mohammad Al-Sayah  
 Aaron Bartholomew  
 Robert Cook  
 William Heidcamp  
 Sofian Kanan  
 Mustafa Khamis  
 Sandra Knuteson  
 Bradley Logsdon  
 John Mosbo  
 Mustafa Musameh  
 Dennis Russell  
 Hassan Tayim

## Bachelor of Science in Environmental Sciences (BSES)

The mission of Environmental Sciences Program is to provide graduates with qualifications for meaningful employment in the ever-expanding environmental field. It utilizes a holistic approach to environmental sciences so that students are prepared to deal with a wide range of environmental concerns as they receive their on-the-job training and perform tasks specific to their professions. The overall organization of the program reflects this philosophy with a broad core curriculum, a concentration area and the opportunity to perform a senior research project providing advanced, hands-on experience.

Environmental sciences majors may choose among the following options:

- a concentration in biology and ecosystems
- a concentration in environmental chemistry and analysis
- a double concentration in the two above areas

Recent events and current issues have raised major concerns related to the preservation of the environment. Local governments and private industries have begun to recognize the importance of conservation, recycling and environmental awareness. The Environmental Sciences Program at the American University of Sharjah gives students an understanding of these issues, the skills needed to function as an environmental science professional and the necessary undergraduate education to pursue a graduate program in environmental sciences. Environmental scientists, biologists, chemists and physicists participate in the instruction of the core and concentration requirements for this major.

### Career Opportunities

Environmental scientists can work in four general areas:

- environmental protection, which targets air, water and land quality and often has a human and environmental health and safety perspective
- conservation and protection of natural resources, which deal both with park, fisheries and wildlife management and the operation of resource-based industries such as oil, mining, forestry and agriculture
- environmental education and communications, which are relevant to both public and private sectors
- environmental research, which includes developing analytical methods for detecting environmental pollutants and improving prediction of environmental and geophysical changes. Job opportunities are available in public and academic-supported research facilities.

Employers of environmental scientists include government, the natural resources sector, utilities, manufacturers and industry, as well as small business. Governments at all levels need environmental scientists in the areas of enforcing regulations, writing public information, writing and researching regulations, and ensuring government departmental compliance with existing regulations. The natural resource/utility sector (i.e., oil, mining, forestry, agriculture and hydro) is interested in having environmental scientists consult on the sustainability of their operations; monitor and mitigate environmental effects on wildlife, fisheries, the watershed and natural beauty; and advise them on liability issues. Manufacturers (particularly those involved in the production of chemicals, plastics, paints, pesticides, etc.) employ environmental scientists due to concerns that include smokestack specifications and volatile emissions, wastewater quality, minimization and disposal of hazardous waste, and health and safety issues. The service sector, including banks, real estate companies, lawyers and insurance companies, also relies on environmental scientists to accurately describe environmental risk so that they can assess potential liability.

Businesses have been formed that service all these sectors in such areas as environmental impact consulting, compliances, recycling and waste management.

Currently, most work in the environmental sector is responsive to existing or anticipated problems, such as treating or monitoring effluent or gaseous emissions; preparing environmental impact statements, assessments and audits as required by law; conducting land reclamation and remediation; and completing public consultations. People with an entrepreneurial inclination to take a proactive approach to environmental stewardship and sustainable development have the opportunity to innovate current practices. There are ample prospects for individuals to generate inventions and ideas that would fundamentally change the way business, society and technology function through the creation of realistic alternatives to environmentally hazardous practices.

### Degree Requirements

A total of 125 credits is required:

- 44 credits in general education requirements, including CHM 101 General Chemistry I, CHM 102 General Chemistry II, MTH 103 Calculus I, and STA 201 Introduction to Statistics for Engineering and Natural Sciences
- 66 credits of major and major-related requirements
- 15 credits of free electives
- Six to eight weeks of full-time, satisfactory internship in environmental sciences with a business or governmental organization
- A minimum CGPA of 2.0

### **Major Requirements (40 credits)**

#### ***Basic Mathematics and Sciences (15 credits)***

- BIO 101 General Biology I
- MTH 104 Calculus II
- PHY 101 General Physics I
- PHY 105 Physics for Environmental Sciences

### ***Core Requirements (25 credits)***

- CHM 215 Organic Chemistry I
- CHM 217 Organic Chemistry Lab I
- CHM 445 Instrumental Analysis
- ENV 101 Introduction to Environmental Science
- ENV 252 Environmental Chemistry
- ENV 311 Environmental Modeling
- ENV 351 Environmental Monitoring and Analysis Techniques
- ENV 411 Environmental Assessment and Management
- ENV 491 Senior Project I

### **Concentration in Environmental Biology and Ecosystems (26 credits)**

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#### **Concentration Requirements (20 credits)**

- BIO 102 General Biology II
- BIO 260 Genetics
- BIO 330 Ecosystems Management
- BIO/ENV 251 Environmental Ecology
- ENV/BIO 335 Environmental Microbiology
- ENV/BIO 361 Evolution and Biodiversity

#### **Concentration Electives (6 credits)**

- BIO 394/494 Special Topics in Biology
- CHM 241 Quantitative Analysis
- ENV 231 Transition Metals and Their Compounds in the Environment
- ENV 261 Physical Geography
- ENV 352 Environmental Toxicology
- ENV/BIO 421 Aquatic Environments
- ENV 451 Waste Treatment
- ENV 492 Senior Project II
- ENV 394/494 Special Topics in Environmental Sciences
- PHI 309 Environmental Ethics
- PHY 301 Energy Sources

**Proposed Sequence of Study**  
**Bachelor of Science in Environmental Sciences (BSES)**  
**Concentration: *Environmental Biology and Ecosystems***

FIRST YEAR (31 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MTH 103	Calculus I	3	MPT or MTH 001 or MTH 004	GER MTH 1 of 2
	BIO 101	General Biology I	4		MJR
	ELC XXX	English Language Competency	3		GER ELC 1 of 4
	CHM 101	General Chemistry I	4		GER SCI 1 of 2
	<b>Total</b>			<b>14</b>	
Spring	MTH 104	Calculus II	3	MTH 103	MJR
	ENV 101	Introduction to Environmental Science	3	CHM 101	CRR
	PHY 101	General Physics I	4	PPT or PHY 001; pre/con MTH 103	MJR
	ELC XXX	English Language Competency	3		GER ELC 2 of 4
	CHM 102	General Chemistry II	4	CHM 101	GER SCI 2 of 2
	<b>Total</b>			<b>17</b>	

SECOND YEAR (33 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	BIO 102	General Biology II	4	BIO 101	CNR
	CHM 215	Organic Chemistry I	3	pre/con CHM 102	CRR
	ENV 252	Environmental Chemistry	3	CHM 102	CRR
	PHY 105	Physics for Environmental Sciences	4	PHY 101	MJR
	ELC XXX	English Language Competency	3		GER ELC 3 of 4
	<b>Total</b>			<b>17</b>	
Spring	ENV 251	Environmental Ecology	3	BIO 102	CNR
	CHM 217	Organic Chemistry Lab I	1	CHM 215	CRR
	BIO 330	Ecosystems Management	3	ENV 251	CNR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	ELC XXX	English Language Competency	3		GER ELC 4 of 4
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	<b>Total</b>			<b>16</b>	

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3	MTH 103 or MTH 111	GER MTH 2 of 2
	CNE XXX	Concentration Elective	3		CNE 1 of 2
	HSS XXX	Humanities/Social Sciences	3	junior standing	GER HSS 2 of 5
	BIO 260	Genetics	3	BIO 102	CNR
	ENV 311	Environmental Modeling	3	MTH 104, ENV 252	CRR
		<b>Total</b>		<b>15</b>	
Spring	ENV 361/ BIO 361	Evolution and Biodiversity	3	BIO 260	CNR
	ENV 351	Environmental Monitoring and Analysis Techniques	3	STA 201, ENV 252	CRR
	FRE XXX	Free Elective	3		FRE 1 of 5
	CHM 445	Instrumental Analysis	3	CHM 102	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
		<b>Total</b>		<b>15</b>	

FOURTH YEAR (31 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ENV 491	Senior Project I	3	senior standing	CRR
	ENV 335 or BIO 335	Environmental Microbiology	4	BIO 101	CNR
	FRE XXX	Free Elective	3		FRE 2 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	FRE XXX	Free Elective	3		FRE 3 of 5
		<b>Total</b>		<b>16</b>	
Spring	CNE XXX	Concentration Elective	3		CNE 2 of 2
	ENV 411	Environmental Assessment and Management	3	ENV 252	CRR
	FRE XXX	Free Elective	3		FRE 4 of 5
	FRE XXX	Free Elective	3		FRE 5 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
		<b>Total</b>		<b>15</b>	

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

### Concentration in Environmental Chemistry and Analysis (at least 26 credits)

#### Concentration Requirements (19 credits)

- CHM 216 Organic Chemistry II
- CHM 218 Organic Chemistry Lab II
- CHM 330 Physical Chemistry I
- CHM 241 Quantitative Analysis

- CHM 331 Physical Chemistry II
- ENV 231 Transition Metals and Their Compounds in the Environment
- ENV 451 Waste Treatment

#### Concentration Electives (at least 7 credits)

- CHM 335 Physical Chemistry Laboratory
- CHE 442 Corrosion
- CHM 494 Special Topics in Chemistry
- ENV 261 Physical Geography

- ENV/BIO 335 Environmental Microbiology
- ENV 352 Environmental Toxicology
- ENV 452 Soil and Water Chemistry
- ENV 492 Senior Project II
- ENV 394/494 Special Topics in Environmental Sciences
- PHI 309 Environmental Ethics
- PHY 251 Meteorology
- PHY 303 Atmospheric Physics

### Proposed Sequence of Study

#### Bachelor of Science in Environmental Sciences (BSES)

##### Concentration: *Environmental Chemistry and Analysis*

FIRST YEAR (31 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MTH 103	Calculus I	3	MPT or MTH 001 or MTH 004	GER MTH 1 of 2
	BIO 101	General Biology I	4		MJR
	ELC XXX	English Language Competency	3		GER ELC 1 of 4
	CHM 101	General Chemistry I	4		GRE SCI 1 of 2
	<b>Total</b>			<b>14</b>	
Spring	MTH 104	Calculus II	3	MTH 103	MJR
	ENV 101	Introduction to Environmental Science	3	CHM 101	MJR
	PHY 101	General Physics I	4	PPT or PHY 001; pre/con MTH 103	MJR
	ELC XXX	English Language Competency	3		GER ELC 2 of 4
	CHM 102	General Chemistry II	4	CHM 101	GER SCI 2 of 2
	<b>Total</b>			<b>17</b>	

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; G□: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

SECOND YEAR (32 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	CHM 215	Organic Chemistry I	3	pre/con CHM 102	CRR
	ENV 252	Environmental Chemistry	3	CHM 102	CRR
	PHY 105	Physics for Environmental Sciences	4	PHY 101	MJR
	ELC XXX	English Language Competency	3		GER ELC 3 of 4
		<b>Total</b>	<b>16</b>		
Spring	CHM 241	Quantitative Analysis	3	CHM 102	CNR
	CHM 216	Organic Chemistry II	3	CHM 215	CNR
	CHM 217	Organic Chemistry Lab I	1	CHM 215	CRR
	ENV 231	Transition Metals and their Compounds in the Environment	3	CHM 102	CNR
	ELC XXX	English Language Competency	3		GER ELC 4 of 4
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
		<b>Total</b>	<b>16</b>		

THIRD YEAR (31 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3	MTH 103 or MTH 111	MJR/GER MTH 2 of 2
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	FRE XXX	Free Elective	3		FRE 1 of 5
	CHM 218	Organic Chemistry Lab II	1	CHM 215L, CHM 216	CNR
	ENV 311	Environmental Modeling	3	MTH 104, ENV 252	CRR
		<b>Total</b>	<b>16</b>		
Spring	ENV 351	Environmental Monitoring and Analysis Techniques	3	STA 201, ENV 252	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	CHM 445	Instrumental Analysis	3	CHM 102	MJR
	FRE XXX	Free Elective	3		FRE 2 of 5
	CHM 330	Physical Chemistry I	3	CHM 102, MTH 104	CNR
		<b>Total</b>	<b>15</b>		

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ENV 491	Senior Project I	3	senior standing	CRR
	ENV 451	Waste Treatment	3	ENV 252	CNR
	CHM 331	Physical Chemistry II	3	CHM 330 or CHE 303	CNR
	CNE XXX	Concentration Elective	3		CNE 1 of 2
	FRE XXX	Free Elective	3		FRE 3 of 5
		<b>Total</b>	<b>15</b>		
Spring	CNE XXX	Concentration Elective	3		CNE 2 of 2
	ENV 411	Environmental Assessment and Management	3	ENV 252	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	FRE XXX	Free Elective	3		FRE 4 of 5
	FRE XXX	Free Elective	3		FRE 5 of 5
		<b>Total</b>	<b>15</b>		

### Double Concentration in Biology/ Ecosystems and Environmental Chemistry/Analysis

Students must fulfill the requirements of both concentrations, as detailed in the respective sections above.

#### Minor in Biology

A minor in biology trains students in the most important aspects of ecology and genetics, which makes them better qualified to enter professions that require knowledge of living organisms and the environment.

Students enrolling in the biology minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 20 credits including at least 10 credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in biology

must complete the following courses or their equivalent. All course prerequisites must be satisfied.

The minor is not open to environmental sciences students.

#### Minor Requirements (8 credits)

- BIO 101 General Biology I
- BIO 102 General Biology II

#### Minor Electives (12 credits)

- BIO 210 Human Anatomy and Physiology for Engineers
- BIO 251 Ecology
- BIO 260 Genetics
- BIO 330 Ecosystems Management
- BIO/ENV 335 Environmental Microbiology
- BIO/ENV 361 Evolution and Biodiversity
- BIO/ENV 421 Aquatic Environments
- BIO 461 Desert and Maritime Plants
- BIO 394/494 Special Topics in Biology

#### Minor in Environmental Sciences

This interdisciplinary minor draws on the resources and expertise of several disciplines. Students enrolling in the environmental sciences minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in environmental sciences have two options: (1) to complete three courses from the minor requirements and three courses from the minor electives or (2) four courses from the minor requirements and two courses from the minor electives. All course prerequisites must be satisfied.

The minor is not open to environmental sciences students.

#### Minor Requirements (9–12 credits)

- ENV 252 Environmental Chemistry
- ENV 311 Environmental Modeling
- ENV 351 Environmental Monitoring and Analysis
- ENV 411 Environmental Assessment and Management

#### Minor Electives (6–9 credits)

- BIO 230 Ecosystems Management
- BIO 251 Environmental Ecology

- BIO/ENV 335 Environmental Microbiology
- CHE 460 Wastewater Treatment
- CHE 461 Air Pollution
- CHE 467 Corrosion
- CHE 474 Environmental Transport
- CHM 445 Instrumental Analysis
- ENV 231 Transition Metals and Their Compounds in the Environment
- ENV 352 Environmental Toxicology
- ENV 451 Waste Treatment
- ENV 452 Soil and Water Chemistry
- ENV 491 Senior Research Project I
- ENV 394/494 Special Topics in Environmental Sciences

Credit cannot be given for both ENV 451 and CHE 460.

### Minor in Environmental Policy

This interdisciplinary minor draws on the resources and expertise of several departments. Students enrolling in the environmental policy minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in environmental policy must complete the following courses or their equivalent. All course prerequisites must be satisfied.

The minor is not open to environmental sciences students.

#### **Minor Requirements (3 credits)**

- CHM 105 Chemistry and the Environment or ENV 100 Environmental Issues and Problems or ENV 101 Introduction to Environmental Science

#### **Minor Electives (15 credits)**

- ECO 281 Social Science Analysis of

Environmental Issues I

- ECO 404 Economics of Environmental and Natural Resources
- ENV 381 Environmental Strategies and Regulations
- ENV 411 Environmental Assessment and Management
- ENV 412 Concepts and Models in Environmental Management Systems
- ENV 394/494 Special Topics in Environmental Science
- PHI 309 Ethics and the Environment
- SOC 302 Environmental Sociology

Credit cannot be given for both ENV 411 and ENV 412.

## Department of International Studies

Nada Mourtada-Sabbah, Chair

### **Faculty**

Saiyad Ahmad  
Pia Anderson  
Jeremy Bendik-Keymer  
Marcello Fiocco  
Richard Gassan  
Stephen Keck  
Anatolii Kharkhurin  
David Lea  
Neema Noori  
Ali Sheikholeslami  
Winfred Thompson  
Lawrence Woods

### **Bachelor of Arts in International Studies (BAIS)**

Sharjah's history as an important trading center and meeting place of many cultures makes the American University of Sharjah an especially appropriate place for international studies. The interdisciplinary program in international studies offers students a unique opportunity to prepare for an increasingly complex global political and business environment. Weaving together strands from all the social sciences, as well as international law, cultural studies and literature, into a coherent and comprehensive program, the international studies curriculum assists students in acquiring a broad

understanding of world cultures and events. This understanding, supplemented with the specialized study provided in the international relations, international economics, Arab studies and Western studies concentrations, prepares students who are uniquely qualified for positions in international business, international agencies and government service.

### Degree Requirements

A total of 120 credits is required:

- 42 credits of general education requirements including ENG 203 or ENG 204, MTH 100 or MTH 101, and STA 202
- 66 credits of major and major-related requirements
- 12 credits of free electives
- A six-week internship in international studies (INS 497)
- A minimum CGPA of 2.0

### **Major Requirements**

Students seeking a major in international studies must complete 66 credits of major and major-related requirements with a grade C- or better in each course. Students may choose concentrations in international relations, international economics, Arab studies in a global context and western studies. The requirements are divided as follows:

#### **Core Requirements (30 credits)**

- CSC 205 World Cultures or SOC 201 Introduction to Sociology
- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- GEO 201 World Cultural Geography
- HIS 205 World History I or HIS 206 World History II
- HIS 221 History of Science and Technology or PHI 201 Introduction to Philosophy
- INS 322 Global Political Economy
- INS 497 Internship in International Studies (0 credits)
- POL 201 Introduction to Political Studies
- POL 202 Introduction to International Relations
- SOC 201 Introduction to Sociology

Students are expected to have completed at least four of the ten core courses, including ECO 201 and ECO 202, by the end of the sophomore year.

### Major Electives (12 credits)

Students must complete a minimum of 12 credits of major electives in consultation with their advisor. At least nine of these credits must be at the 300 level or above. Electives may be:

- Any course listed in the Bachelor of Arts in International Studies curriculum and selected from the following disciplines that is not required in the student's chosen concentration
  - Arab studies
  - cultural studies
  - economics
  - education
  - geography
  - heritage management
  - history
  - international studies
  - philosophy
  - political science
  - public administration
  - sociology
  - theme
- Any of the following courses:
  - ENG 225 Writing for Business
  - ENG 320/MCM 320 Intercultural Communication

- ENV 100 Principles of Environmental Science
- ENV 101 Introduction to Environmental Science
- ENV 261 Physical Geography
- ENV 411 Environmental Assessment and Management
- MCM 150 Introduction to Mass Communication Studies
- MCM 225 Theories of Mass Communication
- MCM 227 Principles of Public Relations
- MCM 275 Principles of Journalism
- MCM 300 Mass Communication Research Methods
- MCM 329 Mass Communication and Society
- MCM 360 Crisis and Conflict Management
- MCM 363 Organizational Communication and Leadership
- MCM 371 News Writing
- MCM 374 Feature Writing
- MCM 380 Persuasive Communication
- MCM 461 International Mass Communication
- MCM 463 International Public Relations
- MCM 467 Public Relations for Non-Profit Organizations
- MCM 471 Advanced News Writing
- PSY 101 General Psychology

- PSY 102 Social Psychology

### Concentration in International Relations (24 credits)

Students who select the international relations concentration will examine the many ways in which the people of different cultures and nations interact with each other. This concentration provides students with an opportunity to acquire an informed perspective on national and international policies, public international law, world trade patterns, causes and remedies for conflict between nations, and the social and cultural interactions between nations. Students who select this course of study will be prepared for careers in law and diplomacy, international organizations, government, international business, travel and tourism, and the media.

### Concentration Requirements (18 credits)

- ECO 305 International Trade or ECO 321 Comparative Economic Systems or ECO 333 Islamic Economics or ECO 335 Economic History of World Economy
- INS 301 Globalization
- INS 394/495 Senior Seminar
- POL 304/SOC 304 International Organizations
- POL 302 Law and Diplomacy or POL 305 Public International Law
- POL 307 Wars, Conflicts and Diplomacy

### Concentration Electives (6 credits)

- ECO 306 International Finance
- ECO 310 Development Economics
- INS 400 Ethnic Politics in the Developing World
- INS 413 Political Economy of the Arab World
- INS 414 Political Economy of the Asia Pacific Region
- INS 415 War and Peace in the Middle East
- INS 394/494 Special Topics in International Studies
- POL 300 Comparative Politics
- POL 308 American Foreign Policy
- POL 309 The American Political System



**Proposed Course Sequence of Study**  
**Bachelor of Arts in International Studies**  
**Concentration: *International Relations***

FIRST YEAR (30 credit hours)						
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills	
Fall	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1	
	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4	
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001	CRR	
	MTH 100 or MTH 101	Fundamentals of Logic and Geometry or Mathematics for Business I	3	none/ MPT or MTH 002	GER MTH 1 of 2	
	SCI XXX	Science	3		GER SCI 1 of 2	
	<b>Total</b>			<b>15</b>		
Spring	GEO 201	World Cultural Geography	3	pre/con WRI 102	CRR	
	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4	
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001	CRR	
	STA 202	Introduction to Statistics for Social Sciences	3	MTH 100 or MTH 101 or MTH 103 or MTH 111	GER MTH 2 of 2	
	SCI XXX	Science	3		GER SCI 2 of 2	
	<b>Total</b>			<b>15</b>		

SECOND YEAR (30 credit hours)						
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills	
Fall	POL 201	Introduction to Political Studies	3	WRI 102	CRR	
	ENG 203 or ENG 204	Genre Analysis or Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4	
	HIS 205 or HIS 206	World History I or World History II	3	WRI 102	CRR	
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5	
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5	
	<b>Total</b>			<b>15</b>		
Spring	POL 202	Introduction to International Relations	3	POL 201	CRR	
	PHI 201 or HIS 221	Introduction to Philosophy or History of Science and Technology	3	pre/con WRI 102	CRR	
	CSC 205	World Cultures	3	pre/con WRI 102	CRR	
	ELC XXX	English Language Competency	3		GER ELC 4 of 4	
	SOC 201	Introduction to Sociology	3	WRI 102	CRR	
	<b>Total</b>			<b>15</b>		

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	POL 304 or SOC 304	International Organizations	3	POL 202	CNR
	POL 307	Wars, Conflicts and Diplomacy	3	POL 202	CNR
	ECO 305 or ECO 321 or ECO 333	International Trade or Comparative Economic Systems or Islamic Economics	3	ECO 201, ECO 202, WRI 102	CNR
	INS 301	Globalization	3	POL 202	CNR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
		<b>Total</b>		<b>15</b>	
Spring	POL 302 or POL 305	Law and Diplomacy or Public International Law	3	POL 201/ POL 202	CNR
	INS 322	Global Political Economy	3	POL 202, ECO 201, ECO 202	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	CNE XXX	Concentration Elective	3		CNE 1 of 2
		<b>Total</b>		<b>15</b>	
Summer	INS 497	Internship in International Studies	0	junior standing	CRR

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	INS 495	Senior Seminar	3	senior standing	CNR
	CNE XXX	Concentration Elective	3		CNE 2 of 2
	MJE XXX	Major Elective	3		MJE 1 of 4
	MJE XXX	Major Elective	3		MJE 2 of 4
	FRE XXX	Free Elective	3		FRE 1 of 4
		<b>Total</b>		<b>15</b>	
Spring	MJE XXX	Major Elective	3		MJE 3 of 4
	MJE XXX	Major Elective	3		MJE 4 of 4
	FRE XXX	Free Elective	3		FRE 2 of 4
	FRE XXX	Free Elective	3		FRE 3 of 4
	FRE XXX	Free Elective	3		FRE 4 of 4
		<b>Total</b>		<b>15</b>	

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; G□: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

## Concentration in International Economics (24 credits)

The international economics concentration offers students a sound foundation in the principles of economics combined with specialized study in international trade, finance, political economy and economic development. The objective of the program is twofold. First, for terminal degree students, the objective is to deal with the numerous complex issues raised by a country's economic connections with the rest of the world, with special emphasis on a country that has not yet reached the status of being "developed" as defined by the standards of international economics. Second, for students planning to

pursue graduate studies, the objective is to prepare them for the more rigorous requirements of graduate programs in international economics and related subjects.

### Concentration Requirements (18 credits)

- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics
- ECO 305 International Trade
- ECO 306 International Finance
- ECO 310 Development Economics
- INS 495 Senior Seminar

### Concentration Electives (6 credits)

- ECO 315 Economics of the Middle East
- ECO 318 Economics of Water Resources
- ECO 325 Public Economics

- ECO 326 Economics and the Law
- ECO 335 Economic History of the World Economy
- ECO 403 Economics of Natural and Energy Resources
- ECO 404 Economics of Environmental and Natural Resources
- ECO 405 Introduction to Econometrics
- INS 301 Globalization
- INS 413 Political Economy of the Arab World
- INS 394/494 Special Topics in International Studies
- POL 302 Law and Diplomacy
- POL 304/SOC 304 International Organizations
- POL 305 Public International Law

## Proposed Course Sequence of Study Bachelor of Arts in International Studies (BAIS) Concentration: *International Economics*

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001	CRR
	MTH 100 or MTH 101	Fundamentals of Logic and Geometry or Mathematics for Business I	3	none/ MPT or MTH 002	GER MTH 1 of 2
	SCI XXX	Science	3		GER SCI 1 of 2
		<b>Total</b>	<b>15</b>		
Spring	MJE XXX	Major Elective	3		MJE 1 of 4
	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001	CRR
	STA 202	Introduction to Statistics for Social Sciences	3	MTH 100 or MTH 101 or MTH 103 or MTH 111	GER MTH 2 of 2
	SCI XXX	Science	3		GER SCI 2 of 2
			<b>Total</b>	<b>15</b>	

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	POL 201	Introduction to Political Studies	3	WRI 102	CRR
	ENG 203 or ENG 204	Genre Analysis or Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	HIS 205 or HIS 206	World History I or World History II	3	WRI 102	CRR
	CSC 205	World Cultures	3	pre/con WRI 102	CRR
	GEO 201	World Cultural Geography	3	pre/con WRI 102	CRR
	<b>Total</b>		<b>15</b>		
Spring	POL 202	Introduction to International Relations	3	POL 201	CRR
	HIS 221	History of Science and Technology	3	pre/con WRI 102	CRR
	ELC XXX	English Language Competency	3		GER ELC 4 of 4
	SOC 201	Introduction to Sociology	3	WRI 102	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	<b>Total</b>		<b>15</b>		

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ECO 302	Intermediate Macroeconomics	3	ECO 201, ECO 202, WRI 102	CNR
	ECO 305	International Trade	3	ECO 201, ECO 202, WRI 102	CNR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	CNE XXX	Concentration Elective	3		CNE 1 of 2
	<b>Total</b>		<b>15</b>		
Spring	ECO 301	Intermediate Microeconomics	3	ECO 201, ECO 202, WRI 102	CNR
	ECO 306	International Finance	3	ECO 201, ECO 202, WRI 102	CNR
	ECO 310	Development Economics	3	ECO 201, ECO 202, WRI 102	CNR
	INS 322	Global Political Economy	3	POL 202, ECO 201, ECO 202	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	<b>Total</b>		<b>15</b>		
Summer	INS 497	Internship in International Studies	0	junior standing	CRR

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	INS 495	Senior Seminar	3	senior standing	CNR
	CNE XXX	Concentration Elective	3		CNE 2 of 2
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	FRE XXX	Free Elective	3		FRE 1 of 4
	FRE XXX	Free Elective	3		FRE 2 of 4
		<b>Total</b>	<b>15</b>		
Spring	MJE XXX	Major Elective	3		MJE 2 of 4
	MJE XXX	Major Elective	3		MJE 3 of 4
	MJE XXX	Major Elective	3		MJE 4 of 4
	FRE XXX	Free Elective	3		FRE 3 of 4
	FRE XXX	Free Elective	3		FRE 4 of 4
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

### Concentration in Arab Studies in a Global Context (24 credits)

Arab Studies in a Global Context is an interdisciplinary program that aims to enhance understanding, especially among non-Arab students, of the Arab world, its people, history, economy, social life and culture. Unlike most Western programs in Arab studies, this concentration studies the Arab peoples, culture and institutions from an intellectually oriented Arab

perspective. Students who select this concentration will be prepared for careers in journalism and the media, diplomacy, government, international business and travel and tourism.

#### Concentration Requirements (18 credits)

- ARA 310 Images of America in Arabic Literature and Film
- CSC 303 Classical Arab/Islamic Culture
- HIS 310 Modern Gulf History
- INS 413 Political Economy of the Arab World

- INS 495 Senior Seminar
- PHI 394/494 Special Topics in Philosophy

#### Concentration Electives (6 credits)

- ARA 305 Arabic Literature of the Gulf
- ENG 315 East Meets West: Colonial and Post-Colonial Encounters
- HIS 307 Modern Palestinian History
- INS 394/494 Special Topics in International Studies

**Proposed Course Sequence of Study**  
**Bachelor of Arts in International Studies (BAIS)**  
**Concentration: Arab Studies in a Global Context**

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001	CRR
	MTH 100 or MTH 101	Fundamentals of Logic and Geometry or Mathematics for Business I	3	none/ MPT or MTH 002	GER MTH 1 of 2
	SCI XXX	Science	3		GER SCI 1 of 2
		<b>Total</b>	<b>15</b>		
Spring	GEO 201	World Cultural Geography	3	pre/con WRI 102	CRR
	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001	CRR
	STA 202	Introduction to Statistics for Social Sciences	3	MTH 100 or MTH 101 or MTH 103 or MTH 111	GER MTH 2 of 2
	SCI XXX	Science	3		GER SCI 2 of 2
		<b>Total</b>	<b>15</b>		

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	POL 201	Introduction to Political Studies	3	WRI 102	CRR
	CSC 205	World Cultures	3	pre/con WRI 102	CRR
	ENG 203 or ENG 204	Genre Analysis or Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	HIS 205 or HIS 206	World History I or World History II	3	WRI 102	CRR
		<b>Total</b>	<b>15</b>		
Spring	POL 202	Introduction to International Relations	3	POL 201	CRR
	ARA 310	Images of America in Arabic Literature and Film	3	WRI 102	CNR
	HIS 310	Modern Gulf History	3	WRI 102	CNR
	PHI 201 or HIS 221	Introduction to Philosophy or History of Science and Technology	3	pre/con WRI 102	CRR
	ELC XXX	English Language Competency	3		GER ELC 4 of 4
		<b>Total</b>	<b>15</b>		

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	PHI 394/494	Special Topics in Philosophy	3	topic specific/ junior standing and topic specific	CNR
	INS 322	Global Political Economy	3	POL 202, ECO 201, ECO 202	CRR
	MJE XXX	Major Elective	3		MJE 1 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
	SOC 201	Introduction to Sociology	3	WRI 102	CRR
		<b>Total</b>	<b>15</b>		
Spring	CSC 303	Classical Arab/Islamic Culture	3	WRI 102	CNR
	INS 413	Political Economy of the Arab World	3	POL 202, ECO 201, ECO 202	CNR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
		<b>Total</b>	<b>15</b>		
Summer	INS 497	Internship in International Studies	0	junior standing	CRR

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	INS 495	Senior Seminar	3	senior standing	CNR
	CNE XXX	Concentration Elective	3		CNE 1 of 2
	CNE XXX	Concentration Elective	3		CNE 2 of 2
	FRE XXX	Free Elective	3		FRE 1 of 4
	FRE XXX	Free Elective	3		FRE 2 of 4
		<b>Total</b>	<b>15</b>		
Spring	MJE XXX	Major Elective	3		MJE 2 of 4
	MJE XXX	Major Elective	3		MJE 3 of 4
	MJE XXX	Major Elective	3		MJE 4 of 4
	FRE XXX	Free Elective	3		FRE 3 of 4
	FRE XXX	Free Elective	3		FRE 4 of 4
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

### Concentration in Western Studies (24 credits)

Despite its importance, there is no institution or academic program in the Arab world devoted to the systematic, scholarly study of the West. This concentration seeks to fill this gap with a course of study focused on the West: its ideologies, systems of belief, history, political and administrative systems, economics, social life, culture and traditions. Designed especially for students from the Arab world, this course of study will give students an understanding of Western societies

and peoples. Students who select this concentration will be prepared for careers in law and diplomacy, international business, travel and tourism, government and the media. Students will also be prepared for graduate studies in Western academic institutions.

#### Concentration Requirements (15 credits)

- ENG 315 East Meets West: Colonial and Post-Colonial Encounters
- INS 301 Globalization
- INS 495 Senior Seminar
- PHI 303 Political Philosophy

- POL 309 The American Political System

#### Concentration Electives (9 credits)

- ECO 305 International Trade
- ECO 306 International Finance
- INS 394/494 Special Topics in International Studies
- PBA 302 Comparative Public Administration Systems
- POL 302 Law and Diplomacy
- POL 304/SOC 304 International Organizations
- POL 305 Public International Law

### Proposed Course Sequence of Study Bachelor of Arts in International Studies (BAIS) Concentration: *Western Studies*

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001	CRR
	MTH 100 or MTH 101	Fundamentals of Logic and Geometry or Mathematics for Business I	3	none/ MPT or MTH 002	GER MTH 1 of 2
	SCI XXX	Science	3		GER SCI 1 of 2
		<b>Total</b>	<b>15</b>		
Spring	GEO 201	World Cultural Geography	3	pre/con WRI 102	CRR
	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001	CRR
	STA 202	Introduction to Statistics for Social Sciences	3	MTH 100 or MTH 101 or MTH 103 or MTH 111	GER
	SCI XXX	Science	3		GER SCI 2 of 2
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	POL 201	Introduction to Political Studies	3	WRI 102	CRR
	ENG 203 or ENG 204	Genre Analysis or Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	HIS 205 or HIS 206	World History I or World History II	3	WRI 102	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
		<b>Total</b>	<b>15</b>		
Spring	POL 202	Introduction to International Relations	3	POL 201	CRR
	CSC 205	World Cultures	3	pre/con WRI 102	CRR
	PHI 201 or HIS 221	Introduction to Philosophy or History of Science and Technology	3	pre/con WRI 102	CRR
	SOC 201	Introduction to Sociology	3		CRR
	ELC XXX	English Language Competency	3		GER ELC 4 of 4
		<b>Total</b>	<b>15</b>		

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CNE XXX	Concentration Elective	3		CNE 1 of 2
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	POL 309	The American Political System	3	POL 201 and POL 202, or POL 208	CNR
	ENG 315	East Meets West: Colonial and Post-Colonial Encounters	3	ENG 315 or ENG 300	CNR
		<b>Total</b>	<b>15</b>		
Spring	INS 322	Global Political Economy	3	POL 202, ECO 201, ECO 202	CRR
	PHI 303/POL 303	Political Philosophy	3	POL 202 or PHI 201	CNR
	INS 301	Globalization	3	POL 202	CNR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	CNE XXX	Concentration Elective	3		CNE 2 of 3
		<b>Total</b>	<b>15</b>		
Summer	INS 497	Internship in International Studies	0	junior standing	CRR

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	INS 495	Senior Seminar	3	senior standing	CNR
	CNE XXX	Concentration Elective	3		CNE 3 of 3
	MJE XXX	Major Elective	3		MJE 1 of 4
	MJE XXX	Major Elective	3		MJE 2 of 4
	FRE XXX	Free Elective	3		FRE 1 of 4
		<b>Total</b>	<b>15</b>		
Spring	MJE XXX	Major Elective	3		MJE 3 of 4
	MJE XXX	Major Elective	3		MJE 4 of 4
	FRE XXX	Free Elective	3		FRE 2 of 4
	FRE XXX	Free Elective	3		FRE 3 of 4
	FRE XXX	Free Elective	3		FRE 4 of 4
		<b>Total</b>	<b>15</b>		

### Minor in American Studies

The minor in American studies seeks to give students a broad understanding of American society, culture and politics. Students completing the minor will have studied both the development and character of the United States and its international impact through courses selected across academic disciplines.

Students enrolling in the American studies minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in American studies must complete the following courses or their equivalent. All course prerequisites must be satisfied.

#### Minor Requirements (9 credits)

- HIS 220 American History

- POL 208 Introduction to American Government
- SOC 220 American Society

#### Minor Electives (9 credits)

- AMS 394/494 Special Topics in American Studies
- ENG 314 Twentieth Century American Literature
- ENG 410 The American Novel
- HIS 394 America and the Middle East
- POL 394 The American Political System
- POL 308 American Foreign Policy

### Minor in Governmental Studies

The minor in governmental studies allows students to acquire more specialized training in political studies. It prepares students for graduate work in political science and international relations, as well as in careers in foreign service, international and regional organizations, and public policy making.

Students enrolling in the governmental studies minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in governmental studies minor must complete the following courses or their equivalent. All course prerequisites must be satisfied.

This minor is not open to international studies students.

#### Minor Requirements (9 credits)

- POL 201 Introduction to Political Studies
- POL 202 Introduction to International Relations
- POL 300 Comparative Politics

#### Minor Electives (9 credits)

- INS 301 Globalization
- INS 495 Senior Seminar
- PHI/POL 303 Political Philosophy
- POL 302 Law and Diplomacy
- POL 304/SOC 304 International Organizations

- POL 305 Public International Law
- POL 307 Wars, Conflicts and Diplomacy
- POL 394 The American Political System

### Minor in International Studies

The international studies minor introduces students to the interdisciplinary exploration of social issues at the individual, local, national, international and global levels. Theoretical and applied aspects of citizenship, civil society, governance and the domestic/international interface are explored in a variety of societal and organizational contexts.

Students enrolling in the international studies minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in international studies must complete the following courses or their equivalent. All course prerequisites must be satisfied.

This minor is not open to international studies students.

#### Minor Requirements (9 credits)

- CSC 205 World Cultures or GEO 201 World Cultural Geography or SOC 201 Introduction to Sociology
- HIS 205 World History I or HIS 206 World History II or PHI 201 Introduction to Philosophy
- POL 201 Introduction to Political Studies

#### Minor Electives (9 credits)

- INS 301 Globalization
- INS 495 Senior Seminar

- POL 302 Law and Diplomacy
- POL 304/SOC 304 International Organizations
- POL 305 Public International Law
- POL 307 Wars, Conflicts and Diplomacy

### Minor in Philosophy

The philosophy minor develops students' natural reasoning. It also introduces students to the unanswered questions of the Western, Middle Eastern and Eastern traditions of wisdom.

Students enrolling in the philosophy minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in psychology must complete the following courses or their equivalent. All course prerequisites must be satisfied.

#### Minor Requirements (9 credits)

- PHI 201 Introduction to Philosophy
- PHI 202 Islamic Philosophy
- PHI 204 Ethics for Professionals or PHI 206 Ethics and Information Technology or CPM 235 Ethics for Computing and Information Technology

#### Minor Electives (9 credits)

- CSC 402 Qur'anic Studies
- PHI 303 Political Philosophy
- PHI 309 Ethics and the Environment
- PHI 394/494 Special Topics in Philosophy
- PSY 305 Cognitive Psychology

### Minor in Psychology

The minor in psychology develops students' sense of the psychological processes underlying people's behavior. It also introduces students to the theories and practices of experimental and clinical psychology, which prepares them for graduate work in various fields.

Students enrolling in the psychology minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in psychology must complete the following courses or their equivalent. All course prerequisites must be satisfied.

#### Minor Requirements (9 credits)

- PSY 101 General Psychology
- PSY 102 Social Psychology
- STA 201 Introduction to Statistics for Engineering and Natural Sciences or STA 202 Introduction to Statistics for Social Sciences or QBA 201 Quantitative Business Analysis; or NGN 111 Introduction to Statistical Analysis plus any PSY course

#### Minor Electives (9 credits)

- PSY 301 Abnormal Psychology
- PSY 302 Developmental Psychology
- PSY 303 Health Psychology
- PSY 304 Personality Psychology
- PSY 305 Cognitive Psychology
- PSY 306 Organizational Psychology
- PSY 394/494 Special Topics in Psychology

## Department of Language and Literature

Said Faiq, Chair

### Faculty

Kamal Abdel-Malek

Wesam Al-Assadi

Naghmana Ali

Ahmad Al-Issa

Muhsin Al-Musawi (on leave Fall 2006)

Fatima Badry

Maher Bahloul

Judith Caesar

Peter Crompton

Marina Dodigovic

Bruce Gatenby

Nawar Golley

Cindy Gunn

William Haney II

Basil Hatim (on leave Fall 2006)

Nicholas Karavatos

Betty Lanteigne

Imed Nsirri

Rana Raddawi

Sarah Shono

Olatunbosun Tijani

Rodney Tyson

Mohamed Zayani

### Bachelor of Arts in English Language and Literature (BAELL)

The mission of the Department of Language and Literature is to cultivate students' knowledge and understanding of language and literature, and to prepare its graduates for academic and professional success. Students will develop the ability to use language creatively and critically. They will also learn how to use language effectively in a variety of media, genres and contexts. The department offers programs in English language and literature, Arabic language and literature, TESOL, and translation and interpreting.

The BA in English language and literature provides a comprehensive knowledge of the structure and use of English. Furthermore, it enables the student to understand English within its historical and cultural context, without which one cannot

fully understand the literature or the society of the present English-speaking world. Above all, the program teaches students the research tools, critical processes and analytic skills necessary for functioning effectively in today's English-based information environment.

The curriculum progresses in a sequence of increasing depth and complexity. The 48 credits required for the English language and literature program consist of a balanced foundation in both language and literature studies, with 30 credits in core courses and 18 credits in either literature or language courses. This is supported by 15 credits of major electives.

The language component of the major helps students understand the history and structure of English and the interrelationship between society and language. This is particularly helpful to non-native speakers of English, who can compare English formations with those in their native language and gain insights into the reasons for these differences. The language program is thus designed not only to provide proficiency in the structure of English, but also to lead the student to explore the way in which language shapes thought and affects society.

In the literature concentration, the texts studied focus on British and American literature, literature written in English throughout the world, and translations of major writers who have influenced literature in English. Through this program, students come to understand the change of ideas from one period to another and the exchange of ideas from one society to another. Students also learn the styles and elements of a particular genre, and the basic elements of critical and creative writing. They learn to use the English language as the medium for expressing their own thoughts and feelings, and they come to understand its richness and nuances. They also explore the philosophical and critical theories that underlie both the understanding of literature and the writing of literature itself.

### Program Objectives

An English language concentration prepares graduates for further studies in linguistics and for careers in communication, a fast-growing sector in today's societies. In addition, by receiving a solid grounding in the English language, graduates are well prepared to become teachers of English as a foreign language. All these outlets are current growth areas in the region and will be increasingly useful as the educational and communications systems in the UAE and region.

A literature concentration prepares the student for professions requiring English language skills, research skills, and critical and analytical abilities. Moreover, it prepares students for positions requiring interaction with educated native speakers of English. Some of the specific professions for which the English literature major is qualified are in media, publishing, editing, research, teaching and diplomacy. A major in English literature is also an excellent preparation for graduate work in a related disciplinary area.

### Admission to the Program

Admission to the program follows AUS's admission requirements. Students transferring into the program must have a cumulative GPA of 2.0 or higher.

### Degree Requirements

A total of 120 credits is required:

- 42 credits of general education requirements including ENG 203 or ENG 204, MTH 100 and STA 202
- 63 credits of major and major-related requirements
- 15 credits of free electives
- A minimum CGPA of 2.0

### Major Requirements (63 credits)

Both concentrations within the English language and literature major require students to complete 63 credits of course work. All students in this major must complete:

- 30 credits of core courses

- 12 credits of concentration courses in language or literature
- 21 credits of major electives (these must be at the 300 level and above)

**Core Requirements (30 credits)**

- ENG 202 English Poetry and Prose I: Beginnings to 1800
- ENG 210 Introduction to Literature
- ENG 214 Survey of American Literature
- ENG 215 Contemporary World Literature
- ENG 223 Introduction to Language Study
- ENG 224 Structure and Function of English
- ENG 226 Development of the English

- Language
- ENG 234 Language in Society
  - ENG 300 Introduction to Literary Theory
  - ENG 302 Stylistics

**Major Electives (21 credits)**

Students must complete 21 credits from any course in Arabic (ARA), English (ENG), Translation (TRA) and Women Studies (WST 394/494) at the 300 level and above.

**English Language Concentration Requirements (12 credits)**

- ENG 331 The Sound Patterns of Language

- ENG 332 The Psychology of Language
- ENG 394 Language and Gender or ENG 401 Advanced English Grammar
- ENG 405 Discourse Analysis or ENG 495 Seminar in English

**English Literature Concentration Requirements (12 credits)**

- ENG 313 English Poetry and Prose II: 1800 to Present or ENG 316 Modern Drama and Beyond
- ENG 410 The American Novel or ENG 421 Early English Novel or ENG 430 Modern British Novel
- ENG 490 Senior Research Project
- ENG 495 Seminar in English

**Proposed Sequence of Study**  
**Bachelor of Arts in English Language and Literature (BAELL)**  
**Concentrations: *Language and Literature***

FIRST YEAR (30 credit hours) — LANGUAGE AND LITERATURE CONCENTRATIONS					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	MTH 100	Fundamentals of Logic and Geometry	3		GER MTH 1 of 1
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	SCI XXX	Science	3		GER SCI 1 of 2
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
		<b>Total</b>	<b>15</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
	FRE XXX	Free Elective	3		FRE 1 of 5
	SCI XXX	Science	3		GER SCI 2 of 2
	STA 202	Introduction to Statistics for Social Sciences	3	MTH 100 or MTH 101 or MTH 103 or MTH 111	GER MTH 2 of 2
		<b>Total</b>	<b>15</b>		

SECOND YEAR (30 credit hours) — LANGUAGE AND LITERATURE CONCENTRATIONS					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	ENG 223	Introduction to Language Study	3	WRI 102	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	FRE XXX	Free Elective	3		FRE 2 of 5
	ENG 224	English Grammar	3	WRI 102	CRR
		<b>Total</b>		<b>15</b>	
Spring	HSS XXX	Humanities/Social Science	3		GER HSS 4 of 5
	ENG 210	Introduction to Literature	3	ENG 203 or ENG 204	CRR
	ENG 302	Stylistics	3	ENG 203 or ENG 204	CRR
	ENG 226	Development of the English Language	3	WRI 102	CRR
	ELC XXX	English Language Competency	3		GER ELC 4 of 4
		<b>Total</b>		<b>15</b>	

THIRD YEAR (30 credit hours) — LANGUAGE CONCENTRATION					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ENG 214	Survey of American Literature	3	ENG 203 or ENG 204	CRR
	ENG 234	Language in Society	3	WRI 102	CRR
	ENG 202	English Poetry and Prose I: Beginnings to 1800	3	ENG 203 or ENG 204	CRR
	ENG 215	Contemporary World Literature	3	ENG 203 or ENG 204	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
		<b>Total</b>		<b>15</b>	
Spring	ENG 331	The Sound Patterns of Language	3	ENG 223 or ENG 224	CNR
	ENG 300	Introduction to Literary Theory	3	ENG 202 or ENG 210 or ENG 214 or ENG 215	CRR
	ENG 332	The Psychology of Language	3	ENG 223 or ENG 224	CNR
	MJE XXX	Major Elective	3		MJE 1 of 7
	MJE XXX	Major Elective	3		MJE 2 of 7
		<b>Total</b>		<b>15</b>	

FOURTH YEAR (30 credit hours) — LANGUAGE CONCENTRATION					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ENG 405 or ENG 495	Discourse Analysis or Seminar in English	3	ENG 223 or ENG 224/ junior standing	CNR
	MJE XXX	Major Elective	3		MJE 3 of 7
	ENG 385 or ENG 401	Language and Gender or Advanced English Grammar	3	ENG 223 or ENG 224	CNR
	MJE XXX	Major Elective	3		MJE 4 of 7
	FRE XXX	Free Elective	3		FRE 3 of 5
		<b>Total</b>	<b>15</b>		
Spring	MJE XXX	Major Elective	3		MJE 5 of 7
	MJE XXX	Major Elective	3		MJE 6 of 7
	MJE XXX	Major Elective	3		MJE 7 of 7
	FRE XXX	Free Elective	3		FRE 4 of 5
	FRE XXX	Free Elective	3		FRE 5 of 5
			<b>Total</b>	<b>15</b>	

THIRD YEAR (30 credit hours) — LITERATURE CONCENTRATION					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ENG 214	Survey of American Literature	3	ENG 203 or ENG 204	CRR
	HSS XXX	Humanities/Social Sciences	3		GRE HSS 3 of 5
	ENG 202	English Poetry and Prose I: Beginnings to 1800	3	ENG 203 or ENG 204	CRR
	ENG 215	Contemporary World Literature	3	ENG 203 or ENG 204	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
			<b>Total</b>	<b>15</b>	
Spring	ENG 234	Language in Society	3	WRI 102	CRR
	ENG 300	Introduction to Literary Theory	3	ENG 202 or ENG 210 or ENG 214 or ENG 215	CRR
	ENG 313 or ENG 316	English Poetry and Prose II: 1800 to Present or Modern Drama and Beyond	3	ENG 203 or ENG 204	CNR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	MJE XXX	Major Elective	3		MJE 3 of 7
			<b>Total</b>	<b>15</b>	

FOURTH YEAR (30 credit hours) — LITERATURE CONCENTRATION					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MJE XXX	Major Elective	3		MJE 4 of 7
	ENG 410 or ENG 421 or ENG 430	The American Novel or Early English Novel or Modern British Novel	3	ENG 210 or ENG 214 or ENG 215 or ENG 314/ENG 202 or ENG 210 or ENG 215 or ENG 313/ ENG 202 or ENG 210 or ENG 215 or ENG 313	CNR
	MJE XXX	Major Elective	3		MJE 5 of 7
	MJE XXX	Major Elective	3		MJE 6 of 7
	FRE XXX	Free Elective	3		FRE 3 of 5
		<b>Total</b>	<b>15</b>		
Spring	ENG 490	Senior Research Project	3	senior standing	CNR
	ENG 495	Seminar in English	3	junior standing	CNR
	MJE XXX	Major Elective	3		MJE 7 of 7
	FRE XXX	Free Elective	3		FRE 4 of 5
	FRE XXX	Free Elective	3		FRE 5 of 5
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

## Minor in Arabic Language and Literature

The minor in Arabic language and literature aims to enhance students' awareness and appreciation of the language, culture and literature of the Arab world. The minor is ideally suited for students in the humanities and social sciences, as well as students in applied sciences and business pursuing research or employment opportunities anywhere in the Arab world. The minor provides for a better understanding of Arabic language and literature in a global context. Furthermore, it meets the increasing regional and global demand for degree-holders proficient in Arabic language and culture.

Students enrolling in the Arabic language and literature minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.

- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in Arabic language and literature must complete the following courses or their equivalent. All course prerequisites must be satisfied.

### Minor Requirements (6 credits)

- ARA 101 or ARA 102 Readings in Arab Heritage (Arabic or English)
- ARA 200 Arabic as a Second Language II or ARA 210 Composition for Native Speakers of Arabic

### Minor Electives (12 credits)

- ARA 302 Arab Identity and Thought
- ARA 303 Classical Arab/Islamic Culture
- ARA 304 Modern Arab Poetry
- ARA 309 Business Arabic
- ARA 310 Images of America in Arabic Literature and Film
- ARA 312 Modern Arabic Literature: Prose and Poetry

- ARA 314 Media Arabic
- ARA 401 Literary Criticism from the Arab Perspective
- ARA 405 Literature of the Arabian Gulf
- ARA 394/494 Special Topics in Arabic Literature
- WST 394/494 Special Topics in Women Studies

## Minor in Education

Students enrolling in the education minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least 9 credits at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in education

must complete the following courses or their equivalents. All course prerequisites must be satisfied.

#### Minor Requirements (6 credits)

- EDU 210 Philosophy of Education
- EDU 220 Introduction to Teaching

#### Minor Electives (12 credits)

In addition to the minor requirements, students must complete four courses selected from any of the following:

- EDU 394/494 Special Topics in Education
- MTH 494 Methods of Teaching Mathematics in the Secondary School
- MTH 494 Mathematics Teaching with Technology
- PSY 302 Developmental Psychology

#### Minor in English Language

A minor in English language helps students understand the history and structure of English and the relationship between society and language. It also equips students with the necessary tools to compare languages across cultures in a multilingual and multicultural world.

Students enrolling in the English language minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in English language must complete the following courses or their equivalent. All course prerequisites must be satisfied.

This minor is not open to English language and literature students.

#### Minor Requirements (9 credits)

- ENG 223 Introduction to Language Study

- ENG 224 English Grammar
- ENG 226 Development of the English Language or ENG 234 Language in Society

#### Minor Electives (9 credits)

- ENG 302 Stylistics
- ENG 331 The Sound Patterns of Language
- ENG 332 The Psychology of Language
- ENG 385 Language and Gender
- ENG 401 Advanced English Grammar
- ENG 405 Discourse Analysis
- ENG 394/494 Special Topics in English Language
- ENG 495 Seminar in English

#### Minor in English Literature

A minor in literature increases students' awareness of the complexity and diversity of the literary culture of the English-speaking world and the origins of the literary traditions and beliefs that continue to shape and reflect the global English-speaking community.

Students enrolling in the English literature minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in English literature must complete the following courses or their equivalent. All course prerequisites must be satisfied.

This minor is not open to English language and literature students.

#### Minor Requirements (6 credits)

- ENG 210 Introduction to Literature
- ENG 215 Contemporary World Literature

#### Minor Electives (12 credits)

Any four courses at or above the 300 level in English literature, including ENG/MCM 320, MCM 378 and MCM 393.

#### Minor in English/Arabic

##### Translation and Interpreting

To qualify for a minor in English/Arabic translation and interpreting, students must demonstrate fluency in English and Arabic. In tandem with a solid grounding in communicative skills and linguistic analysis, the minor in translation and interpreting focuses on written translation skills in a variety of settings and across disciplines.

The interpreting further enhances the grounding gained in translation but focuses particularly on the community. Throughout the program, students are provided with relevant theoretical input that establishes a framework for the study of translation and interpreting and offers the tools to identify, analyze and resolve translation and interpreting problems. This program of study will enable AUS students from any discipline to further enhance their employability chances and, more importantly, to be able to mediate in English between the world of their education and their community.

Students enrolling in the English/Arabic translation and interpreting minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in English/Arabic translation and interpreting must complete the following courses or their equivalent. All course

prerequisites must be satisfied.

### Minor Requirements (6 credits)

- TRA 210 Introduction to Translation
- TRA 220 Theoretical and Practical Issues in Translation

### Minor Electives (12 credits)

- ENG 320 Intercultural Communication
- ENG 405 Discourse Analysis
- TRA 301 Modern Media Translation
- TRA 303 Interpreting: Focus on the Community
- TRA 401 Translation Evaluation and History
- TRA 394/494 Special Topics in Translation

### Minor in Women's Studies

The minor in women's studies aspires to promote an understanding of women's achievements, contributions and experiences in their historical and social contexts. Women's studies courses provide students with opportunities to critically analyze theoretical frameworks related to women but within multicultural and multidisciplinary contexts.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in women's studies must complete the following courses or their equivalents. All course prerequisites must be satisfied.

### Minor Requirements (9 credits)

- HIS 208 Women in History
- WST 240 Introduction to Women's Studies
- WST 250 Women's Voices Across Cultures

### Minor Electives (9 credits)

In addition to the minor requirements, students must complete three courses selected from any WST course and/or ENG 394 Language and Gender.

## Department of Mass Communication

Mahboub Hashem, Chair

### Faculty

Ilhem Allagni  
Kim Bigelow  
Joseph Gibbs  
Frank Kalupa  
John King  
Don Love  
Andy Lynch  
Susan Smith

### Bachelor of Arts in Mass Communication (BAMC)

The Department of Mass Communication offers students the opportunity to specialize in three professional concentrations—advertising, journalism and public relations—as well as the option of a general communication program of study. This allows students to have the greatest flexibility in tailoring their mass communication degree to best serve their career goals. It builds upon acquisition of theoretical, technical, oral and written communication competencies, and best professional practice strategies and lessons.

A degree in mass communication prepares students for professions requiring the highest levels of English language skills, research skills, and critical and analytical abilities. These research and analytical skills are themselves in high demand by the fastest growing segments of major organizations. By receiving a solid grounding in the practical use of qualitative and quantitative methodologies, and skills such as advertising and public relations strategic management, news writing, copy writing and media production, graduates will also be prepared to enter professional communication settings as varied as advertising and public relations firms, mass media, businesses, government, non-profit organizations, professional associations, healthcare companies and international organizations. The mass communication program prepares students for a comprehensive understanding of

the various disciplines contributing to the profession. Moreover, a mass communication degree prepares students for positions requiring interaction with educated native speakers of English.

### Degree Options

Upon completion of all degree requirements, students receive a Bachelor of Arts in Mass Communication. With the permission of the department, students in good standing who have completed 90 credits (at least 36 of them in MCM courses) may select one of the three concentration areas (advertising, journalism or public relations) or the general communication option.

#### Advertising

Students selecting the advertising program of study receive exposure to an integrated marketing communication approach to advertising and strategic communication. A combination of advertising, public relations and marketing courses prepare students for careers as advertising account executives, creative specialists, media planners, media sales representatives and marketing communication researchers.

#### Journalism

The journalism concentration curriculum prepares students for careers in newspapers, magazines, broadcasting, wire services, special interest publications and online publications. This curriculum offers students additional preparation to find careers as print and broadcast reporters, editors, producers, copywriters, scriptwriters, news/project managers, copy editors, correspondents, columnists or editorial writers.

#### Public Relations

Students selecting the public relations program of study receive exposure to a wide range of integrated communication methods and practices as well as extensive examination of theoretical and pragmatic communication knowledge designed to prepare them for successful

strategic management careers in corporate, government and non-profit organizations worldwide. The profession has experienced substantial growth and heightened stature over the past several decades, a global trend that is projected to continue throughout the 21st century.

### Admission to the Program

Admission to the program follows the university's admission requirements. Students transferring into the program must have a cumulative GPA of 2.0 or higher.

### Degree Requirements

#### **A total of 120 credits is required:**

- 42 credit hours of general education requirements, including ENG 203 or ENG 204, and ENG 208 or MCM 209
- 63 credit hours of MCM major and major-related requirements
- 15 credit hours of free electives
- A minimum of six weeks or 240 hours of on-the-job training (internship) with a professional firm
- A minimum CGPA of 2.0

#### **Major Requirements (63 credits)**

All students must complete a total of 63 credits of major and major-related requirements divided as follows:

#### **Core Requirements (18 credits)**

- MCM 150 Introduction to Mass Communication Studies
- MCM 225 Theories of Mass Communication
- MCM 231 Writing for Mass Communication
- MCM 300 Mass Communication Research
- MCM/ENG 320 Intercultural Communication
- MCM 321 Mass Communication Law and Ethics
- MCM 497 Mass Communication Internship (0 credit)

#### **Related Fields Electives (18 credits)**

Students must complete six courses at the 200 level or above from any course in DES, ECO, ENG, INS, MCM,

MGT, MKT, MUM, POL, TRA and VIS.

### **Concentration in Advertising**

**(27 credits)**

#### **Concentration Requirements (21 credits)**

- MCM 100 Introduction to Digital Media Design or DES 100 Digital Media in Design
- MCM 227 Principles of Public Relations
- MCM 255 Principles of Advertising
- MCM 351 Advertising Copy and Layout
- MCM 453 Advertising Media Planning
- MCM 455 Advertising Campaigns
- MKT 201/MKT 211 Fundamentals of Marketing

#### **Concentration Electives (6 credits)**

- MCM 353 Direct Response Advertising
- MCM 451 Strategic Communication Research
- MCM 454 Case Studies in Advertising
- MCM 463 International Public Relations
- MCM 465 Public Relations Campaigns
- MCM 490 Senior Project
- MCM 494 Special Topics in Mass Communication
- MCM 496 Independent Study in Mass Communication
- MKT 301 Consumer Behavior
- MKT 302 Marketing Research
- MKT 303 E-Commerce

### **Concentration in Journalism**

**(27 credits)**

#### **Concentration Requirements (3 credits)**

- MCM 275 Principles of Journalism or MCM 281 Principles of Media Production and Performance

#### **Concentration Electives (24 credits)**

- MCM 306 Broadcast Journalism
- MCM 371 News Writing
- MCM 373 Scriptwriting
- MCM 374 Feature Writing
- MCM 375 Editing for the Print Media
- MCM 377 Photojournalism

- MCM 410 Media Producing and Project Management
- MCM 411 Multiple Camera Studio Production
- MCM 450 Critical Analysis of Mass Media
- MCM 461 International Mass Communication
- MCM 470 Writing and Reporting for Broadcast News
- MCM 471 Advanced News Writing
- MCM 472 Editorial and Critical Writing
- MCM 473 Writing for Multimedia
- MCM 475 Writing and Producing for Documentaries
- MCM 491 Print Media Project
- MCM 394/494 Special Topics in Mass Communication
- MCM 496 Independent Study in Mass Communication

### **Concentration in Public Relations**

**(27 credits)**

#### **Concentration Requirements (18 credits)**

- MCM 227 Principles of Public Relations
- MCM 255 Principles of Advertising
- MCM 361 Case Studies in Public Relations
- MCM 369 Public Relations Writing
- MCM 465 Public Relations Campaigns
- MCM 469 Advanced Public Relations Writing

#### **Concentration Electives (9 credits)**

- MCM 100 Introduction to Digital Media Design or DES 100 Digital Media in Design
- MCM 275 Principles of Journalism
- MCM 329 Mass Communication and Society
- MCM 360 Crisis and Conflict Management
- MCM 363 Organizational Communication and Leadership
- MCM 365 Strategic Media Relations
- MCM 371 News Writing
- MCM 377 Photojournalism
- MCM 380 Persuasive Communication
- MCM 401 Public Relations Publications

- MCM 451 Strategic Communication Research
- MCM 455 Advertising Campaigns
- MCM 467 Public Relations for Non-Profit Organizations
- MCM 490 Senior Project
- MCM 394/494 Special Topics in Mass Communication
- MCM 496 Independent Study in Mass Communication

- MGT 201 Fundamentals of Management
- MKT 201/211 Fundamentals of Marketing
- INS 301 Globalization

from any of the mass communication (MCM) course not listed in the core requirements or concentration requirements.

**Free Electives (15 credits)**

Students must complete any five courses at the 100 level or above.

**General Degree in Mass Communication (27 credits)**

**Major Electives**

Students must complete nine courses

**Proposed Sequence of Study  
Bachelor of Arts in Mass Communication (BAMC)  
General Degree and All Concentrations**

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	MTH 100	Fundamentals of Logic and Geometry	3		GER MTH 1 of 2
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	MCM 100 or DES 100	Introduction to Digital Media Design or Digital Media in Design	3		CNR 1 of 7 (for advertising majors only)
	FRE XXX	Free Elective	3		FRE 1 of 5 (for PR, journalism or general degree majors)
	<b>Total</b>		<b>15</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	SCI XXX	Science	3		GER SCI 1 of 2
	STA 202	Introduction to Statistics for Social Sciences	3	MTH 100 or MTH 101 or MTH 103 or MTH 111	GER MTH 2 of 2
		<b>Total</b>		<b>15</b>	

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	MCM 150	Introduction to Mass Communication Studies	3	WRI 102	CRR 1 of 7
	SCI XXX	Science	3		GER SCI 2 of 2
	<b>Total</b>		<b>15</b>		
Spring	ENG 208 or MCM 209	Public Speaking or Dramatic Expression	3	ENG 203 or 204 or 231 or MCM 231/ MCM 150; ENG 203 or ENG 204	GER ELC 4 of 4
	MCM 225	Theories of Mass Communication	3	MCM 150	CRR 2 of 7
	MCM 231	Writing for Mass Communication	3	MCM 150	CRR 3 of 7
	MCM 227 or MCM 255 or MCM 275 or MCM 281	Principles of Public Relations or Principles of Advertising or Principles of Journalism or Principles of Media Production and Performance	3	MCM 100 or DES 100 and MCM 150/ MCM 100 or DES 100 and MCM 150/ Plus pre/con MCM 231/ Plus pre/con MCM 231/	CNR 2 of 7 (Advertising) CNR 1 of 1 (Journalism) CNR 1 of 6 (PR) CNE 1 of 9 (General)
	MCM 300	Mass Communication Research	3	MCM 150 or MCM 225, and STA 202 or QAN 201 or QBA 201 or NGN 111	CRR 4 of 7
	<b>Total</b>		<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNR: Concentration Requirement; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: F□  
 MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

**Proposed Sequence of Study**  
**Bachelor of Arts in Mass Communication (BAMC)**  
**Concentration: Advertising**

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MCM 227	Principles of Public Relations	3	MCM 150	CNR 3 of 7
	ENG/MCM 320	Intercultural Communication	3	ENG 203 or ENG 204	CRR 5 of 7
	MCM 321	Mass Communication Law and Ethics	3	MCM 227 or MCM 255 or MCM 275 or MCM 281	CRR 6 of 7
	RFE XXX	Related Field Elective	3		RFE 1 of 6
	FRE XXX	Free Elective	3		FRE 1 of 5
	<b>Total</b>		<b>15</b>		
Spring	MKT 201/MKT 211	Fundamentals of Marketing	3	ECO 201 or ECO 202; pre/con WRI 102	CNR 4 of 7
	MCM 351	Advertising Copy and Layout	3	MCM 255	CNR 5 of 7
	CNE XXX	Concentration Elective	3		CNE 1 of 2
	RFE XXX	Related Field Elective	3		RFE 2 of 6
	FRE XXX	Free Elective	3		FRE 2 of 5
	<b>Total</b>		<b>15</b>		
Summer	MCM 497	Mass Communication Internship	0	junior standing and consent of department	CRR 7 of 7

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CNE XXX	Concentration Elective	3		CNE 2 of 2
	MCM 453	Advertising Media Planning	3	MCM 255	CNR 6 of 7
	RFE XXX	Related Field Elective	3		RFE 3 of 6
	RFE XXX	Related Field Elective	3		RFE 4 of 6
	FRE XXX	Free Elective	3		FRE 3 of 5
		<b>Total</b>	<b>15</b>		
Spring	MCM 455	Advertising Campaigns	3	MCM 351	CNR 7 of 7
	RFE XXX	Related Field Elective	3		RFE 5 of 6
	RFE XXX	Related Field Elective	3		RFE 6 of 6
	FRE XXX	Free Elective	3		FRE 4 of 5
	FRE XXX	Free Elective	3		FRE 5 of 5
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNR: Concentration Requirement; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: F□

MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; RFE: Related Field Elective; SCI: Science Requirement

**Proposed Sequence of Study**  
**Bachelor of Arts in Mass Communication (BAMC)**  
**Concentration: Journalism**

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CNE XXX	Concentration Elective	3		CNE 1 of 8
	ENG 320/ MCM 320	Intercultural Communication	3	ENG 203 or ENG 204	CRR 5 of 7
	MCM 321	Mass Communication Law and Ethics	3	MCM 227 or MCM 255 or MCM 275 or MCM 281	CRR 6 of 7
	RFE XXX	Related Field Elective	3		RFE 1 of 6
	FRE XXX	Free Elective	3		FRE 2 of 5
		<b>Total</b>	<b>15</b>		
Spring	CNE XXX	Concentration Elective	3		CNE 2 of 8
	CNE XXX	Concentration Elective	3		CNE 3 of 8
	CNE XXX	Concentration Elective	3		CNE 4 of 8
	RFE XXX	Related Field Elective	3		RFE 2 of 6
	FRE XXX	Free Elective	3		FRE 3 of 5
		<b>Total</b>	<b>15</b>		
Summer	MCM 497	Mass Communication Internship	0	junior standing and consent of department	CRR 7 of 7

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CNE XXX	Concentration Elective	3		CNE 5 of 8
	RFE XXX	Related Field Elective	3		RFE 3 of 6
	RFE XXX	Related Field Elective	3		RFE 4 of 6
	RFE XXX	Related Field Elective	3		RFE 5 of 6
	FRE XXX	Free Elective	3		FRE 4 of 5
		<b>Total</b>	<b>15</b>		
Spring	CNE XXX	Concentration Elective	3		CNE 6 of 8
	CNE XXX	Concentration Elective	3		CNE 7 of 8
	CNE XXX	Concentration Elective	3		CNE 8 of 8
	RFE XXX	Related Field Elective	3		RFE 6 of 6
	FRE XXX	Free Elective	3		FRE 5 of 5
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNR: Concentration Requirement; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: F□

MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; RFE: Related Field Elective; SCI: Science Requirement

**Proposed Sequence of Study**  
**Bachelor of Arts in Mass Communication (BAMC)**  
**Concentration: Public Relations**

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MCM 255	Principles of Advertising	3	MCM 150	CNR 2 of 6
	ENG/MCM 320	Intercultural Communication	3	ENG 203 or ENG 204	CRR 5 of 7
	MCM 321	Mass Communication Law and Ethics	3	MCM 227 or MCM 255 or MCM 275 or MCM 281	CRR 6 of 7
	RFE XXX	Related Field Elective	3		RFE 1 of 6
	FRE XXX	Free Elective	3		FRE 2 of 5
		<b>Total</b>	<b>15</b>		
Spring	CNE XXX	Concentration Elective	3		CNE 1 of 3
	MCM 361	Case Studies in Public Relations	3	MCM 227	CNR 3 of 6
	MCM 369	Public Relations Writing	3	MCM 227 and MCM 231	CNR 4 of 6
	RFE XXX	Related Field Elective	3		RFE 2 of 6
	FRE XXX	Free Elective	3		FRE 3 of 5
		<b>Total</b>	<b>15</b>		
Summer	MCM 497	Mass Communication Internship	0	junior standing and consent of department	CRR 7 of 7

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CNE XXX	Concentration Elective	3		CNE 2 of 3
	MCM 465	Public Relations Campaigns	3	MCM 369	CNR 5 of 6
	RFE XXX	Related Field Elective	3		RFE 3 of 6
	RFE XXX	Related Field Elective	3		RFE 4 of 6
	FRE XXX	Free Elective	3		FRE 4 of 5
		<b>Total</b>	<b>18</b>		
Spring	MCM 469	Advanced Public Relations Writing	3	MCM 369	CNR 6 of 6
	CNE XXX	Concentration Elective	3		CNE 3 of 3
	RFE XXX	Related Field Elective	3		RFE 5 of 6
	RFE XXX	Related Field Elective	3		RFE 6 of 6
	FRE XXX	Free Elective	3		FRE 5 of 5
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNR: Concentration Requirement; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test

Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; RFE: Related Field Elective; SCI: Science Requirement

### Proposed Sequence of Study Bachelor of Arts in Mass Communication (BAMC) General Degree

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CNE XXX	Concentration Elective	3		CNE 2 of 9
	ENG 320/ MCM 320	Intercultural Communication	3	ENG 203 or ENG 204	CRR 5 of 7
	MCM 321	Mass Communication Law and Ethics	3	MCM 227 or MCM 255 or MCM 275 or MCM 281	CRR 6 of 7
	RFE XXX	Related Field Elective	3		RFE 1 of 6
	FRE XXX	Free Elective	3		FRE 2 of 5
		<b>Total</b>	<b>15</b>		
Spring	CNE XXX	Concentration Elective	3		CNE 3 of 9
	CNE XXX	Concentration Elective	3		CNE 4 of 9
	CNE XXX	Concentration Elective	3		CNE 5 of 9
	RFE XXX	Related Field Elective	3		RFE 2 of 6
	FRE XXX	Free Elective	3		FRE 3 of 5
		<b>Total</b>	<b>15</b>		
Summer	MCM 497	Mass Communication Internship	0	junior standing and consent of department	CRR 7 of 7

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CNE XXX	Concentration Elective	3		CNE 6 of 9
	CNE XXX	Concentration Elective	3		CNE 7 of 9
	CNE XXX	Concentration Elective	3		CNE 8 of 9
	RFE XXX	Related Field Elective	3		RFE 3 of 6
	FRE XXX	Free Elective	3		FRE 4 of 5
		<b>Total</b>	<b>15</b>		
Spring	CNE XXX	Concentration Elective	3		CNE 9 of 9
	RFE XXX	Related Field Elective	3		RFE 4 of 6
	RFE XXX	Related Field Elective	3		RFE 5 of 6
	RFE XXX	Related Field Elective	3		RFE 6 of 6
	FRE XXX	Free Elective	3		FRE 5 of 5
			<b>Total</b>	<b>15</b>	

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNR: Concentration Requirement; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: F□

MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; RFE: Related Field Elective; SCI: Science Requirement

## Double Concentration

Students enrolled in the mass communication major may pursue a second concentration. Such students must fulfill the course requirements in both concentration areas. Double-concentration students generally require more than 120 credits to meet graduation requirements.

## Minor in Mass Communication

Students enrolling in the mass communication minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be

taken in residence at AUS.

- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in mass communication must complete the following courses or their equivalent. All course prerequisites must be satisfied.

This minor is not open to mass communication students.

### Minor Requirements (9 credits)

- MCM 150 Introduction to Mass Communication Studies
- MCM 225 Theories of Mass Communication
- MCM 231 Writing for Mass Communication

### Minor Electives (9 credits)

Students must complete three courses in mass communication at the 300 level or above.

## Department of Mathematics and Statistics

Yusuf Abu-Muhanna, Chair

### Faculty

Zayid AbdulHadi  
 Taher Abualrub  
 Marwan Abukhaled  
 Ghada Alobaidi  
 Mahmoud Anabtawi  
 Ayman Badawi  
 Ibrahim El Sadek  
 James Griffin  
 Gajath Gunatillake  
 Suheil Khoury  
 Ismail Kucuk  
 Guillaume Leduc  
 David Radnell  
 Ali Saifi  
 Hana Sulieman  
 Luis Wills  
 Thomas Wunderli

The Department of Mathematics and Statistics seeks to develop

campuswide the level of mathematical skills and quantitative and logical reasoning required for individuals to make informed decisions and excel in their chosen disciplines. It also seeks to develop these same skills in the larger community. The department aims to provide students with the mathematical ability needed to fulfill future leadership roles. Its goal is to assist students in obtaining proficiency in the mathematics and statistics needed to function in society.

### Minor in Applied and Computational Mathematics

Students enrolling in the applied and computational mathematics minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in applied and computational mathematics must complete the following courses or their equivalent. All course prerequisites must be satisfied.

#### Minor Requirements (12 credits)

- MTH 205 Differential Equations
- MTH 221 Linear Algebra
- MTH 341 Computational Methods
- MTH 351 Methods of Applied Mathematics I

#### Minor Electives (6 credits)

Students must complete two courses in mathematics and/or statistics at the 300 level or above with the approval of the department.

## Department of Physics

Nasser Hamdan, Chair

### Faculty

Ali Alnaser

Nidhal Guessoum  
 Mohammad Islam  
 Asad Hasan Jaidi  
 Tareq Majeed  
 Said Sakhi  
 Yousef Salamin

The central aim of the Department of Physics is to provide students of engineering and other applied sciences with a solid grounding in physics, which is essential for progress in their respective fields of study, and to contribute to the Environmental Sciences Program. In addition to courses leading to a minor in physics, the department also offers courses on conceptual physics and astronomy as general science education requirements.

### Minor in Physics

Students of science and engineering can enroll in a minor in physics in one of two areas of special emphasis: space physics and the physics of lasers and semiconductors. Interested students must seek the approval of the chair of the Department of Physics. Students enrolling in the physics minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in all courses taken to satisfy the minor.

Students seeking a minor in physics must complete the following courses or their equivalent. All course prerequisites must be satisfied.

#### Minor Requirements (6 credits)

- PHY 106 Waves and Heat
- PHY 201 Modern Physics

#### Minor Electives (12 credits)

Students must complete at least nine credits at the 300 level or above from

the following:

- PHY 106L Waves and Heat Laboratory
- PHY 201L Modern Physics Laboratory
- PHY 251 Meteorology
- PHY 301 Energy Sources
- PHY 303 Atmospheric Physics
- PHY 394/494 Special Topics in Physics

## Department of Writing Studies

Donald Cruickshank, Chair

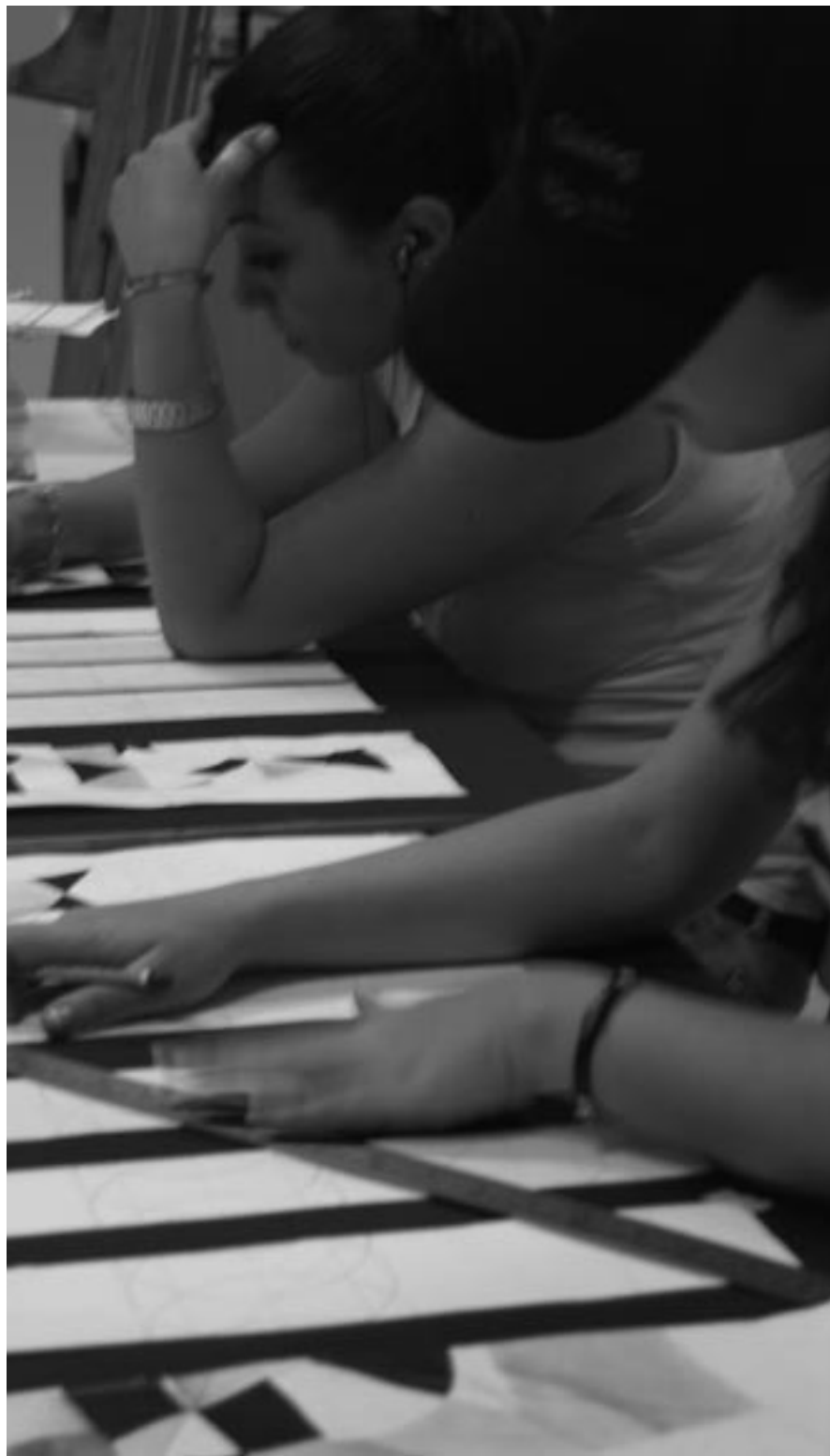
### Faculty

Thomas Alibrandi  
 Barbara Lesley Blake  
 Jerald Cumbus  
 Laila Dahan  
 Maria Eleftheriou  
 Neena Gandhi  
 Christopher Horger  
 Mary John  
 Jessica Lee  
 Dennis Lewis  
 Gregory McElwain  
 Suzan Munday  
 Tina Richardson  
 Lynne Ronesi  
 Anne Shine  
 Terri Storseth  
 Jason Ward

The purpose and goal of the Department of Writing Studies is to provide students with the language and rhetorical foundations needed to be able to write and read successfully in an academic environment.

To acquire these skills, students learn how to read and write paragraphs and essays. Instruction combines reading and writing skills with the grammar, vocabulary and organizational skills necessary to effectively present academic material in the various rhetorical genres of writing. Equipping students with these skills not only provides them with abilities to effectively negotiate academic assignments but also gives them a foundation for effective written communication, a skill that will be valuable to them for the rest of their lives.

# SA&D



# School of Architecture and Design

## Dean

Fatih Rifki

## Associate Dean

Kevin Mitchell

The School of Architecture and Design is committed to providing a comprehensive education that will enable its graduates to make significant contributions to the Gulf region and the broader global community through conscientious participation in practice.

All its undergraduate programs have received accreditation from the UAE Ministry of Higher Education and Scientific Research.

The School of Architecture and Design (SA&D) grounds its curriculum in the conviction that good design results from a combination of a deep understanding of culture, ethical engagement in society and a respect for the creative skills needed to build a sustainable material culture.

Against this background, the school is committed to the primary objective of providing its students with relevant, professional instruction in the fields of architecture, design management, interior design, multimedia design and visual communication.

The school is dedicated to inquiry and to the development of hands-on technical skills and competence in digital and other advanced media. It also fosters in its students a regional and cultural awareness and the responsibility for creating humane environments. The school seeks to contribute to the development of professional standards and innovation in architecture and design.

The School of Architecture and Design meets its objectives through degree programs that feature the following:

- An environment that encourages achievement and personal growth
- A faculty of professionals who balance continuing scholarship and creative work with their desire for excellence in teaching
- A comprehensive advisement and

student counseling system that tracks student development and progress

- A general education curriculum that offers a solid foundation
- A clear and consistent approach that is evident throughout the curriculum
- A variety of courses that are continually updated to reflect rapidly changing design practices and the growing role of digital communication
- A respect for culture, traditions and needs of society

- GPA in the foundations studio sequence
- GPA in non-studio first-year courses including mathematics, English, writing, history and digital design

In addition, selection for promotion may also include portfolio review.

Year status in the School of Architecture and Design is determined by enrollment in the major studio, regardless of the total number of credits earned.

## Computer Requirements

At the beginning of the third year, all students of architecture, interior design, multimedia design and visual communication are required to have a personal laptop computer. SA&D will provide software for student-owned laptops to students enrolled in upper-level studio courses in these four majors. The laptop must meet specifications published by SA&D in order to be used within the program. Laptops that do not meet specifications published by the school may not adequately run software required to complete course work.

## Course Selection

Students are cautioned that the specific selection of courses available for a chosen major at the time of initial registration is subject to change. The School of Architecture and Design will make every effort to monitor student progress through the advisement process. Students are encouraged to make course selections based on the stated degree requirements, subject to the listed prerequisites.

## Studio Supplies

Supply expenses for studio courses are in addition to tuition cost, and lab fees may apply for some courses. However, students are given a limited account for printing.

## Ownership of Student Work

The School of Architecture and Design reserves the right to retain, indefinitely, selected examples of student work for archiving, publicity and exhibition.

## Career Opportunities

The SA&D prepares students for careers in a wide variety of fields:

- architecture, environmental design, interior design, urban design
- graphic design, advertising, packaging design, illustration, digital media, animation, computer simulations, video, photography, printmaking
- communications and public relations, fine arts and cultural arts administration, gallery management, advertising campaign planning

## Special Notes

### Space Availability (Studio Majors)

Admission to the School of Architecture and Design is competitive and limited to 140 students in first-year studio courses. The number of available seats in second-year studio majors in architecture, interior design, multimedia design and visual communication is limited to the following:

- |   |    |
|---|----|
| • architecture/interior design            | 48 |
| • multimedia design/ visual communication | 48 |

The number of available seats in second-year design management is not limited. The School of Architecture and Design accepts new and transfer students only in the fall semester.

### Selection for Promotion

Selection for enrollment in second-year studios is competitive. Criteria for promotion include an assessment of:

### Responsibility for Equipment

The School of Architecture and Design provides an extensive range of digital and electronic equipment for student use. For some courses, school equipment is checked out to a student or a group of students for use on or off campus. Students are expected to treat school equipment with care and will be held financially responsible for breakage, damage, late return or loss.

### Programs Offered

The School of Architecture and Design offers the following undergraduate degrees:

- Bachelor of Architecture
- Bachelor of Science in Design Management
- Bachelor of Interior Design
- Bachelor of Science in Multimedia Design
- Bachelor of Science in Visual Communication

### Foundations Year

Kevin Mitchell, Coordinator

#### Faculty

Brian Dougan  
Martin Giesen  
Eirik Heintz  
David Hewitt

The foundations year is an autonomous one-year program that supports the common educational requirements for all fields of study within the School of Architecture and Design. As such, the program provides the basic design education that will enable students to function on appropriate practical, theoretical and critical levels in their sophomore (second) year. All students in the School of Architecture and Design are required to successfully complete the major-required courses in this first year to be considered for advancement to the second year of their chosen major.

The foundations year aims to achieve three instructional objectives:

- Competence in the fundamental skills and concepts of design analysis, representation and presentation through

- studio-based exercises and projects
- Familiarity with the historical implications and chronology of design conventions through in-class lectures and written assignments
- A basic proficiency in computer-aided design technology through exercises and project work in a lab setting

The foundations year utilizes three distinct teaching formats in order to provide a broad and inclusive introduction to design methods and practice. Studio courses, which form the core of the foundations year, encourage one-on-one student/professor interaction and allow the student to develop an independent design process. History courses are taught in a lecture context where information and ideas are disseminated in a classroom setting using visual images to support learning. Digital courses are taught using a combination of class lectures and instructional technology. Professors interact with students on various levels through the use of traditional lectures, digital media, network software and digital storage systems.

Within the foundations year, students are encouraged to develop a basic practical and critical understanding of design principles. Experimentation and exploration with materials, tools and techniques are fostered in the realization of two- and three-dimensional concepts and ideas.

The foundations year consists of the following courses, which are major requirements in all studio programs. Successful completion of these courses is required to be considered for advancement to the second year of the chosen studio major:

- DES 100 Digital Media in Design
- DES 111 Descriptive Drawing I
- DES 112 Descriptive Drawing II
- DES 121 History of Material Culture I
- DES 122 History of Material Culture II
- DES 131 Design Foundations I
- DES 132 Design Foundations II

Design management students must complete DES 100, DES 111, DES 131 and either DES 121 or DES 122. If students choose to complete DES

112, DES 121 and DES 132, these will be considered major electives.

Although some faculty members specialize as foundations professors, the teaching load in foundations is shared by professors from various majors including architecture, interior design, multimedia design and visual communication. This professional collaboration between disciplines at the foundations level initiates early student dialogue with senior-level faculty and provides the program with a healthy influx of cross-disciplinary expertise and discourse. It is this important aspect of the foundations program that ensures a balanced response to the needs of the various degree programs it supports.

### Department of Architecture

Samia Rab, Chair

#### Faculty

Nadia Alhasani (on sabbatical 2006–2007)  
Mona El-Mousfy  
Michelle Grant  
George Katodrytis  
Tim Kennedy  
Bruce Lonman  
Kevin Mitchell  
Ahmed Mokhtar  
Amer Moustafa  
Jay Randle  
Fatih Rifki  
Mehdi Sabet  
William Sarnecky  
Kevin Sweet  
Gregor Weiss

### Bachelor of Architecture (BArch)

Architecture arises from the same wellspring of civilization as other universal manifestations of material culture: arts, histories, letters, religion and commerce. Still, the artifacts we designate as architecture possess a scale, permanence and a pervasive influence unique among human endeavors. These qualities endow the discipline with a cultural prominence few other professions enjoy.

In its contemporary university setting, the study of architecture is

naturally concerned with complex, interdisciplinary issues. Some matters are primarily individual and practical: the basic human need for shelter and the desire to contrive efficient, adequate forms for the patterns of daily life. Architecture, in this sense, may concern aspirations and meanings, but its primary intent is to attain a practical advantage for us, here and now.

Architecture also has a transcendent motive, arising from an imperative to articulate, physically and spatially, the social, ceremonial and environmental choices a given culture makes within a given setting. Architecture expresses our living values. It gives abiding form, order and proportion to our activities. Architecture is a message to the world about our certainties and doubts, our values and beliefs, our preoccupations and our neglects. It both expresses and reveals.

The practice of architecture today, as in the past, requires coordinated contributions from multiple of fields. The craft of the architect runs a gamut of expertise and awareness: technical, environmental, aesthetic, cultural, historical and commercial. Consequently, the study of architecture investigates principles and applications of technology, art, humanities, engineering, physical and social sciences, business and management. Architectural design, finally, is the synthetic practice that links and gives significant form to these interdisciplinary contributions.

The Bachelor of Architecture (BArch) degree (five-year professional program) is intended for the student seeking a professional career in architecture. The program entails a minimum of five years of university studies plus professional training. A minimum of 172 credits comprise the degree program, including a minimum of 127 credits of required course work in architecture and closely associated fields. These courses represent the irreducible core of the discipline of architecture.

Each student is required to extend the core curriculum with 18 credits of approved architecture electives. The intent is to balance the concern for

in-depth professional competence with another for the individual's interest and aptitude. These courses should be selected in consultation with the student's advisor.

The specialized professional curriculum is supported by a minimum of 42 credits of general education requirements. Designed to ensure a broad educational foundation, this base is held in common among all graduates of the American University of Sharjah.

University studies present a unique opportunity to explore other fields of interest. Based solely on individual interests, each architecture student must select nine credits of free electives from general university offerings. Some major required courses count toward general education requirements. In such cases, both requirements are considered as being met but the credits only count once toward total degree hours.

The curriculum is designed to meet the requirements for licensure that prevail in the United Arab Emirates and to prepare the graduate for professional practice throughout the region. Some students may aspire either to advanced study in the field or to practice in a broader global setting. Accordingly, the curriculum follows established international norms for a first professional degree in architecture.

### Advancement in the Professional Degree Program

The number of seats in architecture is limited. Formal advancement is competitive. Only the most highly qualified foundations students will be promoted. To be considered for advancement to the second year of the Bachelor of Architecture program a student must successfully complete the following requirements:

- All four foundations studio courses (DES 111, DES 112, DES 131, DES 132) with a minimum grade point average (GPA) of 2.0 out of 4.0 in each sequence (design and drawing)
- Both courses in history of material culture (DES 121 and DES 122)
- DES 100 Digital Media in Design

- MTH 111 Mathematics for Architects or its prerequisite (MTH 003), or MTH 103 Calculus I
- At least one course in English/writing at the 100 level or above
- A minimum of 27 semester hours of university credit (including the above courses)
- A cumulative GPA of 2.0

Formal notification of advancement in the program will be announced by the School of Architecture and Design in mid-June after release of final grades by the Office of the Registrar at the end of the spring semester. In the event that there are more students who qualify for advancement than available spaces, candidates will be promoted in the major based on academic achievement, and a waiting list will be established. In the event of a tie, students with the highest GPA in all four foundations studio courses will advance to second year. In the event of a second tie, students with the highest GPA in both courses in history of material culture (DES 121 and DES 122) and mathematics (MTH 111, MTH 003 or MTH 103) will advance to the second year. If there are available seats at the time of fall registration, consideration will be given to those students who fulfilled requirements during summer session or who wish to change majors, based on the same advancement criteria as noted above. Students who need to repeat a second-year studio course will also be competing for the limited number of seats in the major.

### Promotion Reviews in Architecture

As an extension of the regular advisement process, the performance of each architecture student is reviewed following the completion of each of the second, third and fourth years in the program. A student must pass each review to continue in the major and must have attained:

- A minimum cumulative GPA of C+ (2.3) in all university courses
- A minimum major studio average of 2.3 in each year of the architectural design studio sequence (ARC 201 and ARC 202, ARC 301 and ARC 302, ARC 401 and ARC 402)

**Notes:**

- A grade of C- (1.70) is the minimum passing grade in a studio course. The minimum major studio average must be achieved to continue in the program.
- A student with a semester grade of D (1.00) in the fall studio may not continue into the spring semester of the studio sequence.
- A student who does not attain the required major studio average may repeat either studio with the higher grade for that studio averaged with the studio grade.
- Any studio may be repeated only once.
- A student who fails to achieve the minimum studio average necessary for promotion after repeating the studio is dismissed from the program.

If the review has a negative outcome, the department will assist a candidate in transferring to a field that holds better promise for the student.

**Degree Requirements**

A minimum of 172 credits, including the following, is required:

- A minimum of 42 credits of general education requirements
- A minimum of 127 credits of major and major-related courses in the major including 18 credits of approved architecture electives
- Nine credits of free electives
- Fourteen weeks of approved professional training (internship)

In order to graduate with a Bachelor of Architecture degree, a student must maintain a minimum cumulative grade point average (CGPA) of 2.0 and must have attained a major studio average of 2.3 in the final studio sequence (ARC 505 and either ARC 506 or ARC 592).

**General Education Requirements (42 credits)**

- English language competency requirement (12 credits): 100 level or above of English/writing courses
- Arabic heritage requirement (3 credits)
- Mathematics and/or statistics requirement (6 credits): MTH 103 or MTH 111 and one other course
- Science requirement (6 credits): PHY 104 and one other science course

- Humanities and social sciences requirement (15 credits): DES 121, DES 122 and at least six of the remaining nine credits taken in the social sciences area
- Computer literacy requirement: Satisfied through extensive use of computer resources throughout the architecture curriculum
- Information literacy requirement: satisfied through WRI 102

For information about designated requirements, please refer to University Degree Requirements.

**Major Requirements (109 credits)**

In addition to the foundations courses, the following courses constitute the major requirements for the Bachelor of Architecture degree:

- ARC 201 Architectural and Interior Design Studio I
- ARC 202 Architectural and Interior Design Studio II
- ARC 213 Analysis and Methods in Architecture
- ARC 224 Modern Foundations of Art and Architecture
- ARC 232 Survey of Materials and Practices in Construction
- ARC 242/CVE 272 Statics and Mechanics for Architecture
- ARC 301 Architectural Design Studio III
- ARC 302 Architectural Design Studio IV
- ARC 325 Ideas in Architecture
- ARC 333 Rough Construction Processes
- ARC 344/CVE 372 Structural Design for Architects
- ARC 354 Environmental Energies and Building Form
- ARC 364 Introduction to Computer-Aided Drawing
- ARC 397 Internship I (6 weeks)
- ARC 401 Architectural Design Studio V
- ARC 402 Architectural Design Studio VI
- ARC 434 Finish Construction Processes
- ARC 455 Environmental Control Systems
- ARC 462 Design Management
- ARC 471 Site Planning
- ARC 497 Internship II (8 weeks)

- ARC 505 Architectural Design Studio VII
- ARC 506 Architectural Design Studio VIII or ARC 592 Final Project Design
- ARC 561/CVE 561 Construction Management

**Final Project Option**

Fifth-year architecture students normally complete two studio courses. Students who select the final project option will substitute ARC 592 Final Project Design (6 credits) for the second studio course (ARC 506). In addition, ARC 591 Final Project Research (3 credits) must be completed before ARC 592 and will count as a major elective. The final project option is subject to departmental approval.

**Major Electives (18 credits)**

All ARC and IDE courses not listed above as major requirements count as major electives.

**Free Electives (9 credits)**

Any courses offered at or above the 100 level.

**Enrolling in Graduate Courses**

Fifth-year architecture students can register for 500-level graduate courses in urban planning and receive credit toward their undergraduate degree. Students pay the regular undergraduate fee per credit.

**Internship**

To qualify for the Bachelor of Architecture degree, students must fulfill the internship requirements prior to graduation. The purpose of the internship is to expose students to the profession and give them an opportunity to apply their academic knowledge in a practical setting. The internship consists of a minimum of 240 work hours for third-year students and 320 work hours for fourth-year students with an approved employer. Students' internships are ultimately evaluated by the internship coordinator with a Pass/Fail grade. Completing the internship requirement is a prerequisite for registering in some studio courses. Architecture students are highly encouraged to complete the internship program during the summers

following their third and fourth years, respectively.

Please see the proposed sequence of study for a strategy for completing these graduation requirements in five years.

### Minor in Architectural Studies

Students enrolling in the architectural studies minor should have normally completed a minimum of 30 credits of course work and have a CGPA of 2.5 or higher.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level in architecture.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in architectural studies must complete the following courses or their equivalent. All course prerequisites must be satisfied.

#### **Minor Requirements (9 credits)**

A student must complete nine credits from the following courses:

- ARC 201 Architectural and Interior Design Studio I
- ARC 202 Architectural and Interior Design Studio II
- ARC 213 Analysis and Methods in Architecture
- ARC 224 Modern Foundations of Art and Architecture
- ARC 232 Materials and Methods of Construction

#### **Minor Electives (9 credits)**

- Nine credits in architecture courses at the 300 level or above.

### Minor in Urban Design

The minor in urban design is offered within the Department of Architecture. Students enrolling in the urban design minor should have normally

completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level in architecture.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in urban design must complete the following courses or their equivalent. All course prerequisites must be satisfied.

#### **Minor Requirements (12 credits)**

- ARC 424 Evolution of Cities
- ARC 505 Architectural Design Studio VII
- ARC 573 Principles of Urban Design

#### **Minor Electives (6 credits)**

- ARC 322 Global Issues in Architecture
- ARC 374 Environmentally Sustainable Design
- ARC 471 Site Planning
- ENV 100 Environmental Issues and Problems
- PBA 101 Introduction to Public Administration
- PSY 102 Social Psychology
- SOC 380 Sociology of Urban Politics
- STA 202 Introduction to Statistics for Social Sciences
- Any 500-level urban planning course



**Proposed Sequence of Study  
Bachelor of Architecture (BArch)**

FIRST YEAR (30/31 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	DES 111	Descriptive Drawing I	3		CRR/MJR
	DES 121	History of Material Culture I	3		CRR/MJR/GER HSS 1 of 5
	DES 131	Design Foundations I	3		CRR/MJR
	MTH 111/MTH 103	Mathematics for Architects or Calculus	4/3	MPT or MTH 003	MJR/GER MTH 1 of 2
	<b>Total</b>		<b>15/16</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	DES 100	Digital Media in Design	3		CRR/MJR
	DES 112	Descriptive Drawing II	3	DES 111	MJR
	DES 122	History of Material Culture II	3		CRR/MJR/GER HSS 2 of 5
	DES 132	Design Foundations II	3	DES 131	MJR
		<b>Total</b>		<b>15</b>	
SECOND YEAR (36 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ARC 201	Architectural and Interior Design Studio I	6	DES 100, 111, 112, 121, 122, 131, 132; MTH 003 or 111 or 103	MJR
	ARC 213	Analysis and Methods in Architecture	3	DES 100	MJR
	ELC XXX	English Language Competency	3		GER ELC 3 of 4
	PHY 104	Physics for Architects	3	MTH 101 or 103 or 111	MJR/GER SCI 1 of 2
	MJE XXX	Major Elective	3		MJE 1 of 6
	<b>Total</b>		<b>18</b>		
Spring	ARC 202	Architectural and Interior Design Studio II	6	ARC 201 or IDE 201	MJR
	ARC 224	Modern Foundations of Art and Architecture	3	ARC 201 or IDE 201, and WRI 102	MJR
	ARC 232	Survey of Materials and Practices in Construction	3	ARC 201 or IDE 201	MJR
	ELC XXX	English Language Competency	3		GER ELC 4 of 4
	ARC 242/CVE 272	Statics and Mechanics for Architecture	3	PHY 104	MJR
		<b>Total</b>		<b>18</b>	
THIRD YEAR (37 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ARC 301	Architectural Design Studio III	6	ARC 202 or IDE 202, and PHY 104	MJR
	ARC 325	Ideas in Architecture	3	ARC 224	MJR
	ARC 333	Rough Construction Processes	3	ARC 232	MJR
	MJE XXX	Major Elective	3		MJE 2 of 6
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	<b>Total</b>		<b>18</b>		
Spring	ARC 302	Architectural Design Studio IV	6	ARC 301, 213	MJR
	ARC 344/CVE 372	Structural Design for Architects	3	ARC 242/CVE 272	MJR
	ARC 354	Environmental Energies and Building Form	3	PHY 104	MJR
	ARC 364	Introduction to Computer-Aided Drawing	1	ARC 202 or IDE 202	MJR
	MJE XXX	Major Elective	3		MJE 3 of 6
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	<b>Total</b>		<b>19</b>		
Summer	ARC 397	Internship I	0	ARC 302	MJR

FOURTH YEAR (36 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ARC 401	Architectural Design Studio V	6	ARC 224, 232, 302; ARC 242 or CVE 272	MJR
	ARC 455	Environmental Control Systems	3	ARC 354	MJR
	ARC 471	Site Planning	3	ARC 302	MJR
	MJE XXX	Major Elective	3		MJE 4 of 6
	MTH XXX	Mathematics/Statistics	3		GER MTH 2 of 2
		<b>Total</b>	<b>18</b>		
Spring	ARC 402	Architectural Design Studio VI	6	ARC 401, 325, 333, 397	MJR
	ARC 434	Finish Construction Processes	3	ARC 333	MJR
	ARC 462	Design Management	3	ARC 397 or IDE 397	MJR
	MJE XXX	Major Elective	3		MJE 5 of 6
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
		<b>Total</b>	<b>18</b>		
Summer	ARC 497	Internship II	0	ARC 402	MJR

FIFTH YEAR (33 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MJE XXX or ARC 591	Major Elective or Final Project Research	3	ARC 344/CVE 372, ARC 462/IDE 462, ARC 402, 434, 455 and consent of department	MJE 6 of 6
	ARC 505	Architectural Design Studio VII	6	ARC 402, 344 or CVE 372	MJR
	ARC 561/CVE 561	Construction Management	3	ARC 397 or IDE 397	MJR
	FRE XXX	Free Elective	3		FRE 1 of 3
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
		<b>Total</b>	<b>18</b>		
Spring	ARC 506 or ARC 592	Architectural Design Studio VIII or Final Project Design	6	ARC 402, 497 or ARC 497, 505, 591 and consent of department	MJR
	SCI XXX	Science	3		GER SCI 2 of 2
	FRE XXX	Free Elective	3		FRE 2 of 3
	FRE XXX	Free Elective	3		FRE 3 of 3
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; CRR: Core Requirement; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; MTH: Mathematics/Statistics Requirement; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

## Bachelor of Interior Design (BID)

The profession of interior design lies between interior decoration and architecture. The interior designer must be competent to operate in both professions with an intimate knowledge of material selection, construction methods and furnishings as well as technical skills and construction expertise. Interior designers usually work as part of a design team, including architects, structural and mechanical engineers, and specialty consultants. They must possess a broad base of knowledge and skills.

Interior designers create and are responsible for all aspects of the interior environment: program, design, construction documents, supervision, lighting, and material and furniture selection. Like architects, they create interiors using space itself as a creative material, molded by architectural elements. They know intimately the materials of interior construction and finishing, decoration and lighting, and how to use these in innovative designs that support an overall spatial and formal idea.

Interior design services encompass research, development and implementation of plans and designs of interior environments. The objective is to improve the quality of life, increase productivity and protect the health, safety and welfare of the public. The professional interior designer must be able to see projects through from concept to physical completion.

Potential career options for persons majoring in interior design include interior designer, space planner and programmer, adaptive reuse designer, facilities planner, project manager, design journalist, educator, researcher, sales representative, renderer, healthcare designer, office planner and hospital designer.

The interior design program at AUS emphasizes creativity and innovation in the art of interior design while giving students a strong background in technique and practical knowledge. The program core comprises six rigorous design studios following

the common foundations year. Interior design studios encourage the development of analytical and reasoning skills, as well as the ability to conceptualize, develop and present designs. Architecture and interior design share a common second-year studio to heighten students' awareness and technical capabilities regarding primary formal, structural and tectonic issues. The interior design studios are supplemented by technical courses ranging from furniture design and materials and methods of interior construction to specific training in color and light.

The program prepares students for responsible design careers and is firmly committed to graduating individuals who can join the regional or international workforce as competent and creative entry-level professionals. The school is committed to providing students in interior design with both traditional and digital design presentation skills to broaden their marketability and design capabilities.

The program emphasizes topics critical to the sustainable development of society and the quality of life in the region, with an emphasis on the United Arab Emirates. Professional training and internships solidify the student's contact and involvement with local practice. Interior design and architecture faculty members serve as both professional and academic mentors.

The Bachelor of Interior Design (BID) degree is intended for the student seeking a professional career in interior design. The program entails a minimum of four years of university studies plus professional training. A minimum of 139 credits comprise the degree program, including a minimum of 94 credits of required course work in interior design and closely associated fields. These courses represent the core of the interior design discipline.

Each student is required to extend the core curriculum with nine credits of approved interior design electives. The intent is to balance the concern for in-depth professional competence with the concern for the individual's interest

and aptitude. These courses should be selected in consultation with the student's advisor.

The specialized professional curriculum is supported by a minimum of 42 credits of university requirements. Designed to ensure a broad educational foundation, this base is held in common among all graduates of the American University of Sharjah.

University studies represent a unique opportunity to explore other areas of interest. Based solely on individual interests, each interior design student must select nine additional credits of free electives from general university offerings. Some major required courses count toward general education requirements. In such cases, both requirements are considered as being met but the credits only count once toward total degree hours.

The curriculum is designed to meet requirements for licensure that prevail in the United Arab Emirates and to prepare the graduate for professional practice throughout the region. Some students may aspire either to advanced study in the field or to practice in a broader global setting. Accordingly, the curriculum follows established international norms for a professional degree in interior design.

### Advancement in the Program

The number of seats in interior design is limited. Formal advancement is competitive. Only the most highly qualified foundations students will be promoted. To be considered for advancement to the second year of the Bachelor of Interior Design program, a student must successfully complete the following requirements:

- All four foundations studio courses (DES 111, DES 112, DES 131, DES 132) with a minimum GPA of 2.0 out of 4.0 in each sequence (design and drawing)
- Both courses in history of material culture (DES 121 and DES 122)
- DES 100 Digital Media in Design
- MTH 111 Mathematics for Architects or its prerequisite (MTH 003), or MTH 103 Calculus I

- At least one course in English/writing at the 100 level or above
- A minimum of 27 semester hours of university credit (including the above courses)
- A minimum CGPA of 2.0

Formal notification of advancement in the program will be announced by the School of Architecture and Design in mid-June after release of final grades by the Office of the Registrar at the end of the spring semester. In the event that there are more students who qualify for advancement than available spaces, candidates will be promoted in the major based on academic achievement, and a waiting list will be established. In the event of a tie, students with the highest GPA in all four foundations studio courses will advance to second year. In the event of a second tie, students with the highest GPA in both courses in history of material culture (DES 121 and DES 122) and mathematics (MTH 111, MTH 003 or MTH 103) will advance to the second year. If there are available spaces at the time of fall registration, consideration will be given to those students who fulfilled requirements during summer session or who wish to change majors, based on the same advancement criteria as noted above. Students who need to repeat a second-year studio course will also be competing for the limited number of seats in the major.

### Promotion Review in Interior Design

As an extension of the regular advisement process, the performance of each interior design student is reviewed following the completion of each of the second and third years in the program. A student must pass each review to continue in the major and must have attained:

- A minimum cumulative grade point average (CGPA) of C+ (2.3) in all university courses
- A minimum major studio average of 2.3 in each year of the interior design studio sequence (IDE 201 and IDE 202, IDE 301 and IDE 302)

### Notes:

- A grade of C- (1.70) is the minimum passing grade in a studio course. The

minimum major studio average must be achieved to continue in the program.

- A student with a semester grade of D (1.00) in the fall studio may not continue into the spring semester of the studio sequence.
- A student who does not attain the required major studio average may repeat either studio.
- Any studio may be repeated only once.
- A student who fails to achieve the minimum studio average necessary for promotion after repeating a studio is dismissed from the program.

If the review has a negative outcome, the department will assist a candidate in transferring to a field that holds better promise.

### Degree Requirements

A minimum of 139 credits, including the following, is required:

- A minimum of 42 credits of general education requirements
- A minimum of 94 credits of major and major-related courses including nine credits of approved interior design electives
- Nine credits of free electives
- Six weeks of approved professional training (internship)

In order to graduate with a Bachelor of Interior Design degree, a student must maintain a minimum cumulative grade point average (CGPA) of 2.0 and have attained a major studio average of 2.3 in the final studio sequence (IDE 405 and either IDE 406 or IDE 492).

### General Education Requirements (42 credits)

- English language competency requirement (12 credits): 100 level or above of English/ writing courses
- Arabic heritage requirement (3 credits)
- Mathematics and/or statistics requirement (6 credits): MTH 103 or MTH 111 and one other course
- Science requirement (6 credits): PHY 104 and one other science
- Humanities and social sciences requirement (15 credits): DES 121, DES 122 and at least six of the remaining nine credits taken in the social sciences area

- Computer literacy requirement: Satisfied through extensive use of computer resources throughout the interior design curriculum
- Information literacy requirement: satisfied through WRI 102

For information about designated requirements, please refer to University Degree Requirements.

### Major Requirements (85 credits)

In addition to the foundations courses, the following courses constitute the major requirements for the Bachelor of Interior Design degree:

- IDE 201 Architectural and Interior Design Studio I
- IDE 202 Architectural and Interior Design Studio II
- IDE 223 History of Interior Design
- IDE 235 Interior Construction
- IDE 236 Soft Furnishings
- IDE 251 Color and Light
- IDE 301 Interior Design Studio III
- IDE 302 Interior Design Studio IV
- IDE 324 Modern Practices in Interior Design
- IDE 335 Furniture Design
- IDE 352 Environmental Control Systems in Interiors
- IDE 364 Introduction to Computer-Aided Drawing
- IDE 397 Internship (6 weeks)
- IDE 405 Interior Design Studio V
- IDE 461 Project Management
- IDE 462 Design Management
- IDE 406 Interior Design Studio VI or IDE 492 Final Project Design

### Final Project Option

Fourth-year interior design students normally complete two studio courses. Students who select the final project option will substitute IDE 492 Final Project Design (6 credits) for the second studio course (IDE 406). In addition, IDE 491 Final Project Research (3 credits) must be completed before IDE 492 and will count as a major elective. The final project option is subject to departmental approval.

**Major Electives (9 credits)**

All other ARC and IDE courses not listed above count as major electives.

**Free Electives (9 credits)**

Any courses offered at or above the 100 level.

**Internship**

To qualify for the Bachelor of Interior Design degree, students must fulfill the internship requirements prior to graduation. The purpose of the internship is to expose students to the profession and give them an opportunity to apply their academic knowledge in a practical experience. The internship consists of a minimum of 240 work hours with an approved employer. Fulfilling the internship requirement is a prerequisite for registering in some studio courses. Interior design students are highly encouraged to complete the internship

program during the summer after completion of their third year of studies.

Please see the proposed sequence of study for a specific strategy for completing these graduation requirements in four years.

Minor in Interior Design

Students enrolling in the interior design minor should have normally completed a minimum of 30 credits of course work and have a GPA of 2.5 or higher.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level in interior design.
- Free electives can be taken toward the minor.

- At least nine credits of the minor must be taken in residence at AUS.

- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in interior design must complete the following courses or their equivalent. All course prerequisites must be satisfied.

**Minor Requirements (9 credits)**

A student must complete nine credits from the following courses:

- IDE 223 History of Interior Design
- IDE 235 Interior Construction
- IDE 236 Soft Furnishings
- IDE 251 Color and Light
- IDE 335 Furniture Design

**Minor Electives (9 credits)**

- Nine credits in IDE courses at the 300 level or above.

**Proposed Sequence of Study  
Bachelor of Interior Design (BID)**

FIRST YEAR (30/31 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	DES 111	Descriptive Drawing I	3		CRR/MJR
	DES 121	History of Material Culture I	3		CRR/MJR/GER HSS 1 of 5
	DES 131	Design Foundations I	3		CRR/MJR
	MTH 111 or MTH 103	Mathematics for Architects or Calculus	4/3	MPT or MTH 003	MJR/GER MTH1 of 2
	<b>Total</b>		<b>15/16</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	DES 100	Digital Media in Design	3		CRR/MJR
	DES 112	Descriptive Drawing II	3	DES 111	MJR
	DES 122	History of Material Culture II	3		CRR/MJR/GER HSS 2 of 5
	DES 132	Design Foundations II	3	DES 131	MJR
		<b>Total</b>		<b>15</b>	

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; CRR: Core Requirement; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; MTH: Mathematics/Statistics Requirement; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

SECOND YEAR (36 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	IDE 201	Architectural and Interior Design Studio I	6	DES 100, 111, 112, 121, 122, 131, 132, MTH 003 or 111 or 103	MJR
	IDE 223	History of Interior Design	3	DES 100, 111, 112, 121, 122, 131, 132	MJR
	IDE 235	Interior Construction	3	DES 100, 111, 112, 121, 122, 131, 132	MJR
	PHY 104	Physics for Architects	3	MTH 101, 103 or 111	MJR/GER SCI 1 of 2
	ELC XXX	English Language Competency	3		GER ELC 3 of 4
	<b>Total</b>		<b>18</b>		
Spring	IDE 202	Architectural and Interior Design Studio II	6	IDE 201	MJR
	IDE 236	Soft Furnishings	3	IDE 235 or ARC 232	MJR
	IDE 251	Color and Light	3	PHY 104	MJR
	MTH XXX	Mathematics/Statistics	3		GER MTH 2 of 2
	ELC XXX	English Language Competency	3		GER ELC 4 of 4
	<b>Total</b>		<b>18</b>		

THIRD YEAR (37 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	IDE 301	Interior Design Studio III	6	IDE 202, PHY 104	MJR
	IDE 335	Furniture Design	3	ARC/IDE 202, IDE 235 or ARC 232	MJR
	IDE 324	Modern Practices in Interior Design	3	IDE 223	MJR
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	SCI XXX	Science	3		GER SCI 2 of 2
	<b>Total</b>		<b>18</b>		
Spring	IDE 302	Interior Design Studio IV	6	IDE 301, 223	MJR
	IDE 352	Environmental Control Systems in Interiors	3	PHY 104	MJR
	ARC 364	Introduction to Computer-Aided Drawing	1	ARC 202 or IDE 202	MJR
	MJE XXX	Major Elective	3		MJE 1 of 3
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	FRE XXX	Free Elective	3		FRE 1 of 3
	<b>Total</b>		<b>19</b>		
Summer	IDE 397	Internship	0	IDE 302	MJR

FOURTH YEAR (36 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	IDE 405	Interior Design Studio V	6	IDE 302 or ARC 302	MJR
	IDE 461	Project Management	3	IDE 397 or ARC 397	MJR
	MJE XXX or IDE 491	Major Elective or Final Project Reseach	3	IDE 302, 335, 352 and consent of department	MJE 2 of 3
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	FRE XXX	Free Elective	3		FRE 2 of 3
	<b>Total</b>		<b>18</b>		
Spring	IDE 462	Design Management	3	IDE 397 or ARC 397	MJR
	IDE 406 or IDE 492	Interior Design Studio VI or Final Project Design	6	IDE 397, 405 or IDE 397, 403, 491 and consent of department	MJR
	MJE XXX	Major Elective	3		MJE 3 of 3
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	FRE XXX	Free Elective	3		FRE 3 of 3
	<b>Total</b>		<b>18</b>		

## Department of Design

Mark Pilkington, Chair

### Faculty

Shoaib Nabi Ahmad  
Tarek Al-Ghoussein  
Paul Bantey  
Amir Berbić  
John Botthoff  
Zlatan Filipović (Spring 2007)  
Roderick Grant  
Masood Khan  
Phil Sheil  
John Swanstrom  
Seth Thompson

### Bachelor of Science in Design Management (BSDM)

The Bachelor of Science in Design Management (BSDM) provides students with the opportunity to engage in a design-based program with entrepreneurial and communication components. Design management as a discipline integrates visual design and business studies. This major is especially well suited to students who have a keen interest in the managerial aspects of design. The essential elements of this profession are the ability to communicate design needs, track progress and outcomes, identify the requirements of design projects and coordinate with clients as well as with professional teams in the field of design.

The program provides broad insights into the foundations, theory and application of design and business studies. A solid foundation in visual design prepares students to understand the language and complexities involved in the efforts of the creative teams, as well as to speak fluently the “language” of design. Additionally, course work in the disciplines of business, management and communication prepares students to recruit clients, pitch projects, write copy for print, television and radio, as well as master systems and marketing skills.

Typical target professional positions in the fast growing field of design management include administrative and managerial careers in media

and service industries as advertising agency principals, project managers and team leaders, advertising campaign planners, client services specialists, advertising buyers, account and sales representatives, communications specialists, public relations professionals, exhibition and event planners, material culture administrators, market-research analysts and more.

### Admission to the Program

Admission to the Bachelor of Science in Design Management degree program requires the fulfillment of the general university admission requirements.

### Degree Requirements

A minimum of 120 credits, including the following, is required:

- A minimum of 42 credits of general education requirements
- A minimum of 81 credits of major and major-related requirements
- 12 credits of free electives
- Six weeks of approved professional training (internship)
- A minimum CGPA of 2.0

### General Education Requirements

- English language competency requirement (12 credits): 100 level or above of English/ writing courses, including ENG 204 and ENG 225
- Arabic heritage requirement (3 credits)
- Mathematics and/or statistics requirement (6 credits): MTH 101 and STA 202 or QBA 201
- Science requirement (6 credits): two science courses
- Humanities and social sciences requirement (15 credits): DES 121, DES 122, DES 231, ECO 201, ECO 202
- Computer literacy requirement: Satisfied through extensive use of computer resources throughout the curriculum
- Information literacy requirement: satisfied through WRI 102

For information about designated requirements, please refer to University Degree Requirements.

### Major Requirements (60 credits)

The following courses constitute the major requirements for the Bachelor of Science in Design Management degree.

### In the School of Architecture and Design (33 credits)

- DES 100 Digital Media in Design
- DES 111 Descriptive Drawing I
- DES 121 History of Material Culture I or DES 122 History of Material Culture II
- DES 131 Design Foundations I
- DES 200 Communication Design
- DES 230 Digital Media in Communication Design
- DES 231 History of Design
- DES 397 Internship
- DES 462 Design Management
- VIS 361 The Design Profession
- DES 300 Design Project
- DES 472 Exhibition Project

### In the School of Business and Management (27 credits)

- BIS 201 Business Information Systems
- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- MGT 201 Fundamentals of Management
- MGT 311 Organizational Behavior
- MGT 315 International Business
- MGT 361 Business Ethics and Social Responsibility
- MIS 201 Fundamentals of Management Information Systems
- MKT 211 Fundamentals of Marketing

### Major Electives (15 credits)

Students are required to complete at least two of the five major electives at the 300 level or above, and are strongly advised to take the following:

- DES 132 Design Foundations II
- DES 494 Special Topics in Design Management
- MCM 150 Introduction to Mass Media
- MCM 227 Principles of Public Relations
- VIS 360 Fundamentals of Media Theory

### Electives in Related Fields (6 credits)

Three of six credits for the electives in related fields must be at the 300 level or above. Students must obtain approval of their advisor before selection of courses in these related fields:

- ENG 231 Writing for Visual Media
- PSY 101 General Psychology
- PSY 102 Social Psychology
- Any course in SA&D
- Any course in SBM
- Any course in mass communication

### Free Electives (12 credits)

Any courses offered at or above the 100 level.

### Internship

Internship is a requirement for graduation. Arrangements for the internships are normally made with the students in the spring semester of their third year. The internship comprises six weeks of full-time work placement (normally 240 hours) at an approved professional company during the summer of the student's third year. A review of the student's internship journal and feedback from the employer are the basis of passing the internship requirement.

### Minor in Design Management

Students enrolling in the design management minor should have normally completed a minimum of 30 credits of course work and be in good academic standing. The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and

a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

### Minor Requirements (18 credits)

Students seeking a minor in design management must complete the following courses or their equivalent. All course prerequisites must be satisfied.

- At least nine credits in SA&D courses (ARC/DES/IDE/MUM/VIS), including DES 100
- At least nine credits in SBM courses (ACC/BIS/BLW/BUS/ECO/FIN/MGT/MIS/MKT/PBA/QAN/QBA), including MGT 201

### Proposed Sequence of Study Bachelor of Science in Design Management (BSDM)

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	DES 111	Descriptive Drawing I	3		CRR/MJR
	DES 121 or MJE XXX	History of Material Culture I Major Elective	3		CRR/MJR/GER HSS 1 of 5 MJE 1 of 5
	DES 131	Design Foundations I	3		CRR/MJR
	MTH 101	Mathematics for Business	3	MPT or MTH 002	GER MTH 1 of 2
<b>Total</b>			<b>15</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	DES 100	Digital Media in Design	3		CRR/MJR
	DES 122 or MJE XXX	History of Material Culture II or Major Elective	3		CRR/MJR/GER HSS 2 of 5 MJE 1 of 5
	MJE XXX	Major Elective	3		MJE 2 of 5
	SCI XXX	Science	3		GER SCI 1 of 2
<b>Total</b>			<b>15</b>		
SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	STA 202 or QBA 201	Introduction to Statistics for Social Sciences or Quantitative Business Analysis	3	MTH 100 or MTH 101/ pre/con MTH 101	GER MTH 2 of 2
	BIS 201	Business Information Systems	3	BPT or BIS 001	MJR
	ECO 201	Principles of Microeconomics	3		GER HSS 3 of 5
	DES 200	Communication Design	3	DES 100	MJR
<b>Total</b>			<b>15</b>		
Spring	ENG 225	Global Business Communication	3	ENG 204	GER ELC 4 of 4
	ECO 202	Principles of Macroeconomics	3		GER HSS 4 of 5
	MGT 201	Fundamentals of Management	3	WRI 102	MJR
	MJE XXX	Major Elective	3		MJE 3 of 5
	DES 230	Digital Media in Communication Design	3	DES 100	MJR
<b>Total</b>			<b>15</b>		

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MKT 211	Fundamentals of Marketing	3	ECO 201 or 202, and WRI 102	MJR
	VIS 361	The Design Profession	3	WRI 101 or 102	MJR
	DES 300	Design Project	3		MJR
	RFE XXX	Related Field Elective	3		RFE 1 of 2
	MIS 201	Fundamentals of MIS	3	BIS 201	MJR
		<b>Total</b>	<b>15</b>		
Spring	MJE XXX	Major Elective	3		MJE 4 of 5
	SCI XXX	Science	3		GER SCI 2 of 2
	DES 231	History of Design	3		CRR/MJR/GER HSS 5 of 5
	FRE XXX	Free Elective	3		FRE 1 of 4
	FRE XXX	Free Elective	3		FRE 2 of 4
		<b>Total</b>	<b>15</b>		
Summer	DES 397	Internship in Design Management	0	VIS 361	MJR

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MGT 305	International Business	3	MGT 201	MJR
	MGT 361	Business Ethics and Social Responsibility	3	MGT 201	MJR
	DES 462	Design Management	3	pre/con DES 397	MJR
	MJE XXX	Major Elective	3		MJE 5 of 5
	FRE XXX	Free Elective	3		FRE 3 of 4
		<b>Total</b>	<b>15</b>		
Spring	MGT 311	Organizational Behavior	3	MGT 201	MJR
	DES 472	Exhibition Project	3	junior standing	MJR
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	RFE XXX	Related Field Elective	3		RFE 2 of 2
	FRE XXX	Free Elective	3		FRE 4 of 4
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; CRR: Core Requirement; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; MTH: Mathematics/Statistics Requirement; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; RFE: Related Field Elective; SCI: Science Requirement

## Bachelor of Science in Multimedia Design (BSMD)

Multimedia design studies span a number of disciplines associated with time-based and interactive media. This major engages students with broad-ranging interests in communications, motion graphics, audiovisual narrative construction and interactive applications.

The Bachelor of Science in Multimedia Design (BSMD) requires a minimum of four years (122 credits) of course work, 53 hours of which are required in multimedia-related studies, including sound, video, text, computer graphics and theory courses. The specialization is supported by 18 credits of major electives, 42 credits of general education requirements and nine credits of free electives. Some major required courses count toward general education requirements. In such cases, both requirements are considered as being met but the credits only count once toward total degree hours. In addition, professional experience (internship) is required of all students; firm/company placement normally occurs in the summer after completion of the third year.

The BSMD is a professional program designed for those who seek careers in modern design and media practice or in preparation of graduate studies. The curriculum follows standards of professional North American practice and is conceived to meet or exceed the requirements of multimedia industries in the United Arab Emirates.

### Admission to the Program

Admission to the BSMD degree program requires the fulfillment of the general university admission requirements.

### Advancement in the Program

The number of seats in multimedia design is limited. Formal advancement is competitive. Only the most highly qualified foundations students will be promoted. To be considered for advancement to the second year of the Bachelor of Science in Multimedia Design degree program, a student must successfully complete the following

requirements. Additional promotion restrictions may also apply.

- All four foundations studio courses (DES 111, DES 112, DES 131, DES 132) with a minimum grade point average (GPA) of C (2.0) in each sequence (design and drawing)
- Both courses in history of material culture (DES 121 and DES 122)
- DES 100 Digital Media in Design
- Mathematics (MTH XXX) or its prerequisite (MTH 00X)
- At least one course in English/writing at the 100 level or above
- A minimum of 27 semester hours of university credit (including the above courses)
- A minimum CGPA of 2.0

Formal notification of advancement in the program will be announced by the School of Architecture and Design in mid-June after release of final grades by the Office of the Registrar at the end of the spring semester. In the event that there are more students who qualify for advancement than available spaces, candidates will be promoted in the major based on overall academic achievement, and a waiting list will be established. In the event of a tie, students with the highest GPA in the history of material culture and mathematics courses will advance to the second year. If there are available spaces at the time of fall registration, consideration will be given to those students who fulfilled requirements during summer session or who wish to change majors, based on the same advancement criteria as noted above. Students who need to repeat a second-year studio course will also be competing for the limited number of seats in the major.

### Promotion Review in Multimedia Design

As an extension of the regular advisement process, the performance of all students in multimedia design will be reviewed after the fourth semester for retention in the program. To successfully pass this review and to continue in the major, a combined GPA of C+ (2.3) must be attained in VIS 201 and VIS 202, with a minimum grade of C- (1.7) in each course.

Student performance is also reviewed after the sixth semester for retention in the program. In order to continue in the major, a combined GPA of C+ (2.3) must be attained in MUM 301 and MUM 302 with a minimum of C- (1.7) in each course.

Notes:

- A student with a semester grade of D (1.00) in the fall studio may not continue into the spring semester of the studio sequence.
- A student who does not attain the required major studio average may repeat either studio.
- Any studio may be repeated only once.
- A student who fails to achieve the minimum studio average necessary for promotion after repeating a studio is dismissed from the program.

If the review has a negative outcome, the department will assist a candidate in transferring to a field that holds better promise.

### Degree Requirements

A minimum of 122 credits, including the following, is required:

- A minimum of 42 credits of general education requirements
- A minimum of 80 credits of major and major-related requirements
- Nine credits of free electives
- Six weeks of approved professional training (internship)
- A minimum CGPA of 2.0

### General Education Requirements (42 credits)

- English language competency requirement (12 credits): 100 level or above of English/writing courses, including ENG 204 and ENG 231
- Arabic heritage requirement (3 credits)
- Mathematics and/or statistics requirement (6 credits)
- Science requirement (6 credits): two science courses
- Humanities and social sciences requirement (15 credits): DES 121, DES 122, DES 231 and six credits of designated social sciences courses
- Computer literacy requirement: Satisfied through extensive use of computer resources throughout the design curriculum

- Information literacy requirement: satisfied through WRI 102 and ENG 204

For information about designated requirements, please refer to University Degree Requirements.

**Major Requirements (41 credits)**

In addition to the foundations courses, the following courses constitute the major requirements for the Bachelor of Science in Multimedia Design degree:

- DES 231 History of Design
- MUM 301 Design Studio III
- MUM 302 Design Studio IV
- MUM 397 Internship
- MUM 401 Design Studio V
- MUM 402 Design Studio VI
- MUM 410.01 Multimedia Design Senior Studio I
- MUM 420 Multimedia Design Senior Studio II
- VIS 201 Design Studio I
- VIS 202 Design Studio II
- VIS 213 Illustration Drawing
- VIS 221 Photography Basics
- VIS 230 Digital Media in Visual

Communication

- VIS 360 Fundamentals of Media Theory
- VIS 361 The Design Profession

**Major Electives (18 credits)**

Three courses from the following for a total of nine credits:

- MUM 310 Film Production I
- MUM 312 Film Production II
- MUM 320 Web Design
- MUM 321 Photojournalism
- MUM 494 Special Topics in Multimedia Design

Three courses from the following for a total of nine credits:

- ARC 225 Islamic Art and Architecture
- MUM 410 Film Production III (Advanced Technique)
- MUM 494 Special Topics in Multimedia Design
- MUM 496 Independent Study in Multimedia Design
- VIS 311 Illustration Design
- VIS 312 Illustration Genres
- VIS 320 Printmaking I
- VIS 322 Printmaking II

- VIS 323 Photography for Communication
- VIS 325 Creative Studio Photography
- VIS 494 Special Topics in Visual Communication
- Any course in mass communication (MCM)

**Free Electives (9 credits)**

Any courses offered at or above the 100 level.

**Internship**

Internship is a requirement for graduation. Arrangements for the internships are normally made with the students in the spring semester of their third year. The internship comprises six weeks of full-time work placement (normally 240 hours) at an approved professional company during the summer of the student’s third year. A review of the student’s internship journal and feedback from the employer are the basis of passing the internship requirement.

**Proposed Sequence of Study  
Bachelor of Science in Multimedia Design (BSMD)**

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	DES 111	Descriptive Drawing I	3		CRR/MJR
	DES 121	History of Material Culture	3		CRR/MJR/GER HSS 1 of 5
	DES 131	Design Foundations I	3		CRR/MJR
	DES 100	Digital Media in Design	3		CRR/MJR
	<b>Total</b>		<b>15</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	MTH XXX	Mathematics/Statistics	3		GER MTH 1 of 2
	DES 112	Descriptive Drawing II	3	DES 111	MJR
	DES 122	History of Material Culture II	3		CRR/MJR/GER HSS 2 of 5
	DES 132	Design Foundations II	3	DES 131	MJR
	<b>Total</b>		<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; CRR: Core Requirement; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; MTH: Mathematics/Statistics Requirement; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	VIS 201	Design Studio I	3	DES 100, 112, 121, 122 and 132; MTH XXX; and WRI 101 or 102	MJR
	VIS 221	Photography Basics	3	DES 100, 112, 121, 122 and 132; MTH XXX; and WRI 101 or 102	MJR
	VIS 230	Digital Media in Visual Communication	3	DES 100, 112 and 132; DES 121, 122; MTH XXX; and WRI 101 or 102	MJR
	DES 231	History of Design	3	sophomore standing	CRR/MJR/GER HSS 3 of 5
	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
<b>Total</b>			<b>15</b>		
Spring	VIS 202	Design Studio II	3	VIS 201, 221 and 230	MJR
	VIS 213	Illustration Drawing	3	VIS 201, 221 and 230	MJR
	VIS 360	Fundamentals of Media Theory	3	DES 121, 122, 132	MJR
	ENG 231	Writing for Visual Media	3	ENG 204	GER ELC 4 of 4
	MTH/STA XXX	Mathematics/Statistics	3		GER MTH 2 of 2
	<b>Total</b>			<b>15</b>	

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MUM 301	Design Studio III	3	VIS 202, 213 and 360	MJR
	MUM 320	Web Design I	3	pre/con MUM 301 or VIS 301	MJE 1 of 5
	MUM 310 or MUM 321	Film Production I or Photo Journalism	3	pre/con MUM 301 or VIS 301	MJE 2 of 5
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
<b>Total</b>			<b>15</b>		
Spring	MUM 302	Design Studio IV	3	MUM 301 or VIS 301	MJR
	VIS 361	The Design Profession	3	WRI 101 or WRI 102	MJR
	MJE	Major Elective	3		MJE 3 of 5
	MJE	Major Elective	3		MJE 4 of 5
	SCI XXX	Science	3		GER SCI 1 of 2
	<b>Total</b>			<b>15</b>	
Summer	MUM 397	Internship in Design Management	0	VIS 361 and MUM 301 or VIS 301	MJR

FOURTH YEAR (32 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MUM 401	Design Studio V	4	MUM 301 or VIS 301	MJR
	MUM 410.01	Multimedia Design Senior Studio I	3	Any three from MUM 310, 312, 311, 320, 330, 331, 340	MJR
	MJE XXX	Major Elective	3		MJE 5 of 5
	FRE XXX	Free Elective	3		FRE 1 of 3
	SCI XXX	Science	3		GER SCI 2 of 2
<b>Total</b>			<b>16</b>		
Spring	MUM 402	Design Studio VI	4	MUM 310 or VIS 401	MJR
	MUM 420	Multimedia Design Senior Studio II	3	MUM 410	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	FRE XXX	Free Elective	3		FRE 2 of 3
	FRE XXX	Free Elective	3		FRE 3 of 3
	<b>Total</b>			<b>16</b>	

### Bachelor of Science in Visual Communication (BSVC)

The creation, manipulation and production of visual images and text are at the core of this major. Visual communication is influenced to a large degree by fast-changing worldwide technologies. Apart from broad technical, computer and design education, visual communication practitioners require an understanding of aesthetic trends, human nature, ethical boundaries and societal needs. Visual communicators aim to inform, persuade and influence behavior through the application of design principals.

The Bachelor of Science in Visual Communication (BSVC) degree program requires a minimum of four years of university studies. The foundations year of visual communication (VisCom) consists of a basic education in applied design, training in computer applications and courses in the history and relevance of design and visual expression. In the following years, elements of design practice are explored in individual, hands-on studio projects. The design studio sequence is the program core that integrates practical, cultural and contextual aspects of visual communication.

The BSVC is a professional program. The 122 credits required for the degree comprise 53 credits in required visual communication, digital applications and visual design related courses. This specialization is supported by 18 credits of major electives, 42 credits of general education requirements and nine credits of free electives. Some major required courses count toward general education requirements. In such cases, both requirements are considered as being met but the credits only count once toward total degree hours. In addition, professional training (internship) is required of all students; firm/company placement occurs in the summer after completion of the third year.

The BSVC is configured to prepare those who seek careers as designers or a preparation for the graduate studies in visual communication related areas. The curriculum follows standards of professional North American organizations and is conceived to meet or exceed requirements for visual communication experts in the United Arab Emirates.

#### Admission to the Program

Admission to the BSVC degree program requires the fulfillment of general university admission requirements.

#### Advancement in the Program

The number of seats in the visual communication program is limited. Formal advancement is competitive. Only the most highly qualified foundations students will be promoted. To be considered for advancement to the second year of the Bachelor of Science in Visual Communication program, a student must successfully complete the following requirements. Additional promotion restrictions may also apply.

- All four foundations studio courses (DES 111, DES 112, DES 131, DES 132) with a minimum grade point average (GPA) of C (2.0) in each sequence (design and drawing)
- Both courses in history of material culture (DES 121 and DES 122)
- DES 100 Digital Media in Design
- Mathematics (MTH XXX) or its prerequisite (MTH 00X)
- At least one course in English/writing at the 100 level or above
- A minimum of 27 credits (including the above courses)
- A minimum CGPA of 2.0

Formal notification of advancement in the program will be announced by the School of Architecture and Design in mid-June after release of final grades by the Office of the Registrar at the end of the spring semester. In the event that there are more students

who qualify for advancement than available spaces, candidates will be promoted in the major based on academic achievement, and a waiting list will be established. In the event of a tie, students with the highest GPA in the history of material culture (DES 121 and DES 122) courses and mathematics course will advance to the second year. If there are available spaces at the time of fall registration, consideration will be given to those students who fulfilled requirements during summer session or who wish to change majors, based on the same advancement criteria as noted above. Students who need to repeat a second-year studio course will also be competing for the limited number of seats in the major.

### Promotion Review in Visual Communication

As an extension of the regular advisement process, the performance of all students in the visual communication program will be reviewed after the fourth semester for retention in the program. To successfully pass this review and to continue in the major, a combined GPA of C+ (2.3) must be attained in VIS 201 and VIS 202, with a minimum grade of C- (1.7) in each course. Student performance is also reviewed after the sixth semester for retention in the program. In order to continue in the major, a combined GPA of C+ (2.3) must be attained in MUM 301 and MUM 302 with a minimum of C- (1.7) in each course.

Notes:

- A student with a semester grade of D (1.00) in the fall studio may not continue into the spring semester of the studio sequence.
- A student who does not attain the required major studio average may repeat either studio.
- Any studio may be repeated only once.
- A student who fails to achieve the minimum studio average necessary for promotion after repeating a studio is dismissed from the program.

If the review has a negative outcome, the department will assist a candidate in transferring to a field that holds better promise.

### Degree Requirements

A minimum of 122 credits, including the following, are required:

- A minimum of 42 credits of general education requirements
- A minimum of 80 credits of major and major-related requirements
- Nine credits of free electives
- Six weeks of approved professional training (internship)
- A minimum CGPA of 2.0

### General Education Requirements (42 credits)

- English language competency requirement (12 credits): 100 level or above of English/writing courses, including ENG 204 and ENG 231
- Arabic heritage requirement (3 credits)
- Mathematics and/or statistics requirement (6 credits)
- Science requirement (6 credits): two science courses
- Humanities and social sciences requirement (15 credits): DES 121, DES 122, DES 231 and six credits of designated social sciences courses
- Computer literacy requirement: Satisfied through extensive use of computer resources throughout the visual communication curriculum
- Information literacy requirement: satisfied through WRI 102 and ENG 204

For information about designated requirements, please refer to University Degree Requirements.

### Major Requirements (65 credits)

In addition to the foundations courses, the following courses constitute the major requirements for the Bachelor of Science in Visual Communication degree:

- DES 231 History of Design
- VIS 201 Design Studio I
- VIS 202 Design Studio II
- VIS 213 Illustration Drawing
- VIS 221 Photography Basics
- VIS 230 Digital Media in Visual Communication
- VIS 301 Design Studio III
- VIS 302 Design Studio IV
- VIS 360 Fundamentals of Media Theory
- VIS 361 The Design Profession
- VIS 397 Internship
- VIS 401 Design Studio V
- VIS 402 Design Studio VI
- VIS 410 Senior VisCom Studio

- VIS 420 Senior VisCom Portfolio

### Major Electives (15 credits)

Students must complete at least four courses for 12 credits from the following list. This must include at least one course from the areas of illustration, printmaking and photography.

#### Illustration

- VIS 311 Illustration Design
- VIS 312 Illustration Genres

#### Printmaking

- VIS 320 Printmaking I
- VIS 322 Printmaking II

#### Photography

- VIS 321 Photojournalism
- VIS 323 Photography for Communication

Students must take one course from the following for a total of three credits:

- ARC 225 Islamic Art and Architecture
- MUM 310 Film Production I
- MUM 312 Film Production II
- MUM 320 Web Design
- VIS 325 Creative Studio Photography
- MUM 410 Film Production III (Advanced Technique)
- MUM 494 Special Topics in Multimedia Design
- VIS 494 Special Topics in Visual Communication
- VIS 496 Independent Study in Visual Communication
- Any course in mass communication (MCM)

### Free Electives (9 credits)

Any courses offered at or above the 100 level.

### Internship

Internship is a requirement for graduation. Arrangements for the internships are normally made with the students in the spring semester of their third year. The internship comprises six weeks of full-time work placement (normally 240 hours) at an approved professional company during the summer of the student's third year. A review of the student's internship journal and feedback from the employer are the basis of passing the internship requirement.

**Proposed Sequence of Study**  
**Bachelor of Science in Visual Communication (BSVC)**

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	DES 111	Descriptive Drawing I	3		CRR/MJR
	DES 121	History of Material Culture	3		CRR/MJR/GER HSS 1 of 5
	DES 131	Design Foundations I	3		CRR/MJR
	DES 100	Digital Media in Design	3		CRR/MJR
<b>Total</b>			<b>15</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	DES 112	Descriptive Drawing II	3	DES 111	MJR
	DES 122	History of Material Culture II	3		CRR/MJR/GER HSS 2 of 5
	DES 132	Design Foundations II	3	DES 131	MJR
	MTH/STA XXX	Mathematics/Statistics	3		GER MTH 1 of 2
<b>Total</b>			<b>15</b>		

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	VIS 201	Design Studio I	3	DES 100, 112, 121, 122 and 132; MTH XXX; and WRI 101 or 102	MJR
	VIS 221	Photography Basics	3	DES 100, 112, 121, 122 and 132; MTH XXX; and WRI 101 or 102	MJR
	VIS 230	Digital Media in Visual Communication	3	DES 100, 112 and 132; DES 121, 122; MTH XXX; and WRI 101 or 102	MJR
	DES 231	History of Design	3	sophomore standing	CRR/MJR/GER HSS 3 of 5
	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
<b>Total</b>			<b>15</b>		
Spring	VIS 202	Design Studio II	3	VIS 201, 221, 230	MJR
	VIS 213	Illustration Drawing	3	VIS 201, 221, 230	MJR
	VIS 360	Fundamentals of Media Theory	3	DES 121, 122, 132	MJR
	ENG 231	Writing for Visual Media	3	ENG 204	GER ELC 4 of 4
	MTH/STA XXX	Mathematics/Statistics	3		GER MTH 2 of 2
<b>Total</b>			<b>15</b>		

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	VIS 301	Design Studio III	3	VIS 202, 213, 360	MJR
	MJE XXX	Major Electives (two of the following) VIS 311 Illustration Design or VIS 320 Printmaking I or VIS 321 Photo Journalism	6	pre/con MUM 301 or VIS 301/ pre/con MUM 301 or VIS 301/ pre/con MUM 301 or VIS 301 and VIS 221	MJE 1 and 2 of 5
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
		<b>Total</b>	<b>15</b>		
Spring	VIS 302	Design Studio IV	3	MUM 301 or VIS 301	MJR
	VIS 361	The Design Profession	3	WRI 101, WRI 102 and VIS 360	MJR
	MJE XXX	Major Electives (two of the following) VIS 312 Illustration Genres, VIS 322 Printmaking II or VIS 323 Photography for Communication	6	pre/con MUM 301 or VIS 301	MJE 3 and 4 of 5
	SCI XXX	Science	3		GER SCI 1 of 2
		<b>Total</b>	<b>15</b>		
Summer	VIS 397	Internship in Visual Communication	0	VIS 361 and MUM 301 VIS 301	MJR

FOURTH YEAR (32 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	VIS 401	Design Studio V	4	MUM 301 or VIS 301	MJR
	VIS 410	Senior VisCom Studio	3	Any 4 of VIS 311, 312, 320, 321, 322, 323	MJR
	MJE XXX	Major Elective			MJE 5 of 5
	SCI XXX	Science	3		GER SCI 2 of 2
	FRE XXX	Free Elective	3		FRE 1 of 3
		<b>Total</b>	<b>16</b>		
Spring	VIS 402	Design Studio VI	4	MUM 401 or VIS 401	MJR
	VIS 420	Senior VisCom Portfolio	3	VIS 410	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	FRE XXX	Free Elective	3		FRE 2 of 3
	FRE XXX	Free Elective	3		FRE 3 of 3
		<b>Total</b>	<b>16</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; CRR: Core Requirement; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; MTH: Mathematics/Statistics Requirement; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

# SBM



# School of Business and Management

## Dean

R. Malcolm Richards

## Associate Dean

A. Paul Williams

The School of Business and Management (SBM) at the American University of Sharjah strives to provide high-quality, American-style business education. The school serves the needs of students throughout the region by offering programs that provide local and global perspectives, promote critical thinking and develop effective communication skills. As a part of this mission, the faculty members engage in applied, integrative and pedagogical scholarship.

Today's effective business professional must have competence in many disciplines, an understanding of a variety of relationships and the ability to analyze evolving business, economic and governmental trends. Regardless of the specialty area, School of Business and Management students must be effective leaders who can organize and motivate groups to serve the goals of their organizations. Effectively adapting business practices to emerging conditions, such as the accelerating growth of technology, communications and the internationalization of the business world, demands a thorough grasp of current business and economic processes, theory and applications. Through its pedagogy, the School of Business and Management:

- Prepares individuals to identify, analyze and understand the interrelationships among business organizations and international, governmental and domestic institutions in the Emirates, the Gulf States and throughout the world
- Develops individuals who can ethically lead organizations toward economic success and social and environmental responsibility in the global marketplace of the 21st century
- Prepares individuals to integrate information resources and technology to enable them to anticipate and manage change

- Advances students' knowledge of issues and practices affecting business organizations, international and domestic institutions, and governments
- Develops an awareness of societal and environmental needs and concerns as they relate to ethical, professional and socially responsible business practices

Furthermore, the School of Business and Management provides its students with a solid core business education that emphasizes the following teaching methodologies:

- Utilizing the latest American business methods, techniques and technologies to provide cutting-edge business education
- Integrating multidisciplinary approaches to teaching and learning, utilizing the latest business and economic theories coupled with real-world business data analysis and presentations
- Integrating multimedia and computer-based instruction throughout the foundation business curriculum to assist students in learning the latest techniques in business and management

## Degree Offerings

SBM offers three bachelor of science business programs: the Bachelor of Science in Business Administration (BSBA), the Bachelor of Science in Management Information Systems (BSMIS) and the Bachelor of Science in Finance (BSFIN). It also offers a Bachelor of Arts in Economics (BAE) and a Bachelor of Arts in Public Administration (BAPA).

## Bachelor of Science Business Programs

### Admission

Admission to the program follows AUS's admission requirements. Students transferring into the program must have a cumulative GPA of 2.0 or higher and permission of the dean. Due to the quantitative emphasis

of the bachelor of science business programs curriculum, students admitted into the Bachelor of Science in Business Administration (BSBA), Bachelor of Science in Management Information Systems (BSMIS) or Bachelor of Science in Finance (BSFIN) programs are required to take the mathematics, English language and computer literacy placement examinations. Initially, all bachelor of science business program students are enrolled in the BSBA program. Students interested in BSMIS or BSFIN programs are admitted as MIS-intended (MISI) or FIN-intended (FINI) and should apply to the appropriate department chair for full admission into the BSMIS or BSFIN programs no later than the first week of May of their sophomore year in SBM. They must complete the Change of Major form obtained from the Office of the Registrar. Upon completion of at least 60 credits of study (excluding Intensive English and preparatory 00X courses), applicants with a cumulative GPA of 2.5 or higher (including all courses taken at AUS for credit) may be admitted to the BSMIS or BSFIN programs.

All BSBA, BSMIS and BSFIN transfer students are required to take MGT 406 Business Policy and Strategy and at least 30 upper-level credits toward their concentration requirements.

### Degree Requirements

A minimum of 123 credits is required as follows:

- 45 credits of general education requirements
- Major requirements
  - 39 credits of business core courses
  - 30 credits of business concentration or major courses
- Nine credits of free electives
- Satisfaction of the internship requirement
- A minimum cumulative grade point average of 2.0

## Designated Requirements

### General Education Requirements (45 credits)

All students in the bachelor of science business programs must complete the courses listed below as part of their university general education requirements:

- ENG 204 Advanced Academic Writing, ENG 208 Public Speaking and ENG 225 Global Business Communication satisfy an English language competency requirement
- ECO 201 Principles of Microeconomic and ECO 202 Principles of Macroeconomics satisfy a social sciences requirement
- MTH 101 Math for Business I and MTH 102 Math for Business II satisfy a mathematics requirement

For the remaining general education requirements, students must refer to the Undergraduate Studies section of this catalog.

### Business Elective (3 credits)

Students must complete any course from accounting (ACC), finance (FIN), management (MGT), management information systems (MIS) or marketing (MKT) at the 300 level or above that is not already used to meet business program requirements. An internship cannot meet this requirement (e.g., ACC 497).

### Free Electives (9 credits)

Students must complete nine credits at the 100 level or above, excluding MTH 100.

### Internship

Students in the bachelor of science business programs must complete an internship approved by SBM in their junior or senior year, which will be graded as Pass/Fail. BUS 397 fulfills this requirement. Students taking accounting as their only concentration must complete ACC 497 for three credits, which satisfies the SBM internship requirement.

### Computer Policy

To insure active and well-supported student participation in its e-learning programs, SBM requires entering

students to purchase and use laptops specified by the university.

### Calculator Policy

Students taking any course in the bachelor of science business programs may be required to use the Texas Instrument BAII Plus in exams, quizzes or any other form of evaluation. No other calculator models will be allowed. If a student does not have the required model for an evaluation, the student will have to take the evaluation without a calculator.

### Supplementary Materials

Additional fees may be charged for certain courses that require supplementary materials or support by the school.

## Business Administration Programs

Chairs are listed under each concentration.

### Bachelor of Science in Business Administration (BSBA)

The bachelor of science business programs provide students with a business core that offers a broad knowledge of business functions while emphasizing the global business environment. In addition to the business core, the student must also complete any combination of two areas of concentration. A concentration is a professional area of study in which a minimum of 15 credit hours must be earned in a related area of focus from the bachelor of science business programs. A concentration allows the student to obtain a breadth of knowledge in one of the six major fields in the bachelor of science business programs: accounting, economics, finance, management, management information systems and marketing. Students who pursue a concentration in economics cannot enroll in a minor in economics. Students may request permission to complete a single area of concentration

in accounting in order to complete more accounting courses to qualify for the CPA (Certified Public Accountant) exam. Students accepted into the single-concentration accounting area must take a minimum of eight 300-level and above accounting courses and two advised electives to complete the requirements. For students outside the bachelor of science business programs, SBM also offers a minor in business administration.

### Program Objectives

The objectives of the BSBA program are to:

- Develop an understanding of the UAE, American and international economic systems and the important relationship between business and society
- Develop a global perspective on business operations
- Provide a background in concepts, processes and institutions used in the production and marketing of goods and services and in the financing of business organizations
- Provide a foundation in concepts and applications of accounting, quantitative methods and information technology
- Stimulate the students' intellectual curiosity, develop their ability to think creatively and reason logically, and encourage their consideration of demographic diversity and ethical principles
- Allow students to concentrate in the two areas of business in which they are most interested (i.e., accounting, economics, finance, management, management information systems or marketing)

## MAJOR REQUIREMENTS

### Business Core Requirements (39 credits)

All students in the bachelor of science business programs must complete the following 39 credits of business core courses with a grade of C- or better. Additionally, a business internship is required.

- ACC 201 Fundamentals of Financial Accounting
- ACC 202 Fundamentals of Managerial Accounting

- BIS 101 Business Information Systems
- BLW 301 Business Law
- BUS 397 Business Internship (or ACC 497 Internship in Accounting for single accounting concentration)
- FIN 201 Fundamentals of Financial Management
- MGT 201 Fundamentals of Management
- MGT 360 Business Ethics and Social Responsibility
- MGT 406 Business Policy and Strategy
- MIS 201 Fundamentals of Management Information Systems
- MKT 201 Fundamentals of Marketing
- QBA 201 Quantitative Business Analysis
- QBA 202 Operations Management
- Business Elective

### Business Concentration Requirements

A total of 30 credits of concentration courses must be completed from any two of the following concentrations.

#### Concentration in Accounting (15 credits)

Dennis Olson, Interim Chair

This concentration is designed to prepare graduates for management careers in the fields of accounting, financial management and consulting. Students who pursue this concentration will develop specific business competencies dealing with the financial management of private and public corporations. Furthermore, this concentration is designed to enable students who wish to continue with graduate study to qualify for professional certification, such as the CPA certificate in the United States.

#### Concentration Requirements

- ACC 301 Intermediate Financial Accounting I
- ACC 302 Intermediate Financial Accounting II
- ACC 303 Cost Accounting
- ACC 305 Income Tax I or ACC 306 Income Tax II
- ACC 410 Auditing

Students selecting a single concentration in accounting must

complete an additional five courses in accounting (15 credits) at the 300 level or above including ACC 306 Income Tax II and ACC 497 Internship in Accounting.

#### Concentration in Finance (15 credits)

Dennis Olson, Interim Chair

This concentration offers students an integrative approach to the fields of banking and finance. Students will develop the analytical tools and theoretical framework necessary to analyze and understand the financial and banking sectors. Furthermore, this concentration provides the essential tools for understanding investments, capital markets, financial management and financial institutions. Students will also develop competencies in the banking sector with regard to management of financial instruments, markets and risk management.

#### Concentration Requirements

- FIN 320 Banking
- FIN 330 Investments
- FIN 401 International Finance
- FIN 450 Case Studies in Corporate Finance
- FIN XXX Finance Elective

The FIN elective can be any course in finance at the 300 level or above with the approval of the advisor.

#### Concentration in Management (15 credits)

Joseph Wallis, Chair

This concentration offers professional training in the complex art of human management as it relates to corporate and organizational behavior in the business world. The field of management requires knowledge of individual and group behavior, the processes of perception, and how people select and interpret information. This concentration provides the tools and skills necessary to manage simultaneous complex tasks and objectives through rigorous project management training and project simulations. Students will gain an understanding of

management's importance to society and organizations. They will learn how management can be a force for positive change in a rapidly changing business environment.

#### Concentration Requirements

- MGT 301 Organizational Behavior
- MGT 302 Managing Human Resources
- MGT 380 Project Management
- MGT 403 Entrepreneurship
- MGT XXX Management Elective

The MGT elective can be any course in management at the 300 level or above with the approval of the advisor, excluding MGT 360 and MGT 406.

#### Concentration in Marketing (15 credits)

Joseph Wallis, Chair

Students in this concentration study the practical application of marketing concepts such as procedures for developing promotions, pricing of products, distribution channels and sales management strategies. Furthermore, heavy emphasis is placed on market research utilizing statistical analytical techniques, consumer behavior and a variety of market programming methodologies. Particular emphasis is placed on interpersonal communication techniques and on the practical application of marketing concepts as they relate to sales management.

#### Concentration Requirements

- MKT 301 Consumer Behavior
- MKT 302 Marketing Research
- MKT 401 Marketing Strategy
- MKT XXX Marketing Elective
- MKT XXX Marketing Elective

The MKT electives can be any two courses in marketing at the 300 level or above with the approval of the advisor.

#### Concentration in Management Information Systems (15 credits)

Reza Barkhi, Interim Chair

Managers and non-managers alike depend upon information for decision making. To be useful, information

must be understandable, timely, thorough, focused and distributed to the appropriate individual. Accomplishing all of this is the challenge of management information systems. In this concentration, students will acquire professional skills in the areas of computer-based information systems, networks, communications, data analysis and other skills needed by this expanding field of information technology management.

### Concentration Requirements

- MIS 200 Principles of Business Programming
- MIS 301 Fundamentals of Database Management
- MIS 303 Introduction to Systems Analysis
- MIS 304 Applied Systems Design
- MIS XXX Management Information Systems Elective

The MIS elective can be any course in management information systems at the 300 level or above with the approval of the advisor. Additional MIS elective options include the following:

- MGT 380 Project Management
- MIS 203 Software Development for Business Applications

### Concentration in Economics (15 credits)

John Chilton, Chair

This concentration provides students with the theoretical foundation to apply economics to decision making and public policy in business and other organizations. From the common core of the intermediate theory courses in micro- and macroeconomics, students can branch out into several application areas in economics (such as international economics, industrial organization, money and banking, or Islamic economics) or pursue more advanced courses (such as managerial economics, econometrics or the senior economics seminar).

### Concentration Requirements

- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics
- ECO XXX Economics Elective
- ECO XXX Economics Elective

- ECO XXX Economics Elective

The ECO electives can be any three courses in economics at the 300 level or above with the approval of the advisor.

### Minor in Business Administration

Students from outside the bachelor of science business programs can enroll in a minor specialization in one of the following areas of concentration: accounting, finance, management, management information systems or marketing. Interested students must seek the approval of the chair of the department and should meet with the relevant department chair before starting the minor in order to determine specific program requirements. Students enrolling in the business administration minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in business administration must complete the following courses or their equivalent. All course prerequisites must be satisfied.

### Prerequisite Courses

- BIS 101 Business Information Systems (not required for students from engineering and computer science)
- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- One of three combinations: MTH 101 and MTH 102, or MTH 100 or MTH 111 and MTH 101, or MTH 103 and MTH 104
- QBA 201 Quantitative Business Analysis or STA 201 Introduction to Statistics for Engineering and Natural Sciences or STA 202 Introduction to Statistics for Social Sciences or NGN

- 111 Introduction to Statistical Analysis

- WRI 102 Writing and Reading Across the Curriculum

### Foundation Courses (9 credits)

- ACC 201 Fundamentals of Financial Accounting
- One course in the area of minor specialization (i.e., FIN 201, MGT 201, MIS 201, MKT 201)
- One course in one of the remaining areas (i.e., FIN 201, MGT 201, MIS 201, MKT 201)
- Students seeking a minor in accounting or finance must complete ACC 201 Fundamentals of Financial Accounting, ACC 202 Fundamentals of Managerial Accounting and FIN 201 Fundamentals of Financial Management as foundation courses.
- Students seeking a minor in MIS must complete both MIS 200 Principles of Business Programming and MIS 201 Fundamentals of Management Information Systems, resulting in up to 21 credits for the minor. Computer science and computer engineering students are exempted from taking MIS 200. Other students who demonstrate the necessary background in programming courses may also be exempted from MIS 200.

### Upper Division Courses (9 credits)

Students must complete three 300-level or above courses that meet the prerequisite requirements in the minor area.

- The upper division courses in MIS are MIS 301 Fundamentals of Database Management, MIS 303 Introduction to Systems Analysis and any other MIS course at the 300 level or above. Instead of MIS 301, computer science and computer engineering students are required to take any other MIS course at the 300 level or above.
- Students seeking a minor in management must complete MGT 301 Organizational Behavior as one of their 300-level requirements. MGT 360 Business Ethics and Social Responsibility and MGT 406 Business Policy and Strategy cannot be used to fulfill the upper division course requirements.
- Students seeking a minor in marketing must complete MKT 301 Consumer Behavior and MKT 302 Marketing Research as part of the 300-level requirements.

**Proposed Sequence of Study**  
**Bachelor of Science in Business Administration (BSBA)**  
**Concentration: Accounting and Finance**

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 1 of 5
	MTH 101	Mathematics for Business I	3	MPT or MTH 002	GER MTH 1 of 2
	BIS 101	Business Information Systems	3	CPT or BIS 001	CRR
	QBA 201	Quantitative Business Analysis	3	pre/con MTH 101	GER MTH 2 of 2
	<b>Total</b>		<b>15</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 2 of 5
	MTH 102	Mathematics for Business II	3	MTH 101	CRR
	ACC 201	Fundamentals of Financial Accounting	3	pre/con MTH 101 and QBA 201	CRR
	QBA 202	Operations Management	3	QBA 201	CRR
	<b>Total</b>		<b>15</b>		

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	ACC 202	Fundamentals of Managerial Accounting	3	MTH 101, ACC 201; pre/con QBA 201	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	FIN 201	Fundamentals of Financial Management	3	MTH 102; pre/con ACC 202, QBA 202	CRR
	MGT 201	Fundamentals of Management	3	pre/con WRI 102	CRR
	<b>Total</b>		<b>15</b>		
Spring	ENG 208	Public Speaking	3	ENG 204	CRR
	MKT 201	Fundamentals of Marketing	3	ECO 201, ECO 202; pre/con WRI 102	CRR
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	FRE XXX	Free Elective	3		FRE 1 of 3
	MIS 201	Fundamentals of MIS	3	BIS 101	CRR
	<b>Total</b>		<b>15</b>		

THIRD YEAR (33 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	ENG 225	Writing for Business	3	ENG 204, junior standing	GER ELC 4 of 4
	CRE XXX	Business Core Elective	3		CRE 1 of 1
	FIN 320	Banking	3	FIN 201, WRI 102; pre/con MIS 201	CNR
	ACC 301	Intermediate Financial Accounting I	3	WRI 102, ACC 202; pre/con MGT 201	CNR
	ACC 303	Cost Accounting	3	ACC 202, FIN 201; pre/con MIS 201, MKT 201	CNR
		<b>Total</b>	<b>15</b>		
Spring	ACC 302	Intermediate Financial Accounting II	3	ACC 301, FIN 201; pre/con MIS 201	CNR
	FIN 330	Investments	3	FIN 201, ACC 202, WRI 102 ; pre/con MKT 201, MGT 201	CNR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	MGT 360	Business Ethics and Social Responsibility	3	MGT 201, ACC 201, QBA 201; pre/con ENG204	CRR
	SCI XXX	Science	3		GER SCI 1 of 2
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
		<b>Total</b>	<b>18</b>		
Summer	BUS 397*	Business Internship	0	junior standing	MJR

\* In case of a single accounting concentration, students must complete ACC 497 Internship in Accounting.

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	FIN 401	International Finance	3	FIN 330, QBA 202; pre/con FIN 320	CNR
	CNE XXX	Concentration I Elective	3		CNE I 1 of 1
	ACC 410	Auditing	3	ACC 302, senior standing	CNR
	CNE XXX	Concentration II Elective	3		CNE II 1 of 1
	BLW 301	Business Law	3	ACC 201, ECO 202; pre/con ENG 204 or ENG 208	CRR
		<b>Total</b>	<b>15</b>		
Spring	MGT 406	Business Policy and Strategy	3	MGT 201, MKT 201, MIS 201, FIN 201, ENG 204, senior standing or permission of department	CRR
	FIN 450	Case Studies in Corporate Finance	3	FIN 330, FIN 320	CNR
	SCI XXX	Science	3		GER SCI 2 of 2
	FRE XXX	Free Elective	3		FRE 2 of 3
	FRE XXX	Free Elective	3		FRE 3 of 3
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

**Note:** Substitutions for upper-level accounting and finance courses are done only in exceptional cases upon approval of department chair.

**Proposed Sequence of Study**  
**Bachelor of Science in Business Administration (BSBA)**  
**Concentration: Accounting and MIS**

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 1 of 5
	MTH 101	Mathematics for Business I	3	MPT or MTH 002	GER MTH 1 of 2
	BIS 101	Business Information Systems	3	CPT or BIS 001	CRR
	QBA 201	Quantitative Business Analysis	3	pre/con MTH 101	GER MTH 2 of 2
	<b>Total</b>		<b>15</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 2 of 5
	MTH 102	Mathematics for Business II	3	MTH 101	CRR
	ACC 201	Fundamentals of Financial Accounting	3	pre/con MTH 101, QBA 201	CRR
	QBA 202	Operations Management	3	QBA 201	CRR
	<b>Total</b>		<b>15</b>		
SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	ACC 202	Fundamentals of Managerial Accounting	3	MTH 101, ACC 201; pre/con QBA 201	CRR
	MIS 200	Principles of Business Programming	3	MTH 101, BIS 101	CNR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	FIN 201	Fundamentals of Financial Management	3	MTH 102; pre/con ACC 202, QBA 202	CRR
	<b>Total</b>		<b>15</b>		
Spring	MGT 201	Fundamentals of Management	3	pre/con WRI 102	CRR
	MIS 201	Fundamentals of MIS	3	BIS 101	CRR
	MKT 201	Fundamentals of Marketing	3	ECO 201, ECO 202; pre/con WRI 102	CRR
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	ENG 208	Public Speaking	3	ENG 204	CRR
	<b>Total</b>		<b>15</b>		
THIRD YEAR (33 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	ENG 225	Writing For Business	3	ENG 204, junior standing	GER ELC 4 of 4
	MIS 301	Fundamentals of Database Management	3	MIS 200, MIS 201, WRI 102; pre/con FIN 201	CNR
	MIS 303	Introduction to Systems Analysis	3	MIS 200, MIS 201, WRI 102; pre/con FIN201, MKT 201, MGT 201	CNR
	ACC 301	Intermediate Financial Accounting I	3	WRI 102, ACC 202; pre/con MGT 201	CNR
	ACC 303	Cost Accounting	3	ACC 202, FIN 201; pre/con MIS 201, MKT 201	CNR
	<b>Total</b>		<b>15</b>		
Spring	ACC 302	Intermediate Financial Accounting II	3	ACC 301, FIN 201; pre/con MIS 201	CNR
	CNE XXX	Concentration I Elective	3		CNE 1 1 of 1
	MIS 304	Applied Systems Design	3	MIS 301, MIS 303; pre/con QBA 202	CNR
	CRE XXX	Business Core Elective	3		CRE 1 of 1
	BLW 301	Business Law	3	ACC 201, ECO 202; pre/con ENG 204 or ENG 208	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	<b>Total</b>		<b>18</b>		
Summer	BUS 397*	Business Internship	0	junior standing	MJR

\* In case of a single accounting concentration, students must complete ACC 497 Internship in Accounting.

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	CNE XXX	Concentration II Elective	3		CNE II 1 of 1
	MGT 360	Business Ethics and Social Responsibility	3	MGT 201, ACC 201, QBA 201; pre/con ENG 204	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	SCI XXX	Science	3		GER SCI 1 of 2
	FRE XXX	Free Elective	3		FRE 1 of 3
		<b>Total</b>	<b>15</b>		
Spring	MGT 406	Business Policy and Strategy	3	MGT 201, MKT 201, MIS 201, FIN 201, ENG 204, senior standing or permission of department	CRR
	ACC 410	Auditing	3	ACC 302, senior standing	CNR
	SCI XXX	Science	3		GER SCI 2 of 2
	FRE XXX	Free Elective	3		FRE 2 of 3
	FRE XXX	Free Elective	3		FRE 3 of 3
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

**Note:** Substitutions for upper-level accounting courses are done only in exceptional cases upon approval of department chair.

**Proposed Sequence of Study**  
**Bachelor of Science in Business Administration (BSBA)**  
**Concentration: *Economics and Finance***

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 1 of 5
	MTH 101	Mathematics for Business I	3	MPT or MTH 002	GER MTH 1 of 2
	BIS 101	Business Information Systems	3	CPT or BIS 001	CRR
	QBA 201	Quantitative Business Analysis	3	pre/con MTH 101	GER MTH 2 of 2
		<b>Total</b>	<b>15</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 2 of 5
	MTH 102	Mathematics for Business II	3	MTH 101	CRR
	ACC 201	Fundamentals of Financial Accounting	3	pre/con MTH 101, QBA 201	CRR
	QBA 202	Operations Management	3	QBA 201	CRR
		<b>Total</b>	<b>15</b>		

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	ACC 202	Fundamentals of Managerial Accounting	3	MTH 101, ACC 201; pre/con QBA 201	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	FIN 201	Fundamentals of Financial Management	3	MTH 102; pre/con ACC 202, QBA 202	CRR
	MGT 201	Fundamentals of Management	3	pre/con WRI 102	CRR
	<b>Total</b>		<b>15</b>		
Spring	ENG 208	Public Speaking	3	ENG 204	CRR
	MKT 201	Fundamentals of Marketing	3	ECO 201, ECO 202; pre/con WRI 102	CRR
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	ECO 301	Intermediate Microeconomics	3	ECO 201, ECO 202, WRI 102	CNR
	MIS 201	Fundamentals of MIS	3	BIS 101	CRR
	<b>Total</b>		<b>15</b>		

THIRD YEAR (33 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	ENG 225	Writing for Business	3	ENG 204, junior standing	GER ELC 4 of 4
	CRE XXX	Business Core Elective	3		CRE 1 of 1
	FIN 320	Banking	3	FIN 201, WRI 102; pre/con MIS 201	CNR
	ECO 302	Intermediate Macroeconomics	3	ECO 201, ECO 202, WRI 102	CNR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	<b>Total</b>		<b>15</b>		
Spring	CNE XXX	Concentration I Elective	3		CNE I 1 of 2
	FIN 330	Investments	3	FIN 201, ACC 202, WRI 102; pre/con MKT 201, MGT	CNR
	BLW 301	Business Law	3	ACC 201, ECO 202; pre/con ENG 204 or ENG 208	CRR
	MGT 360	Business Ethics and Social Responsibility	3	MGT 201, ACC 201, QBA 201; pre/con ENG 204	CRR
	SCI XXX	Science	3		GER SCI 1 of 2
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	<b>Total</b>		<b>18</b>		
Summer	BUS 397	Business Internship	0	junior standing	MJR

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	FIN 401	International Finance	3	FIN 330, QBA 202; pre/con FIN 320	CNR
	CNE XXX	Concentration I Elective	3		CNE I 2 of 2
	CNE XXX	Concentration II Elective	3		CNE II 1 of 2
	FRE XXX	Free Elective	3		FRE 1 of 3
	MGT 406	Business Policy and Strategy	3	MGT 201, MKT 201, MIS 201, FIN 201, ENG 204, senior standing or permission of department	CRR
	<b>Total</b>		<b>15</b>		
Spring	CNE XXX	Concentration II Elective	3		CNE II 2 of 2
	FIN 450	Case Studies in Corporate Finance	3	FIN 330, FIN 320	CNR
	SCI XXX	Science	3		GER SCI 2 of 2
	FRE XXX	Free Elective	3		FRE 2 of 3
	FRE XXX	Free Elective	3		FRE 3 of 3
	<b>Total</b>		<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

**Note:** Substitutions for upper-level accounting and finance courses are done only in exceptional cases upon approval of department chair.

**Proposed Sequence of Study**  
**Bachelor of Science in Business Administration (BSBA)**  
**Concentration: *Marketing and Management***

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 1 of 5
	MTH 101	Math for Business I	3	MPT or MTH 002	GER MTH 1 of 2
	BIS 101	Business Information Systems	3	CPT or BIS 001	CRR
	QBA 201	Quantitative Business Analysis	3	pre/con MTH 101	GER MTH 2 of 2
	<b>Total</b>		<b>15</b>		
Spring	ACC 201	Fundamentals of Financial Accounting	3	pre/con MTH 101, QBA 201	CRR
	QBA 202	Operations Management	3	QBA 201	CRR
	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 2 of 5
	MTH 102	Mathematics for Business II	3	MTH 101	CRR
	<b>Total</b>		<b>15</b>		

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	MGT 201	Fundamentals of Management	3	pre/con WRI 102	CRR
	ACC 202	Fundamentals of Managerial Accounting	3	ACC 201, MTH 101; pre/con QBA 201	CRR
	MKT 201	Fundamentals of Marketing	3	ECO 201, ECO 202; pre/con WRI 102	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
		<b>Total</b>	<b>15</b>		
Spring	ENG 208	Public Speaking	3	ENG 204	CRR
	FRE XXX	Free Elective	3		FRE 1 of 3
	FIN 201	Fundamentals of Financial Management	3	MTH 102; pre/con ACC 202, QBA 202	CRR
	MIS 201	Fundamentals of MIS	3	BIS 101	CRR
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
		<b>Total</b>	<b>15</b>		

THIRD YEAR (33 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	MKT 301	Consumer Behavior	3	MKT 201, ACC 201, QBA 201, WRI 102	CNR
	MGT 301	Organizational Behavior	3	MGT 201, ACC 201, QBA 201; pre/con ENG 204	CNR
	BLW 301	Business Law	3	ACC 201, ECO 202; pre/con ENG 204 or ENG 208	CRR
	ENG 225	Writing for Business	3	ENG 204, junior standing	GER ELC 4 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
		<b>Total</b>	<b>15</b>		
Spring	MGT 302	Managing Human Resources	3	MGT 201, ACC 201, QBA 201, ENG 204	CNR
	MKT 302	Marketing Research	3	MKT 201, ACC 201, QBA 202, WRI 102; pre/con MIS 201	CNR
	MGT 380	Project Management	3	MIS 201, FIN 201, ACC 202, ENG 204; and MGT 301 or MIS 303	CNR
	MGT 360	Business Ethics and Social Responsibility	3	MGT 201, ACC 201, QBA 201; pre/con ENG 204	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	SCI XXX	Science	3		GER SCI 1 of 2
		<b>Total</b>	<b>18</b>		
Summer	BUS 397	Business Internship	0	junior standing	MJR

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	CNE XXX	Concentration I Elective	3		CNE I 1 of 2
	MKT 401	Marketing Strategy	3	MKT 301, MKT 302, FIN 201, ACC 202	CNR
	CNE XXX	Concentration II Elective	3		CNE II 1 of 1
	SCI XXX	Science	3		GER SCI 2 of 2
	CRE XXX	Business Core Elective	3		CRE 1 of 1
	<b>Total</b>		<b>15</b>		
Spring	MGT 406	Business Policy and Strategy	3	MGT 201, MKT 201, MIS 201, FIN 201, ENG 204, senior standing or permission of department	CRR
	MGT 403	Entrepreneurship	3	ENG 204, senior standing or permission of department	CNR
	CNE XXX	Concentration I Elective	3		CNE I 2 of 2
	FRE XXX	Free Elective	3		FRE 2 of 3
	FRE XXX	Free Elective	3		FRE 3 of 3
	<b>Total</b>		<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

**Note:** Substitutions for upper-level courses are done only in exceptional cases upon approval of department chair.

## Department of Accounting and Finance

Dennis Olson, Interim Chair

### Faculty

Abed Al-Nasser Abdallah  
 Omneya Abdelsalam  
 Yass Alkafaji  
 Osamah Al-Khazali  
 Jörg Bley  
 Abdelaziz Chazi  
 Musa Darayseh  
 Zouheir El-Jarkass  
 Ashraf Khallaf  
 Brent McCallum  
 Mohsen Saad  
 Ronald Williams  
 Zaher Zantout  
 Taisier Zoubi

### Bachelor of Science in Finance (BSFIN)

Finance is the art and science of obtaining, administering and managing money. Along with management and marketing, finance is one of the basic business functions of the free enterprise system. Every organization must perform the finance function

and almost every decision that organizations make has financial implications. Students majoring in finance are introduced to the theory, concepts, applications, institutional environment and analytical tools essential for proper decision making.

The finance program develops the analytical and behavioral skills necessary for success in dynamic domestic and global financial environments. Courses are designed to provide students with an understanding of the relationship between business finance and the economic system in the context of the management decision-making process.

The appropriate use of technology, new organizational structures, entrepreneurial thinking and international awareness are integrated throughout the program. The goal of the finance program is to impart knowledge and competence in finance that will prepare students for entry-level and leadership positions in private and public sector organizations. Students seeking careers in real estate, corporate control, treasury functions and investments will find the finance

major well suited for their needs.

The mission of the Bachelor of Science in Finance degree program is to provide students with a strong undergraduate foundation in the theory and application of finance, building upon a liberal arts and science education. The program is intended to prepare students for graduate study in finance as well as to provide them with the financial concepts and tools necessary for positions in government, business and industry, both nationally and internationally.

The Bachelor of Science in Finance degree program provides courses for students in the School of Business and Management and the university that are appropriate for the business core requirements and for students seeking general knowledge of the application of finance in business.

### Program Objectives

The objectives of the Bachelor of Science in Finance degree program are to:

- Provide a quality education to students that will prepare them for leadership positions within the finance profession.

Students acquire financial knowledge and skills that can be applied in a variety of environments.

- Help students to understand the process of integration and the application of core competencies and skills in business or business-related environments and/or situations
- Allow students to prepare and take the examinations of Chartered Financial Analyst (CFA) and Certified Financial Planner (CFP)
- Provide students with knowledge of the problems and opportunities that confront entities in the specific field of finance
- Provide students with an education that emphasizes the concepts of financial management, investment problems, capital markets, business ethics and decision-making strategies
- Prepare students to be productive professionals who can make responsible decisions in a changing world
- Create students who are able to focus on the challenges found in an educational environment that emphasizes high-quality teaching and learning
- Enhance students' learning processes through applied research and instructional development while recognizing the contribution of basic research

The curriculum provides students with a foundation in financial management and exposure to the nature and operations of the financial markets. Building upon this foundation, students may expand their knowledge with courses in banking, international finance, portfolio management, intermediate accounting, intermediate economics, calculus and statistics.

### Program Outcomes

A successful graduate of the Bachelor of Science in Finance degree program should be able to:

- Define and solve quantitative problems
- Make decisions
- Develop budgets
- Prepare financial reports and projections
- Assess risk
- Define problems and design solutions
- Interpret accounting and financial data
- Present reports and proposals to groups
- Utilize computer software for analysis and reports

### Distinctive Features of the Program

The Bachelor of Science in Finance degree program has a number of distinctive features that provide AUS graduates with a competitive advantage in today's business world.

- Analytical tools to handle a variety of finance and business functions are developed throughout the program. Courses are designed to provide students with an understanding of the relationship between business finance and the economic system in the context of the management decision-making process.
- The appropriate use of technology, new organizational structures, entrepreneurial thinking and international awareness are integrated into the majority of courses.
- The finance curriculum is integrated with other business and non-business courses such as mathematics, statistics, English, psychology and economics.
- Critical thinking is developed through an active learning process. The curriculum in finance helps the students acquire good analytical and communication skills and keep abreast of current economic and political developments.
- The required curriculum in finance provides students with a foundation in finance and an exposure to the nature and operations of the financial markets. Building upon this foundation, students may expand their knowledge by electing courses in banking, international finance, portfolio management and more.
- The School of Business and Management encourages scholarly work, applied research and business consulting through its partnerships in the business world. Faculty members are expected to integrate the findings into the curriculum and bring new thought and developing practices to the classroom.

### Admission

Students interested in the BSFIN program are admitted as FIN-intended (FINI) and should apply to the chair of the Department of Accounting and Finance for full admission into the BSFIN program no later than the first week of May of their sophomore year in SBM. They must complete the Change of Major form obtained from the Office of the Registrar. Upon completion of at least 60 credits of

study (excluding intensive English and preparatory 00X courses), applicants with a cumulative grade point average of 2.5 or higher (including all courses taken at AUS for credit) may be admitted to the BSFIN program.

Only two courses (six credits) of upper-division business courses may be transferred.

Transfer credits for upper-division business courses are subject to approval by the appropriate School of Business and Management department.

### Degree Requirements

In addition to university and bachelor of science business core requirements, the following major courses are required for BSFIN students:

#### Major Requirements (21 credits)

- FIN 310 Analysis of Financial Statements
- FIN 320 Banking
- FIN 330 Investments
- FIN 401 International Finance
- FIN 402 Futures and Options
- FIN 440 Asset Valuation
- FIN 450 Case Studies in Corporate Finance

#### Major Electives (9 credits)

The FIN electives can be any three courses in finance at the 300 level or above with the approval of the advisor.

A maximum of two of the three electives may be from the following economics courses.

- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics
- ECO 305 International Trade
- ECO 315 Economics of the Middle East
- ECO 325 Public Economics
- ECO 330 Money and Banking
- ECO 333 Islamic Economics
- ECO 334 Islamic Banking and Finance
- ECO 351 Introduction to Econometrics

#### Free Electives (9 credits)

Students must complete nine credits at the 100 level or above, excluding MTH 100.

**Proposed Sequence of Study  
Bachelor of Science in Finance (BSFIN)**

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 1 of 5
	MTH 101	Mathematics for Business I	3	MPT or MTH 002	GER MTH 1 of 2
	BIS 101	Business Information Systems	3	CPT or BIS 001	CRR
	QBA 201	Quantitative Business Analysis	3	pre/con MTH 101	GER MTH 2 of 2
	<b>Total</b>			<b>15</b>	
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 2 of 5
	MTH 102	Mathematics for Business II	3	MTH 101	CRR
	ACC 201	Fundamentals of Financial Accounting	3	pre/con MTH 101, QBA 201	CRR
	QBA 202	Operations Management	3	QBA 201	CRR
	<b>Total</b>			<b>15</b>	

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	ACC 202	Fundamentals of Managerial Accounting	3	MTH 101, ACC 201; pre/con QBA 201	CRR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	FIN 201	Fundamentals of Financial Management	3	MTH 102; pre/con ACC 202, QBA 202	CRR
	MGT 201	Fundamentals of Management	3	pre/con WRI 102	CRR
	<b>Total</b>			<b>15</b>	
Spring	ENG 208	Public Speaking	3	ENG 204	CRR
	MKT 201	Fundamentals of Marketing	3	ECO 201, ECO 202; pre/con WRI 102	CRR
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	FIN 310	Analysis of Financial Statements	3	FIN 201, WRI 102, ACC 202	MJR
	MIS 201	Fundamentals of MIS	3	BIS 101	CRR
	<b>Total</b>			<b>15</b>	

THIRD YEAR (33 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	SCI XXX	Science	3		GER SCI 1 of 2
	FIN 320	Banking	3	FIN 201, WRI 102; pre/con MIS 201	MJR
	FIN 330	Investments	3	FIN 201, ACC 202, WRI 102; pre/con MKT 201, MGT 201	MJR
	ENG 225	Writing for Business	3	ENG 204, junior standing	GER ELC 4 of 4
	BLW 301	Business Law	3	ACC 201, ECO 202; pre/con ENG 204 or ENG 208	CRR
		<b>Total</b>	<b>15</b>		
Spring	CRE XXX	Business Core Elective	3		CRE 1 of 1
	FIN 402	Futures and Options	3	FIN 330, QBA 202; pre/con FIN 320	MJR
	FIN 440	Asset Valuation	3	FIN 330, pre/con FIN 320	MJR
	SCI XXX	Science	3		GER SCI 2 of 2
	FRE XXX	Free Elective	3		FRE 1 of 3
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
		<b>Total</b>	<b>18</b>		
Summer	BUS 397	Business Internship	0	junior standing	MJR

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	FRE XXX	Free Elective	3		FRE 2 of 3
	MJE XXX	Major Elective	3		MJE 1 of 3
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	FIN 401	International Finance	3	FIN 330, QBA 202; pre/con FIN 320	MJR
	MGT 360	Business Ethics and Social Responsibility	3	MGT 201, ACC 201, QBA 201; pre/con ENG 204	CRR
		<b>Total</b>	<b>15</b>		
Spring	MGT 406	Business Policy and Strategy	3	MGT 201, MKT 201, MIS 201, FIN 201, ENG 204, senior standing or permission of department	CRR
	MJE XXX	Major Elective	3		MJE 2 of 3
	MJE XXX	Major Elective	3		MJE 3 of 3
	FIN 450	Case Studies in Corporate Finance	3	FIN 330, FIN 320	MJR
	FRE XXX	Free Elective	3		FRE 3 of 3
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; pre/con: prerequisite/concurrent; RFE: Related Field Elective; SCI: Science Requirement

**Note:** Substitutions for upper-level finance courses are done only in exceptional cases upon approval of department chair.

## Department of Management Information Systems

Reza Barkhi, Interim Chair

### Faculty

Frank Campa

Kim Heng Chen

Ananth Chiravuri

Abdelkader Daghfous

Narasimhaiah Gorla

Mehmet Gumus

Zeinab Karake-Shalhoub

Ali Khawaja

Munir Majdalawieh

Sofiane Sahraoui (on sabbatical 2006–2007)

Toufic Sai

Kustim Wibowo

Xiaobo Xu

### Bachelor of Science in Management Information Systems (BSMIS)

The management information systems (MIS) program is dedicated to preparing successful graduates for professional business careers, emphasizing the application of information technology to business processes, and to engaging in service and research that serve the information technology needs of society in general and the Gulf region in particular.

MIS is the study of computer technologies, human cognition and scientific principles directed to the design, implementation and management of information systems. The discipline includes technical components such as computer programming, system design, telecommunications, database management systems and computer graphics as well as human factors in system design and human-computer interaction. A variety of rewarding professional opportunities is available to MIS graduates, including analyzing and modeling work systems; analyzing and designing business processes; managing information services; evaluating and selecting business solutions; developing and maintaining

advanced systems for information storage, retrieval and distribution; planning and developing the corporate data and system architecture; and more.

The problems solved by information systems graduates come from many disciplines such as mathematics, economics, business, engineering, linguistics and psychology, to name a few. As an information systems professional working on a problem in one of those areas, one must be knowledgeable in that discipline as well as in the capabilities and uses of computers. The successful information systems professional must possess considerable communication skills and must be able to learn new ideas quickly and adapt to ever-changing conditions to satisfy the needs of the users.

The rapid expansion of computer technology and the increasing complexity of information systems generate a need for more sophisticated and effective methods of structuring information for purposes of storage, analysis and retrieval. This requires information systems professionals to be aware of the opportunities and problems resulting from the application of computer technology and capable of understanding both the information needs of managers, administrators and other end-users and the information needs of designing the appropriate computer-based systems. Accordingly, the information analyst and system designer can no longer be regarded as technical experts only; in addition to having professional knowledge and a command of information technology, they must understand the basic needs of the organization in which they operate and of the users of the information systems that they develop. The BSMIS program endeavors to educate students so that they can:

- Understand and plan for the use of current and emerging information technologies
- Develop a broad perspective of the integration of information technology in

all functional areas of business

- Understand how to exploit information technology as a strategic resource
- Develop technical and managerial skills in management information systems
- Integrate quality and continuous improvement concepts into information systems management
- Understand ethical issues related to the use of information technology

### Program Objectives

The MIS program objectives are to:

- Provide MIS graduates with a curriculum that prepares them with the technical skills and conceptual knowledge necessary to succeed in an information systems career, primarily as business analysts
- Continuously improve students' skills and knowledge of emerging information systems approaches and technologies that have been identified and targeted for future development
- Provide service courses to students in the school and the university that are appropriate for the business core and for students seeking general knowledge of the applications of information systems in business
- Allow students to prepare and take the examinations for professional certifications such as OCP (Oracle Certified Professional), MSCP (Microsoft Certified Professional) and CISA (Certified Information Systems Auditor)
- Involve the faculty with the placement of students through contacts with potential employers, serving as references for students and advising students on job-search skills
- Enhance faculty interaction with information systems professionals to identify conceptual knowledge, technical skills and instructional methods appropriate for information systems careers
- Encourage faculty to engage in applied research in emerging technologies and approaches and publications of instructional development applied to the MIS curriculum

### Program Outcomes

A successful graduate of the MIS

program should be able to:

- Create an application in a structured development environment to manipulate business data files using structured programming techniques
- Create graphical user interface (GUI)-based applications in an object-oriented programming language, including the development of user interfaces, use of controls, writing/debugging code and the creation of interactive menus
- Apply data modeling techniques such as normalization and entity relationship (ER) diagramming to create a database model
- Implement a database model in a relational database management system (RDBMS) such as Oracle, including the creation of tables, establishing referential integrity constraints, loading data, creating views and producing forms and reports using the RDBMS
- Plan and manage a local area network, including creating users, installing software, establishing security constraints, configuring print services and configuring clients
- Configure a web server and design a website
- Select and apply appropriate systems analysis and design methodologies and techniques to develop an information system for a business process
- Use modern application development products as prototyping tools in the systems development process
- Develop information system applications for solving business problems by completing a development project from initial requirements gathering to implementation
- Research emerging information systems technologies and present recommendations to managers about the impact of those technologies on a business
- Design and implement web-based, interactive groupware applications to support collaborative work and to support access, tracking, sharing and organizing of information across time and space
- Apply telecommunication concepts to plan and manage wide-area networks and communicate plans to managers in both written and oral form

### **Distinctive Features of the MIS Program**

The Bachelor of Science in Management Information Systems degree program at AUS incorporates a number of distinctive features that set it apart from many other programs:

- Active learning methods that enhance the development of critical thinking abilities. The program curriculum places great emphasis on methods and skills of inquiry, analysis, judgment and decision making.
- Courses that better integrate and reinforce general education requirements. The curriculum integrates, by extension and reinforcement in the MIS field, the content and skills learned in basic courses such as English, accounting, marketing and economics.
- A conceptual framework that cuts across functional areas. Courses in the MIS curriculum are organized with an integrated conceptual structure common to all aspects of the discipline. This conceptual structure emphasizes the utility of information, together with information production and dissemination given various uses.
- Better development and improvement of students' interpersonal and communication skills. These skills are reflected in the fabric of the curriculum through the use of team projects and written and oral reports.
- Greater integration of research findings into the curriculum. MIS courses include knowledge gained through current research and related implications for practice in the information technology field.
- A working partnership between academe and practice is encouraged. The goal is to enable a continuous focus on the practical relevance of the educational process as well as a richer and more contemporary flavor to the content of course materials.

### **Admission**

Students interested in the BSMIS program are admitted as MIS-intended (MISI) and should apply to the chair of the Department of Management Information Systems for full admission

into the BSMIS program no later than the first week of May of their sophomore year in SBM. They must complete the Change of Major form obtained from the Office of the Registrar. Upon completion of at least 60 credits of study (excluding intensive English and preparatory 00X courses), applicants with a cumulative grade point average of 2.5 or higher (including all courses taken at AUS for credit) may be admitted to the BSMIS program.

### **Degree Requirements**

In addition to university and bachelor of science business core requirements, the following major courses are required for BSMIS students:

#### **Major Requirements (24 credits)**

- MIS 200 Principles of Business Programming
- MIS 300 Business Data Communications
- MIS 301 Fundamentals of Database Management
- MIS 303 Introduction to Systems Analysis
- MIS 304 Applied Systems Design
- MIS 402 Technology and Knowledge Management
- MIS 404 Internet Business Applications
- MIS 405 Information Systems Strategy

#### **Major Electives (6 credits)**

The MIS elective can be any two courses in management information systems at the 300 level or above with the approval of the advisor. Additional MIS elective options include the following:

- MGT 380 Project Management
- MIS 203 Software Development for Business Applications

#### **Free Electives (9 credits)**

Students must complete any nine credits at the 100 level or above, excluding MTH 100.

**Proposed Course Sequence of Study**  
**Bachelor of Science in Management Information Systems (BSMIS)**

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 1 of 5
	MTH 101	Mathematics for Business I	3	MPT or MTH 002	GER MTH 1 of 2
	BIS 101	Business Information Systems	3	CPT or BIS 001	CRR
	QBA 201	Quantitative Business Analysis	3	pre/con MTH 101	GER MTH 2 of 2
<b>Total</b>			<b>15</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	GER HSS 2 of 5
	MTH 102	Mathematics for Business II	3	MTH 101	CRR
	ACC 201	Fundamentals of Financial Accounting	3	pre/con MTH 101, QBA 201	CRR
	QBA 202	Operations Management	3	QBA 201	CRR
	<b>Total</b>			<b>15</b>	

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	ACC 202	Fundamentals of Managerial Accounting	3	MTH 101, ACC 201; pre/con QBA 201	CRR
	MIS 200	Principles of Business Programming	3	MTH 101, BIS 101	MJR
	MGT 201	Fundamentals of Management	3	pre/con WRI 102	CRR
	MKT 201	Fundamentals of Marketing	3	ECO 201, ECO 202; pre/con WRI 102	CRR
<b>Total</b>			<b>15</b>		
Spring	MIS 300	Business Data Communications	3	MIS 201, WRI 102	MJR
	ENG 208	Public Speaking	3	ENG 204	CRR
	FIN 201	Fundamentals of Financial Management	3	MTH 102; pre/con ACC 202, QBA 202	CRR
	MJE XXX	Major Elective	3		MJE 1 of 2
	MIS 201	Fundamentals of MIS	3	BIS 101	CRR
<b>Total</b>			<b>15</b>		

<b>THIRD YEAR (33 credit hours)</b>					
<b>Term</b>	<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Prerequisite(s)</b>	<b>Fulfills</b>
Fall	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	BLW 301	Business Law	3	ACC 201, ECO 202; pre/con ENG 204 or ENG 208	CRR
	MIS 301	Fundamentals of Database Management	3	MIS 200, MIS 201, WRI 102; pre/con FIN 201	MJR
	MIS 303	Introduction to Systems Analysis	3	MIS 200, MIS 201, WRI 102; pre/con FIN 201 MKT 201, MGT 201	MJR
	ENG 225	Writing for Business	3	ENG 204, junior standing	GER ELC 4 of 4
		<b>Total</b>	<b>15</b>		
Spring	MGT 360	Business Ethics and Social Responsibility	3	MGT 201, ACC 201, QBA 201; pre/con ENG 204	CRR
	MJE XXX	MIS Elective	3		MJE 2 of 2
	MIS 304	Applied Systems Design	3	MIS 301, MIS 303; pre/con QBA 202	MJR
	CRE XXX	Business Core Elective	3		CRE 1 of 1
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
		<b>Total</b>	<b>18</b>		
Summer	BUS 397	Business Internship	0	junior standing	MJR

<b>FOURTH YEAR (30 credit hours)</b>					
<b>Term</b>	<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Prerequisite(s)</b>	<b>Fulfills</b>
Fall	MIS 402	Technology and Knowledge Management	3	MIS 301, MIS 303, QBA 202, MGT 360	MJR
	MIS 404	Internet Business Applications	3	MIS 301, MIS 303; pre/con BLW 301	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	SCI XXX	Science	3		GER SCI 1 of 2
	FRE XXX	Free Elective	3		FRE 1 of 3
		<b>Total</b>	<b>15</b>		
Spring	MIS 405	Information Systems Strategy	3	MIS 304, senior standing	MJR
	MGT 406	Business Policy and Strategy	3	MGT 201, MKT 201, MIS 201, FIN 201, ENG 204, senior standing or permission of department	MJR
	SCI XXX	Science	3		GER SCI 2 of 2
	FRE XXX	Free Elective	3		FRE 2 of 3
	FRE XXX	Free Elective	3		FRE 3 of 3
		<b>Total</b>	<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; pre/con: prerequisite/concurrent; RFE: Related Field Elective; SCI: Science Requirement

## Bachelor of Arts Business Programs

SBM offers two Bachelor of Arts degree programs: economics and public administration. Admission and graduation requirements are specified below under each degree description.

### Department of Economics

John Chilton, Chair

#### Faculty

Bassam Abu Al-Foul  
 Mohammad Arzaghi  
 Hamid Baghestani  
 Hashem Dezhbakhsh  
 Daron Djeredjian  
 Ismail Genc  
 Samer Kher  
 Jong Kim  
 Minsoo Lee  
 Peter Mitias  
 Anil Rupasingha  
 Antonio Saravia  
 Mohamed Soliman  
 Hugo Toledo  
 Amjad Toukan  
 Joseph Wallis

### Bachelor of Arts in Economics (BAE)

Economics encompasses a diverse range of fields including international trade, finance and insurance, development and growth, urban and regional economics, industrial organization, labor economics, banking and monetary economics, and natural resources and the environment. All, however, are approached with the same set of analytical tools that characterize the economic way of thinking.

The economics discipline is distinguished by a small set of powerful ideas that can be applied to a variety of problems from a wide range of topics. These fundamental ideas are rationality, equilibrium and efficiency. Economists model a real-world situation, use deductive reasoning to arrive at the model's implications, and use those refutable predictions to test the model empirically and

make recommendations for policy and institutional reform flow from the efficiency analysis of the model. While economists do not attempt to establish society's goals, they do examine the consequences of trying to achieve them. Economic principles, when applied, can lead to outcomes that benefit all of society.

An economics degree provides students with skills that are valuable for a number of careers in which critical thinking and careful decision making are required, such as managerial careers in the private or public sector. The economics program provides a firm foundation for a career in public policy analysis, banking, finance, market analysis and business management.

The purpose of the Bachelor of Arts in Economics degree program is to provide students with strong undergraduate training in the theory and application of economics built upon the foundation of education in the liberal arts and science. The program aims to prepare students for rewarding employment in business and government, nationally or internationally, and, if they choose, for graduate study in business, law, economics and other advanced professional degrees in internationally recognized universities. The minor provides in-depth training in economics to complement the program of students in other majors such as finance, environmental sciences, mass communication and engineering.

These functions of the economics program unite in a single mission: the delivery of an American-standard undergraduate economics course offering readily recognizable and understood internationally by employers and graduate programs. That standard includes relevance, which in our case means special attention to economic issues of significance in the Gulf. The commitment to an American standard is achieved by benchmarking the content of economics courses to peer institutions and remaining current as the discipline evolves. Success requires faculty members who have sound training in the major

specializations in economics and who actively pursue research.

#### Program Objectives

Economics students learn to think creatively and deeply about some of the most important economic concerns facing the world today. Students learn to apply a variety of theoretical perspectives to issues of economic efficiency, economic growth, globalism, equity and social justice, wealth and poverty, individual freedom, discrimination, cultural values and environmental concerns.

The strategic objectives of the economics program are to:

- Unite a high-quality curriculum with instruction in a learning-centered environment
- Maintain a curriculum that reflects the needs of a world where change is endemic
- Recruit, retain and develop a highly qualified faculty, which ranks student learning as its highest priority
- Nurture a supportive and creative faculty culture
- Provide effective instructional resources
- Promote value-added intellectual contributions
- Stress integrity, personal ethics and the responsibilities of leadership and good citizenship
- Present students with opportunities for global awareness within a dynamic world environment
- Foster motivation and opportunities for lifelong learning
- Develop in students a competence in critical thinking, communications, teamwork, information technology and adaptation to change
- Create an exciting student environment that reflects a diverse society

#### Program Outcomes

The economics program is designed to improve the ability of students to think critically, organize and synthesize information, and write and speak convincingly regarding economic issues. Students earning the Bachelor of Arts in Economics will have a diverse set of skills and competencies. They can:

- Understand the fundamental principles and language of economics
- Explain the role of economic theory in the examination of public policy issues
- Explain the economic impact of actions taken by individuals, firms, governments and other groups and organizations
- Identify the role of supply and demand in a market economy and the necessary conditions for market economies to function well
- Discuss the efficiency advantages of a market system and the role of prices in achieving efficiency
- Understand the economic role of government, fiscal and monetary policy, fractional reserve banking and market structure
- Identify policy options and assess the likelihood that they would improve economic growth and efficiency
- Evaluate the effects of monetary and fiscal policies
- Identify and explain the benefits and costs of international trade and global economy
- Interpret the significance of national and international economic events
- Demonstrate the ability to apply economic theory to a range of economic problems and convincingly communicate their analysis
- Examine the effects of gender, race and class on economic opportunities
- See and understand economic issues in the wider cultural, political, global and historical context that a liberal education provides
- Demonstrate their ability to define and analyze economic problems using algebraic and statistical methods
- Show a basic understanding of research methodology, including surveying the literature, gathering and analyzing data, building models and deriving predictions and implications
- Use computer applications in making decisions
- Apply analytical techniques, such as developing methodologies, identifying and analyzing key issues, making sound inferences from data, and using effective problem-solving techniques

### **Distinctive Features of the Program**

At AUS, economics majors learn about contemporary economics and its

place within the wider social sphere. Students' understanding of economic principles helps them analyze economic trends and the government's responses to them. Students have the opportunity to develop good analytical and problem-solving skills. By exploring economic theories that help explain human behavior, AUS students learn to develop their own arguments and to assess their own values regarding the issues discussed in class.

### **Admission**

Admission to the program follows AUS's admission requirements. Students transferring into the program must have a cumulative GPA of 2.3 or higher and permission of the chair of the Department of Economics.

### **Degree Requirements**

A total of 120 credits is required as follows:

- 42 credits of general education requirements
- 27 credits of major requirements with a minimum GPA of 2.0
- 18 credits of major electives with a minimum GPA of 2.0
- 21 credits of major electives in related fields
- 12 credits of free electives
- A minimum cumulative GPA of 2.0

**Note:** The major electives in related fields requirement is waived if the student completes a minor outside of economics.

### **Designated Requirements**

#### **General Education Requirements (42 credits)**

- MTH 101 Mathematics for Business I or MTH 103 Calculus I or their equivalent, if approved by the Department of Economics
- STA 202 Introduction to Statistics for Social Sciences or QAN 202 Quantitative Analysis for Decision Making
- For the remaining general education requirements, students must refer to the Undergraduate Studies section of this catalog.

### **Major Requirements (27 credits)**

- BIS 101 Business Information Systems
- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics
- ECO 305 International Trade
- ECO 310 Development Economics
- ECO 330 Money and Banking
- ECO 495 Senior Seminar in Economics

### **Major Electives (18 credits)**

Students must complete 18 credits from economics courses at the 300 level or above not listed under the major requirements above.

### **Electives in Related Fields (21 credits)**

A student may satisfy part or all of the related fields electives requirements by taking a minor in a related field. Students must obtain the approval of his/her advisor before selecting courses in the related fields:

- accounting (any course)
- computer science (any course)
- economics (any course at the 300 level or above)
- finance (any course)
- history (any course at the 200 level or above)
- international studies (any course)
- management (any course)
- management information systems (any course)
- marketing (any course)
- mathematics (any course other than MTH 100 or MTH 111)
- political science (any course)
- psychology (any course)
- statistics (any course other than STA 201 or STA 202)
- quantitative business analysis (if QAN 202 is completed, any course)

### **Free Electives (12 credits)**

Students must complete any 12 credits at the 100 level or above, excluding MTH 100.

**Proposed Course Sequence of Study  
Bachelor of Arts in Economics (BAE)**

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	SCI XXX	Science	3		GER SCI 1 of 2
	BIS 101	Business Information Systems	3	CPT or BIS 001	MJR
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	MJR
	WRI 101	Academic Writing	3	EPT 4 or WRI 001	GER ELC 1 of 4
	MTH 101	Mathematics for Business I	3	MPT or MTH 002	GER MTH 1 of 2
	<b>Total</b>			<b>15</b>	
Spring	RFE XXX	Related Field Elective	3		RFE 1 of 7
	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	MJR
	SCI XXX	Science	3		GER SCI 2 of 2
	STA 202	Introduction to Statistics for Social Sciences	3	MTH 100 or MTH 101 or MTH 111	GER MTH 2 of 2
	<b>Total</b>			<b>15</b>	

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	ECO 302	Intermediate Macroeconomics	3	ECO 201, ECO 202, WRI 102	MJR
	ECO 310	Economic Development	3	ECO 201, ECO 202, WRI 102	MJR
	<b>Total</b>			<b>15</b>	
Spring	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
	ENG/WRI XXX	English Language Competency	3		GER ELC 4 of 4
	ECO 301	Intermediate Microeconomics	3	ECO 201, ECO 202, WRI 102	MJR
	ECO 330	Money and Banking	3	ECO 201, ECO 202, WRI 102	MJR
	RFE XXX	Related Field Elective	3		RFE 2 of 7
	<b>Total</b>			<b>15</b>	

THIRD YEAR (33 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	ECO 305	International Trade	3	ECO 201, ECO 202, WRI 102	MJR
	MJE XXX	Major Elective	3		MJE 1 of 6
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	RFE XXX	Related Field Elective	3		RFE 3 of 7
	<b>Total</b>		<b>15</b>		
Spring	RFE XXX	Related Field Elective	3		RFE 4 of 7
	MJE XXX	Major Elective	3		MJE 2 of 6
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	MJE XXX	Major Elective	3		MJE 3 of 6
	FRE XXX	Free Elective	3		FRE 1 of 4
	<b>Total</b>		<b>15</b>		

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	RFE XXX	Related Field Elective	3		RFE 5 of 7
	ECO 495	Senior Seminar in Economics	3	ECO 301, ECO 302, Junior II standing	MJR
	MJE XXX	Major Elective	3		MJE 4 of 6
	RFE XXX	Related Field Elective	3		RFE 6 of 7
	FRE XXX	Free Elective	3		FRE 2 of 4
	<b>Total</b>		<b>15</b>		
Spring	MJE XXX	Major Elective	3		MJE 5 of 6
	MJE XXX	Major Elective	3		MJE 6 of 6
	FRE XXX	Free Elective	3		FRE 3 of 4
	FRE XXX	Free Elective	3		FRE 4 of 4
	RFE XXX	Related Field Elective	3		RFE 7 of 7
	<b>Total</b>		<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; pre/con: prerequisite/concurrent; RFE: Related Field Elective; SCI: Science Requirement

### Minor in Economics

Students enrolling in the economics minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 21 credits including at least 12 credits in courses at or above the 300 level.

- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in economics must complete the following courses or their equivalent. All course

prerequisites must be satisfied.

#### Minor Requirements (12 credits)

- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics

#### Minor Electives (9 credits)

Students must complete nine credits in economics at the 300 level or above.

## Department of Management, Marketing and Public Administration

Joseph Wallis, Chair

### Faculty

Robert Bateman II  
 Jean Boisvert  
 Tor Brodtkorb  
 Nejat Capar  
 Ravi Chinta  
 John Forster  
 Shaun Goldfinch  
 James Grant  
 Justin Gressel  
 Matti Haverila  
 J. Lade Heaton  
 Starling David Hunter III  
 Marios Katsioloudes  
 Sajid Khan  
 Peter Mason  
 Donelda McKechnie  
 J. Reagan McLaurin  
 R. Earl Naumann  
 Marie Waxin  
 A. Paul Williams

### Bachelor of Arts in Public Administration (BAPA)

Effective public management creates the environment in which investment and business activity can produce a growing and dynamic economy. Efficient public service delivery also contributes to the quality-of-life enjoyed by private citizens. A degree in public administration provides students with a strong foundation in public management, interpersonal relations, leadership skills and public decision-making processes. The program emphasizes the administrative knowledge and managerial skills required for policy formulation, the acquisition of human and financial resources, the application of sound organizational and management methods, and the development and execution of effective implementation strategies.

The public administration major provides students with skills that are valuable for a number of careers, including managerial positions in the public, nonprofit and private

sectors. Students majoring in public administration are prepared for careers in local, national, regional, international and nonprofit agencies. Graduates work in areas such as public policy development and analysis, management, human resources, public finance, nonprofit administration and business-government relations.

The mission of the Bachelor of Arts in Public Administration program is to provide students with strong undergraduate training in public management and the administrative sciences built upon an interdisciplinary liberal arts education. This program prepares students to become professional public managers, effective public officials and informed citizens. It enables them to meet the unique challenges of public service in both government and the non-profit sector by providing professional training in the key subdisciplines of public administration. Students with a degree in public administration are also well prepared to pursue graduate study at internationally recognized universities offering programs in public administration, policy, law, business or other related fields.

Students will learn managerial, political and legal theories, together with the processes that fulfill legislative, executive and judicial mandates to provide regulatory and service functions for a changing society. The public administration program brings together training in public management, organizational theories and leadership, human resource management, public finance, decision making, policy evaluation, political science, regulation and public sector ethics.

The minor in public administration provides an understanding of public sector management to complement the requirements of such disciplines as economics, engineering, finance and mass communication.

### Program Objectives

Public administration students learn to think creatively about some of the most important policy and management concerns facing the

world today. Strategic objectives of the public administration program are to:

- Prepare graduates using a curriculum that equips them with the technical skills and conceptual knowledge necessary to succeed in a career in the public, nonprofit or private sectors, or in international and diplomatic service
- Stress integrity and personal ethics by reinforcing a vision of public service and the responsibilities of leadership and good citizenship
- Ensure that each student has an opportunity to develop a specific functional competence within the field, so that he or she can make an meaningful contribution early in a career
- Recruit, retain and develop a highly qualified faculty that makes student learning its first priority
- Involve faculty members in student placement through contacts with potential employers, serving as references for students and advising students on job-search skills
- Present students with opportunities for global awareness within a dynamic world environment
- Develop in students a competence in critical thinking, communication skills, teamwork, information technology and adaptation to change
- Create an exciting student environment that reflects a diverse society

### Program Outcomes

The public administration program is designed to improve the ability of students to think critically, organize and synthesize information, and communicate effectively about public issues. Listed below are examples of skill sets and competencies that students earning the Bachelor of Arts in Public Administration will take to their careers:

- Public management processes, including public budgeting and human resources or personnel systems
- Organizational design processes and behavior
- Political, legal and ethical concepts related to issues in public service
- Quantitative and qualitative analysis techniques
- Policy analysis and program evaluation

- Ability to view public administration issues in wider cultural, political, historical and global contexts, drawing on a foundation in the liberal arts
- Ability to use computer applications in decision making
- Analytical techniques to apply methodologies, identify and analyze key issues, and make sound judgments based on data and effective problem solving

### Distinctive Features of the Program

The Bachelor of Arts in Public Administration is unique in its delivery of an American model of undergraduate education in public administration. Its interdisciplinary approach draws on political science, economics and philosophy, in addition to courses from business and management. The faculty is deeply committed to teaching students effective administration by sharpening their analytical skills, refining their ability to research topics, and improving their ability to convey findings in written and oral presentations. The program encourages team projects and interaction with public, private and non-governmental organizations.

Although not required, most students take advantage of the opportunity to complete an internship with a public organization. This program allows participants to apply the lessons learned in their course work and offers a chance to experience firsthand the challenges faced by working administrators as they attempt to serve a public with competing demands and priorities.

The mission is achieved with the help of a dedicated, qualified faculty actively pursuing applied research and providing consulting services to governments, businesses, NGOs and international organizations, enabling professors to bring new initiatives and practices into the classroom.

### Admission

Admission to the program follows AUS's admission requirements. Students transferring into the program must have a cumulative GPA of 2.0 or higher and permission of the

department chair.

### Degree Requirements

A total of 120 credits is required, including:

- 42 credit of general education requirements
- 42 credits of major requirements
- 12 credits of major electives
- 15 credits in related fields
- 9 credits of free electives

### Designated Requirements

#### General Education Requirements (42 credits)

- MTH 101 Mathematics for Business I or MTH 102 Mathematics for Business II
- STA 202 Introduction to Statistics for Social Sciences
- For the remaining general education requirements, students must refer to the Undergraduate Studies section of this catalog.

#### Major Requirements (42 credits)

- ACC 201 Fundamentals of Financial Accounting
- BIS 101 Business Information Systems
- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- ECO 325 Public Economics
- ECO 345 Public Choice
- PBA 101 Introduction to Public Administration
- PBA 201 Public Management or MGT 201 Fundamentals of Management
- PBA 301 Organizational Behavior or MGT 301 Organizational Behavior
- PBA 304 Public Budgeting
- PBA 306 Human Resource Management
- PBA 495 Seminar in Public Administration
- PHI 204 Ethics for Professionals
- POL 201 Introduction to Political Studies

#### Major Electives (12 credits)

Students will work with an advisor to select a series of courses leading to in-depth knowledge in a specific emphasis, such as public finance, human resource management, public economics, etc. Courses include those offered in the School of Business and Management at the 300 level

or above not included in the major requirements. Approval of the advisor is required. Six of the 12 credits must be at the 300 level or above.

### Electives in Related Fields (15 credits)

Six of the 15 credits in related field electives must be at the 200 level or above. Each student must obtain the approval of his or her advisor before selecting courses in these related fields:

- accounting
- cultural studies
- economics
- geography
- history
- international studies
- mass communication
- mathematics
- political science
- psychology
- sociology
- statistics
- courses offered in the School of Business and Management at the 200 level or above

A student may satisfy all or part of the elective requirements in related fields by completing a minor outside of public administration.

### Free Electives (9 credits)

Students must complete nine credits at the 100 level or above, excluding MTH 100.

### Minor in Public Administration

Students enrolling in the public administration minor should have normally completed a minimum of 30 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits, including at least nine credits in courses at or above the 300 level.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in public

administration must complete the following courses or their equivalent. All course prerequisites must be satisfied.

**Prerequisite Courses**

- BIS 101 Business Information Systems (not required for students from engineering or computer science)

- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- MTH 101 or MTH 102 or MTH 103 or MTH 104 or MTH 111

**Foundation Courses (12 credits)**

- ECO 325 Public Economics
- PBA 101 Introduction to Public Administration

- PBA 201 Public Management
- PBA 306 Human Resource Management in the Public Sector

**Upper Division Courses (6 credits)**

Students must complete two additional PBA courses at the 300 level or above.

**Proposed Course Sequence of Study  
Bachelor of Arts in Public Administration (BAPA)**

FIRST YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	MTH 101	Mathematics for Business I	3	MPT or MTH 002	GER MTH 1 of 2
	WRI 101	Academic Writing	3	EPT 4 or WRI 001, MPT or MTH 00X	GER ELC 1 of 4
	PBA 101	Introduction to Public Administration	3		MJR
	BIS 101	Business Information Systems	3	CPT or BIS 001	MJR
	ECO 201	Principles of Microeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	MJR
	<b>Total</b>		<b>15</b>		
Spring	WRI 102	Writing and Reading Across the Curriculum	3	EPT 5 or WRI 101	GER ELC 2 of 4
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	STA 202	Introduction to Statistics for Social Sciences	3	MTH 100, MTH 101 or MTH 111	GER MTH 2 of 2
	SCI XXX	Science	3		GER SCI 1 of 2
	ECO 202	Principles of Macroeconomics	3	EPT 4 or WRI 001, MPT or MTH 00X	MJR
		<b>Total</b>		<b>15</b>	

SECOND YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	ACC 201	Fundamentals of Financial Accounting	3	MTH 101 or MTH 103, and QAN 201 or QBA 201 or NGN 111 or STA 201 or STA 202	MJR
	PHI 204	Ethics for Professionals	3	WRI 102	MJR
	PBA 306	Human Resources Mgt. in Public Org.	3	PBA 101, WRI 102	MJR
	<b>Total</b>		<b>15</b>		
Spring	POL 201	Introduction to Political Studies	3	WRI 102	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
	PBA 201 or MGT 201	Public Management or Fundamentals of Management	3	pre/con WRI 102	MJR
	PBA 304	Public Budgeting	3		MJR
	ENG XXX	English Language Competency	3		GER ELC 4 of 4
	<b>Total</b>		<b>15</b>		

THIRD YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	MJE XXX	Major Elective	3		MJE 1 of 4
	PBA 301 or MGT 301	Organizational Behavior	3	PBA 101, WRI 102/ MGT 201 and ACC 201, and QAN 201 or QBA 201 or NGN 111 or STA 201 or STA 202; pre/con ENG 204	MJR
	ECO 325	Public Economics	3	ECO 201, ECO 202, WRI 102	MJR
	SCI XXX	Science	3		GER SCI 2 of 2
	<b>Total</b>		<b>15</b>		
Spring	MJE XXX	Major Elective	3		MJE 2 of 4
	RFE XXX	Related Field Elective	3		RFE 1 of 5
	ECO 345	Public Choice	3	ECO 201, ECO 202, WRI 102	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	FRE XXX	Free Elective	3		FRE 1 of 3
	<b>Total</b>		<b>15</b>		

FOURTH YEAR (30 credit hours)					
Term	Course #	Course Title	Credits	Prerequisite(s)	Fulfills
Fall	MJE XXX	Major Elective	3		MJE 3 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	RFE XXX	Related Field Elective	3		RFE 2 of 5
	RFE XXX	Related Field Elective	3		RFE 3 of 5
	FRE XXX	Free Elective	3		FRE 2 of 3
	<b>Total</b>		<b>15</b>		
Spring	MJE XXX	Major Elective	3		MJE 4 of 4
	RFE XXX	Related Field Elective	3		RFE 4 of 5
	RFE XXX	Related Field Elective	3		RFE 5 of 5
	PBA 495	Seminar in Public Administration	3	senior standing in PBA	MJR
	FRE XXX	Free Elective	3		FRE 3 of 3
	<b>Total</b>		<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CNE: Concentration Elective; CRR: Core Requirement; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; pre/con: prerequisite/concurrent; RFE: Related Field Elective; SCI: Science Requirement

# SOE



# School of Engineering

## Dean

Yousef Al-Assaf

## Associate Dean

Hany El-Kadi

The School of Engineering offers bachelor of science (BS) degrees in several engineering disciplines and in computer science. These are all comprehensive curricula that emphasize quality, communication skills, application to real-world situations, interdisciplinary learning and team building. AUS School of Engineering graduates are well equipped to face the future. A degree from the AUS School of Engineering gives its holder access to a learned profession with opportunities for practice in industry, government, business, consulting and entrepreneurship. AUS engineering graduates are also well qualified for advanced studies toward a master's or doctoral degree leading to careers in research and development, engineering management and higher education teaching. Additionally, an engineering education is an excellent avenue to other professions such as law, medicine and public service.

Engineering is an excellent choice for young men and women who aspire to well-paid careers in which they are empowered to contribute to society on a local, regional or global scale. Those who enter engineering today can look forward to a rewarding career that offers personal fulfillment, service to humankind and economic prosperity, as well as a national and international perspective on the world of professional work.

## Mission Statement

The American University of Sharjah is a dynamic institution of higher education. As such, it offers to its students an innovative educational environment. The university's degree programs are adapted to the needs of the citizenry of the United Arab Emirates and the Gulf Cooperation

Council (GCC). In order to fulfill current and projected needs while maintaining an American-style curriculum, the School of Engineering has the following mission:

The School of Engineering at the American University of Sharjah aspires to be the recognized leader in engineering education in Sharjah, across the UAE and the GCC, and to become a top choice by students, parents, faculty and staff who choose to contribute to engineering higher education.

The school's degree programs offer the highest level of professional and technical preparation, global preparedness and leadership development in an environment of English language education and partnership between faculty and students. All programs offer state-of-the-art technology, understanding and experimentation with design and problem-solving processes, and excellent opportunities to experience real-world and research project involvement.

## Curriculum

The School of Engineering offers undergraduate programs in chemical engineering, civil engineering, computer engineering, electrical engineering, mechanical engineering and computer science. The school's faculty members provide an educational experience that is equivalent to those offered by leading state and private universities in the United States and Europe.

Each curriculum has its own distinguishable features; however, common threads of design and problem solving have been woven into the fabric of the curricula to ensure that each student receives the very best education tailored to the needs of the Middle Eastern student and industry. The engineering and computer science programs are intended to prepare graduates for regional as well as worldwide practice. The

programs are designed to satisfy the general university requirements and to meet the program criteria adopted by accreditation agencies both in the United Arab Emirates and in the United States. The degree programs emphasize learning the effective use of technology, information resources and communication methods, as well as instill in their graduates leadership qualities anchored in moral and ethical principles.

School of Engineering graduates will work in an international and very competitive environment. Graduates must possess English fluency in both written and spoken forms; hence, instruction and interaction between students and faculty members are conducted in English. English fluency is especially critical as more multinational corporations adopt English as the corporate language.

All engineering degree freshmen take the same courses to ensure a sound, broadly based preparation in general education knowledge as well as a firm understanding of the principles and practices of all engineering disciplines. The freshman year for computer science is slightly different.

In various formats, the oral, written, graphical and software communication skills of a student are developed, demonstrated and assessed. This is accomplished foremost in the required laboratories, research papers, senior projects and internships. Also, independent study one-on-one with faculty is a valuable option available to the student. The critical use of paper and electronic forms of published literature is taught from the first semester in all curricula in the School of Engineering. Throughout the degree plan, students must use and are assessed on their ability to discover, understand and critically judge the quality of publicly available literature. Well-equipped computer labs are provided for students during and after classes and laboratories. The menu of software systems available for design, analysis and synthesis tasks in classes,

labs, senior projects and courses in other parts of campus is determined by what the faculty members teach in all of their courses. Each student must complete a team-based extensive senior project focused on a real-world problem that requires specification, design, analysis and synthesis as the problem-solving process is utilized. Faculty members serve as close advisors and monitor each student's progress. Additionally, each student must complete a summer internship or training program in order to graduate. Many employers participate in this valuable experience.

### Objectives and Outcomes

In order to help students be successful at AUS, the major educational objectives of the School of Engineering are to:

- Assist students in achieving their potential through preparation for a successful and satisfying career in the engineering and computer science professions
- Prepare well-educated graduates able to serve in regional and international practice with consideration of multicultural environments
- Prepare a BS-level graduate to be successful in graduate studies in a related area
- Offer undergraduate and graduate academic programs that are critical to the sustainable development of society and the quality of life in the region
- Offer broad-based curricula worthy of accreditation nationally and internationally due to a thorough, balanced foundation in math, science and design principles, as well as the humanities and social sciences

The graduates of the School of Engineering are educated to be able to demonstrate the following outcomes:

- Approach the system stages of problem identification, needs analysis, requirements definition, design, implementation, maintenance and phase-out using the life-cycle concept
- Write, read and speak in private and public to peers, supervisors and employers in a coherent, organized fashion that demonstrates understanding of problems and solutions that are practical and implementable

- Utilize in a variety of settings the fundamentals of math, science and engineering principles
- Keep abreast of and utilize in their work current computer and software technologies that are relevant to the field chosen by the student and graduate
- Achieve a recognized level of engineering practice and certification available to an engineering graduate serving in professional practice
- Participate in, as well as lead, team-based activities using current technology, engineering practices and science principles
- Make and implement ethical choices in all professional endeavors

### Assessment and Evaluation of Curriculum

The School of Engineering has developed and implemented the Course Assessment and Improvement Process (CAIP). It is a comprehensive approach to the collection of student and faculty assessments of course material, delivery and student perception of learning. The results are used to improve course and laboratory content, delivery methods, testing and practical applications at the course level, for technical and supporting areas, as well as at the degree levels. The result is an ongoing process whereby students can be assured of improvements on a continuing basis.

### Degree Programs

The School of Engineering offers six bachelor of science degrees, seven minors (biomedical engineering, computer engineering, computer science, electrical engineering, engineering management, mechanical engineering, and software engineering and security) and two master of science degrees (mechatronics engineering and engineering systems management). An overview of the graduate programs is provided in the Graduate Studies section of this catalog. Descriptions of and requirements for the undergraduate degrees are provided below. The computer science degree is described in a section located after the engineering disciplines.

### Admission and Degree Requirements

Formal admission to a major at the second-year level in all programs of the School of Engineering requires the completion of all required first-year courses (excluding the free elective) and a cumulative grade point average (CGPA) of 2.0. In addition, a minimum average grade point of C (2.0) with a minimum of C- (1.7) in each course must be earned in specific freshman-level mathematics and science courses. These courses are specified for each major as follows:

- Chemical engineering: MTH 103 Calculus I and CHM 101 General Chemistry I
- Civil engineering: MTH 103 Calculus I and PHY 101 General Physics I
- Computer engineering: MTH 104 Calculus II and PHY 102 General Physics II
- Electrical engineering: MTH 103 Calculus I and MTH 104 Calculus II, PHY 101 General Physics I and PHY 102 General Physics II
- Mechanical engineering: MTH 103 Calculus I and PHY 101 General Physics I
- Computer science: MTH 103 Calculus I and one science course (PHY 101, CHM 101 or BIO 101), and either MTH 104 Calculus II or a second science course (PHY 102, CHM 102 or BIO 102)

A freshman student who has a cumulative GPA of C (2.0) or above and an average GPA of at least B (3.0) in these specified courses is assured admittance to the second-year level of their chosen major. If the demand for a major exceeds the availability, then the students will be accepted in their intended major based on their GPA.

### Graduation Requirements for the BS Degree in Engineering

In order to qualify for graduation with a bachelor of science degree in engineering, students must complete a minimum of 140 credits with a cumulative GPA of 2.0 or better in the major, including:

- prescribed courses that ensure the satisfaction of the AUS general education requirements (44 credits)

- major requirements and major electives that include courses in mathematics, sciences, engineering sciences and engineering design that ensure preparation for professional practice (90 credits)
- summer internship or practicum for at least five weeks after the third year, working in a professional environment
- free electives (6 credits)

To qualify for graduation with the Bachelor of Science in Computer Science degree, students must complete a minimum of 130 credits with a cumulative GPA of 2.0 or better in the major, including:

- 48 credits of general education requirements
- 58 credits of major requirements
- 12 credits of major electives
- 12 credits of free electives
- summer internship or practicum working in a professional environment for at least five weeks after the third year

### Bachelor of Science Degrees

The School of Engineering offers a bachelor of science degree in each of the following disciplines:

- chemical engineering (BSChE)
- civil engineering (BSCE)

- computer engineering (BSCoE)
- electrical engineering (BSEE)
- mechanical engineering (BSME)
- computer science (BSCS)

The BS requirements include general education requirements (GER); major requirements (MJR); major elective (MJE) courses, which provide depth in a sub-specialty of a chosen field; and free electives (FRE). The general education requirements include foundation courses in mathematics, science, the humanities, social sciences, Arabic heritage and English.

Each engineering degree program is designed for completion in four years including one summer session (six weeks) of study and the summer internship. Students whose academic background requires the completion of preparatory courses in mathematics, English or physics will require more than four years to complete the engineering program. Even without preparatory courses, many students opt to take additional time to complete their BS program. During the final year, a senior design (capstone) project must be completed. All engineering degree students are required to take a comprehensive assessment examination in the capstone senior

design course. Practical training in an engineering environment strengthens the student's preparation for engineering practice.

The computer science degree program is designed for completion in four years, including one summer internship. Students whose academic background requires the completion of preparatory courses in mathematics, computer science, English or physics will require more than four years to complete the computer science program. During the final year, a senior design (capstone) project must be completed. Practical training in a computer science professional environment strengthens the student's preparation for professional practice.

### Freshman Year in Engineering

The first year, which provides a base in physics, chemistry, engineering and mathematics, is common to all engineering students. Students with acceptable grades can change majors within the School of Engineering with no credit loss during the first year. Other course requirements for subsequent years are listed under individual engineering majors.

COMMON ENGINEERING FRESHMAN YEAR (31 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CHM 101	General Chemistry I	4		MJR/GER SCI 1 of 2
	WRI 101	Academic Writing	3	WRI 001 or EPT 4	GER ELC 1 of 4
	MTH 103	Calculus I	3	MTH 001 or MPT	MJR/GER MTH 1 of 2
	PHY 101	General Physics I	4	PHY 001 or PPT; pre/con MTH 103	MJR/GER SCI 2 of 2
	NGN 110	Introduction to Engineering and Computing	2	admission to SOE	MJR
<b>Total</b>			<b>16</b>		
Spring	FRE XXX	Free Elective	3		FRE 1 of 2
	WRI 102	Writing and Reading Across the Curriculum	3	WRI 101 or EPT 5	GER ELC 2 of 4
	MTH 104	Calculus II	3	MTH 103	MJR/GER MTH 2 of 2
	PHY 102	General Physics II	4	PHY 101	MJR
	NGN 111	Introduction to Statistical Analysis	2	pre/con MTH 103	MJR
<b>Total</b>			<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

## Department of Chemical Engineering

Dana Stevenson-Abouelnasr, Chair

### Faculty

Nabil Abdel-Jabbar

Rachid Chebbi

Ghaleb Husseini

Taleb Ibrahim

Kevin Loughlin

Zarook Shareefdeen

## Bachelor of Science in Chemical Engineering (BSChE)

### Program Mission and Description

The mission of the chemical engineering program at AUS is to prepare students to become engineers and leaders in chemical and related industries by cultivating an environment that is academically challenging.

Chemical engineers have many different responsibilities including design, analysis, research and development, supervision, production and sales. They manage the development of new technologies and products; they develop safe and environmentally benign processes that are efficient and economic to operate; and they direct the design, construction and operation of new plants, ranging from pilot plants to full-scale chemical facilities.

Chemical engineers are making unparalleled contributions in chemical and petrochemical processing, food and pharmaceutical industries, pollution control and abatement, process automation, process control and modeling, and biochemical technology. The Department of Chemical Engineering offers a four-year program of study that prepares graduates to work in all areas of the chemical industry. Specifically, it is designed to help students in developing a basic knowledge in science, in engineering and in the fundamentals and practical knowledge of thermodynamics, fluid flow, heat transfer, mass transfer, reaction

engineering, chemical unit operation, process control, process simulation, plant design, process integration, cost estimation, pollution prevention and waste management.

### Program Educational Objectives

Graduates of the chemical engineering program are expected to be able to:

- Succeed in the chemical engineering profession in a manner that contributes positively to society
- Design new chemical processes and improve upon existing ones
- Identify problems and develop solutions that incorporate ethical responsibilities, protect the environment, promote safety and are sensitive to social customs and concerns
- Lead and participate in teams with members of diverse backgrounds and skills
- Communicate effectively
- Excel in advanced studies in chemical engineering or other professional degree programs and maintain a life-long interest in learning

### Program Outcomes

Upon graduation, an AUS chemical engineering student should be able to demonstrate the following:

- Identify, formulate and solve engineering problems
- Apply principles of chemistry, physics and mathematics to chemical engineering problems
- Use fundamental principles of chemical engineering and apply economic analysis in the design, development and simulation of chemical systems and processes
- Integrate safety, health and environmental considerations into the design of engineering equipment and processes
- Design and conduct experiments, and analyze and interpret technical data using modern experimental and computation-based techniques and tools
- Use modern software and tools in process design, data gathering and analysis, and the solution of engineering problems
- Recognize the ethical and moral issues and codes related to the engineering profession

- Work effectively in teams to solve problems
- Use written and oral communication
- Pursue new concepts and understanding of current issues through self-directed study and life-long learning
- Recognize the importance of contemporary issues and understand the impact of engineering solutions in a global and societal context

### Degree Requirements

Students must complete 140 credits to graduate. After the third year, each student is required to devote at least five weeks to the summer internship with an industrial firm prior to graduation. In the fourth year, each student is required to apply the knowledge, including economical and environmental analyses, gained from previous years to perform and analyze experiments and to work on supervised projects of specific chemical engineering significance. All chemical engineering students are required to take a comprehensive assessment examination during this capstone course sequence. Students are required to participate in several laboratory courses including organic chemistry, materials science, transport phenomena, unit operations and process control.

Students seeking the BSChE degree must satisfy the following requirements:

### General Education Requirements (44 credits)

- English language competency requirement: 12 credits comprising WRI 101, WRI 102, ENG 204 and ENG 207. Students who have advanced placement in the WRI and ENG sequence must replace the exempted course(s) by a course(s) in ENG.
- Any course listed as an Arabic heritage requirement
- Mathematics and/or statistics requirement: MTH 103 and MTH 104
- Science requirement: CHM 101 and PHY 101
- Humanities and social sciences requirement: 15 credits to be selected from the courses listed as humanities and social sciences requirements with

at least six credits taken from the humanities area and at least six credits taken from the social sciences area. If the three credits in courses on Arab heritage are satisfied by one of the theme courses (THM 301 or THM 302), three additional credits must be taken from the humanities or social sciences courses.

- Computer literacy requirement: satisfied through extensive use of computer resources in courses throughout the engineering curriculum
- Information literacy requirement: satisfied through WRI 102 and ENG 204

### Major Requirements (81 credits)

- CHE 205 Principles of Chemical Engineering I
- CHE 206 Principles of Chemical Engineering II
- CHE 215 Fluid Flow
- CHE 230 Materials Science
- CHE 240 Computer Methods in Chemical Engineering
- CHE 303 Chemical Engineering

Thermodynamics I

- CHE 304 Chemical Engineering Thermodynamics II
- CHE 307 Heat Transfer
- CHE 321 Chemical Reaction Engineering
- CHE 329 Mass Transfer I
- CHE 332 Engineering Economy
- CHE 350 Transport Phenomena Laboratory I
- CHE 397 Professional Training in Chemical Engineering
- CHE 412 Mass Transfer II
- CHE 421 Chemical Process Dynamics and Control
- CHE 432 Process Design Safety and Economics
- CHE 451 Transport Phenomena Laboratory II
- CHE 452 Unit Operations and Control Lab
- CHE 490 Senior Design Project I
- CHE 491 Senior Design Project II

- CHM 102 General Chemistry II
- CHM 215 Organic Chemistry I
- CHM 215L Organic Chemistry I Lab
- CHM 216 Organic Chemistry II
- CHM 331 Physical Chemistry II
- ELE 225 Electric Circuits and Devices
- MTH 203 Calculus III
- MTH 205 Differential Equations
- MTH 221 Linear Algebra
- NGN 110 Introduction to Engineering and Computing
- NGN 111 Introduction to Statistical Analysis
- PHY 102 General Physics II

### Major Electives (9 credits)

Nine credits from any CHE 300- or 400-level courses not listed above.

### Free Electives (6 credits)

Six credits from any courses offered at or above the 100 level.

## Proposed Course Sequence of Study (Years 2 and Later)

### Bachelor of Science in Chemical Engineering (BSCHE)

SECOND YEAR (40 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CHE 205	Principles of Chemical Engineering I	2	NGN 111, CHM 101; pre/con MTH 104	MJR
	CHE 230	Materials Science	3	CHM 101	MJR
	CHM 102	General Chemistry II	4	CHM 101	MJR
	CHM 215	Organic Chemistry I	3	pre/con CHM 102	MJR
	MTH 203	Calculus III	3	MTH 104	MJR
	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	<b>Total</b>			<b>18</b>	
Spring	CHE 206	Principles of Chemical Engineering II	3	CHE 205; pre/con CHM 102	MJR
	CHE 215	Fluid Flow	3	CHE 205, PHY 101; pre/con MTH 203	MJR
	CHE 240	Computer Methods in Chemical Engineering	3	pre/con CHE 215, MTH 221	MJR
	CHM 215L	Organic Chemistry Lab I	1	CHM 215	MJR
	CHM 216	Organic Chemistry II	3	CHM 215	MJR
	MTH 221	Linear Algebra	3	MTH 104	MJR
<b>Total</b>			<b>16</b>		
Summer	MTH 205	Differential Equations	3	MTH 104	MJR
	ENG 207	English for Engineering	3	ENG 204	MJR/GER ELC 4 of 4
<b>Total</b>			<b>6</b>		

THIRD YEAR (37 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CHE 303	Chemical Engineering Thermodynamics I	3	CHE 206, MTH 203*	MJR
	CHE 307	Heat Transfer	3	CHE 206, CHE 215, MTH 205*	MJR
	CHE 329	Mass Transfer I	3	pre/con CHE 307	MJR
	ELE 225	Electric Circuits and Devices	3	PHY 102	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
	<b>Total</b>		<b>18</b>		
Spring	CHE 304	Chemical Engineering Thermodynamics II	3	CHE 303	MJR
	CHE 321	Chemical Reaction Engineering	3	CHM 240; pre/con CHE 307, CHM 331*	MJR
	CHE 332	Engineering Economy	3	pre/con CHE 412	MJR
	CHE 350	Transport Phenomena Lab I	1	NGN 111; pre/con CHE 303, CHE 307	MJR
	CHE 412	Mass Transfer II	3	CHE 329; con CHE 304	MJR
	CHM 331	Physical Chemistry II	3	CHE 303	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	<b>Total</b>		<b>19</b>		
Summer	CHE 397	Professional Training in Chemical Engineering	0	approval of training coordinator of major	MJR

\*These prerequisites will be in effect beginning with the 2007–2008 academic year. Current prerequisites are published in the Course Descriptions section of this catalog.

FOURTH YEAR (32 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CHE 421	Chemical Process Dynamics and Control	3	CHE 240; pre/con CHE 412**	MJR
	CHE 432	Process Design, Safety and Economics	3	CHE 321, CHE 412; pre/con CHE 332**	MJR
	CHE 451	Transport Phenomena Lab II	1	CHE 350, CHE 321; pre/con CHE 412**	MJR
	CHE 490	Senior Design Project I	1	pre/con CHE 432	MJR
	CHE XXX	Major Elective	3		MJE 1 of 3
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	<b>Total</b>		<b>17</b>		
Spring	CHE 452	Unit Operations and Control Lab	1	CHE 350; pre/con CHE 421	MJR
	CHE 491	Senior Design Project II	2	CHE 490	MJR
	CHE XXX	Major Elective	3		MJE 2 of 3
	CHE XXX	Major Elective	3		MJE 3 of 3
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	FRE XXX	Free Elective	3		FRE 2 of 2
	<b>Total</b>		<b>15</b>		

\*\*These prerequisites will be in effect beginning with the 2008–2009 academic year. Current prerequisites are published in the Course Descriptions section of this catalog.

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

## Department of Civil Engineering

Sami Tabsh, Chair

### Faculty

Jamaleldin Abdalla

Akmal Abdelfatah

Adil Al-Tamimi

Salwa Beheiry

Magdi El-Emam

Sameh El-Sayegh

Obada Kayali

Isaac Wait

## Bachelor of Science in Civil Engineering (BSCE)

### Program Mission and Description

The mission of the civil engineering program at AUS is to provide students with the highest level of technical preparation, professional development and leadership skills for successful careers in civil engineering and excellence in higher education by providing high-quality education based on a well-balanced curriculum.

The civil engineering program provides the necessary technical skills in mathematics, basic sciences, engineering sciences, engineering design, humanities and social sciences consistent with accreditation standards and national needs. The program provides critical learning for a broad foundation in structures, environmental engineering, geotechnical, materials, water resources, urban planning and transportation. Considerable emphasis is placed on group-based, open-ended design projects to provide students with the necessary skills for creative teamwork and to prepare them professionally for diverse employment opportunities. Preparation for professional practice and graduate studies is accomplished through careful selection of professional and technical electives. Students are motivated to keep abreast of current technical developments, to improve communication skills, to use computer tools, to be aware of project constraints, and to develop and maintain high standards of ethics and professionalism. The civil engineering program provides an environment

conducive to learning that stimulates both students and faculty.

### Program Educational Objectives

Graduates of the civil engineering program are expected to be able to:

- Utilize mathematics, science and engineering fundamentals to address and solve multifaceted problems
- Apply the analytical, experimental, design and management techniques with proficiency in the use of modern tools to solve civil engineering problems
- Understand the global, ethical and social implications of the profession and utilize them with regards to public safety and environmental protection
- Utilize oral and written communication skills and collaborate effectively as members of a multidisciplinary team
- Pursue successful employment and lifelong learning, as well as graduate studies

### Program Outcomes

Upon graduation, an AUS student of civil engineering should be able to demonstrate the following:

- Apply the principles and methods of mathematics, science and engineering basics to formulate and solve problems effectively
- Use computer software and modern laboratory equipment to solve civil engineering and related problems
- Use the theory and practice required to analyze and design structural, geotechnical, transportation, water and environmental systems
- Apply the techniques of cost analysis and estimation, planning, scheduling and control in the management of civil engineering projects
- Employ civil engineering codes of practice, specifications and testing standards to evaluate and select suitable construction materials
- Communicate effectively in both oral and written forms with different types of audiences on various topics
- Function well in projects that involve team members who represent multidisciplinary fields on wide range of subjects
- Carry out civil engineering tasks and make decisions ethically and professionally with consideration of social and global implications
- Conduct experiments, analyze data,

interpret results and present them effectively

- Pursue, where appropriate, graduate studies in civil engineering or a related discipline
- Demonstrate proficiency in mathematics, science and engineering basics through passing a comprehensive assessment examination
- Participate actively in professional activities and appreciate the engagement in lifelong learning

### Degree Requirements

Students must complete 140 credits to graduate. After the third year, each student is required to devote at least five weeks to the summer internship prior to graduation. In the fourth year, each student is required to complete a senior design project. All civil engineering students are required to take a comprehensive assessment examination during this capstone course sequence.

Students seeking the BSCE degree must satisfy the following requirements:

### General Education Requirements (44 credits)

- English language competency requirement: 12 credits comprising WRI 101, WRI 102, ENG 204 and ENG 207. Students who have advanced placement in the WRI and ENG sequence must replace the exempted course(s) by a course(s) in ENG.
- Any course listed as an Arabic heritage requirement
- Mathematics and/or statistics requirement: MTH 103 and MTH 104
- Science requirement: CHM 101 and PHY 101
- Humanities and social sciences requirement: 15 credits to be selected from the courses listed as humanities and social sciences requirements with at least six credits taken from the humanities area and at least six credits taken from the social sciences area. If the three credits in courses on Arab heritage are satisfied by one of the theme courses (THM 301 or THM 302), three additional credits must be taken from the humanities or social sciences courses.
- Computer literacy requirement: satisfied through extensive use of computer resources in courses throughout the

- engineering curriculum
- Information literacy requirement: satisfied through WRI 102 and ENG 204

**Major Requirements (81 credits)**

- CVE 202 Construction Materials Lab
- CVE 211 Fundamentals of Graphics and Programming
- CVE 220 Statics
- CVE 221 Construction Materials and Quality Control
- CVE 223 Mechanics of Materials
- CVE 240 Fluid Mechanics
- CVE 241 Elementary Surveying
- CVE 242 Field Plane Surveying
- CVE 263 Urban Transportation Planning
- CVE 267 Civil Engineering Cost Analysis
- CVE 301 Theory of Structures
- CVE 303 Geotechnical Engineering Lab
- CVE 304 Environmental Engineering Lab
- CVE 310 Fundamentals of Structural Dynamics
- CVE 312 Structural Steel Design
- CVE 313 Reinforced Concrete Design
- CVE 325 Computational Methods

- CVE 331 Geotechnical Engineering Principles
- CVE 333 Geotechnical Engineering Design
- CVE 341 Water Resources Engineering
- CVE 351 Environmental Engineering
- CVE 363 Highway Design
- CVE 367 Project Estimating, Planning and Control
- CVE 397 Professional Training in Civil Engineering
- CVE 490 Civil Engineering Design Project I
- CVE 491 Civil Engineering Design Project II
- MTH 203 Calculus III
- MTH 205 Differential Equations
- MTH 221 Linear Algebra
- NGN 110 Introduction to Engineering and Computing
- NGN 111 Introduction to Statistical Analysis
- PHY 102 General Physics II

**Major Electives (9 credits)**

- Nine credits from the following:
- CVE 410 Computer Methods in

- Structural Analysis
- CVE 411 Structural Concrete Design
- CVE 413 Concrete Bridge Design
- CVE 437 Advanced Concrete Technology
- CVE 442 Advanced Foundation Engineering
- CVE 446 Geotechnical Dam Engineering
- CVE 448 Port and Harbor Engineering
- CVE 450 Physical and Chemical Processes in Environmental Engineering
- CVE 455 Environmental Impact Assessment, Protection and Public Health
- CVE 456 Traffic Engineering
- CVE 457 Airport Planning and Design
- CVE 463 Construction Management
- CVE 468 Systems Construction Management, Scheduling and Control
- CVE 494 Special Topics in Civil Engineering

**Free Electives (6 credits)**

Six credits from any courses offered at or above the 100 level.

**Proposed Course Sequence of Study (Years 2 and Later)**  
**Bachelor of Science in Civil Engineering (BSCE)**

SECOND YEAR (44 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ENG 204	Advanced Academic Writing	3	WRI 102	MJR/GER ELC 3 of 4
	CVE 211	Fund. of Graphics and Computer Programming	3	NGN 111	MJR
	CVE 220	Statics	3	PHY 101	MJR
	CVE 241	Elementary Surveying	3	MTH 104; con CVE 242	MJR
	CVE 242	Field Plane Surveying	1	con CVE 241	MJR
	CVE 267	Civil Engineering Cost Analysis	3	NGN 111	MJR
	MTH 205	Differential Equations	3	MTH 104	MJR
	<b>Total</b>		<b>19</b>		
Spring	CVE 202	Construction Materials Lab	1	con CVE 221	MJR
	CVE 221	Construction Material and Quality Control	3	pre/con CVE 223; con CVE 202	MJR
	CVE 223	Mechanics of Materials	3	CVE 220	MJR
	CVE 240	Fluid Mechanics	3	MTH 104, CVE 220	MJR
	CVE 263	Urban Transportation Planning	3	CVE 241, NGN 111	MJR
	MTH 221	Linear Algebra	3	MTH 104	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	<b>Total</b>		<b>19</b>		
Summer	ENG 207	English for Engineering	3	ENG 204	MJR/GER ELC 4 of 4
	HSS XXX	Humanities/Social Science	3		GER HSS 2 of 5
	<b>Total</b>		<b>6</b>		

THIRD YEAR (32 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CVE 301	Theory of Structures	3	CVE 223	MJR
	CVE 303	Geotechnical Engineering Lab	1	con CVE 331	MJR
	CVE 331	Geotechnical Engineering Principles	3	CVE 223, CVE 231; con CVE 303	MJR
	CVE 341	Water Resources Engineering	3	CVE 240	MJR
	MTH 203	Calculus III	3	MTH 104	MJR
	<b>Total</b>		<b>13</b>		
Spring	CVE 304	Environmental and Water Engineering Lab	1	con CVE 351	MJR
	CVE 312	Structural Steel Design	3	CVE 301	MJR
	CVE 313	Reinforced Concrete Design	3	CVE 301, CVE 221	MJR
	CVE 325	Computational Method	3	CVE 211, MTH 205; pre/con MTH 221	MJR
	CVE 351	Environmental Engineering	3	CHM 101; con CVE 304; pre/con CVE 341	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	<b>Total</b>		<b>19</b>		
Summer	CVE 397	Professional Training in Civil Engineering	0	approval of training coordinator of major	MJR

FOURTH YEAR (33 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	CVE 310	Fundamentals of Structural Dynamics	3	CVE 301, MTH 205	MJR
	CVE 367	Project Estimating, Planning and Control	3	CVE 267	MJR
	CVE 363	Highway Engineering	3	CVE 263	MJR
	CVE 490	Civil Engineering Design Project I	1	senior standing	MJR
	CVE XXX	Major Elective	3		MJE 1 of 3
	FRE XXX	Free Elective	3		FRE 2 of 2
	<b>Total</b>		<b>16</b>		
Spring	CVE 333	Geotechnical Engineering Design	3	CVE 331	MJR
	CVE 491	Civil Engineering Design Project II	2	CVE 490	MJR
	CVE XXX	Major Elective	3		MJE 2 of 3
	CVE XXX	Major Elective	3		MJE 3 of 3
	HSS XXX	Humanities /Social Sciences	3		GER HSS 5 of 5
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	<b>Total</b>		<b>17</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

## Department of Computer Engineering

Rana Ahmed, Chair

### Faculty

Abdul-Rahman Al-Ali

Fadi Aloul

Armin Eberlein

Taha Landolsi

Tarik Ozkul (on leave Fall 2006)

Ghassan Qadah

Assim Sagahyoon

Imran Zualkernan

## Bachelor of Science in Computer Engineering (BSCoE)

### Program Mission and Description

The mission of the computer engineering program is to educate students in the principles and modern practices of computer engineering, to prepare students to pursue a wide range of computer engineering careers, and to generate new knowledge by the pursuit of research in selected areas of computer engineering.

The phenomenal growth of the computer engineering field has been fueled by rapid advances in integrated circuits, microprocessors, software and networking technologies. Many of the modern products and services used in our daily life have been developed by computer hardware and software engineers. The primary purpose of the computer engineering program is to educate students with an understanding of digital systems, programming languages, computer architecture, computer networks, computer applications in industry and software engineering. These topics bridge traditional electrical engineering and computer science curricula. Computer engineers design, build and maintain integrated computer-based systems for home, business, government and industrial use. The undergraduate program in computer engineering prepares students for a wide range of positions in business and government service, as well as higher education,

and research and development roles.

The curriculum satisfies the needs of the engineering community, especially in the United Arab Emirates and the Gulf region. The program includes general education requirements and core requirements for all computer engineering students. In addition, technical and free elective courses must be completed. A summer internship experience is required, as is a senior design project accomplished over a two-semester period.

Required laboratory courses provide hands-on experience and support class work and the senior project. The laboratories are equipped with state-of-the-art hardware, software and networking equipment.

### Program Educational Objectives

Graduates of computer engineering are expected to be able to:

- Serve as engineers equipped with the necessary technical and problem-solving skills in computer engineering to analyze, design, implement and maintain integrated hardware/software and networking systems
- Understand the ethical, legal and social issues in the computing discipline and act in society's best interest
- Pursue lifelong learning, continuing education and graduate studies consistent with their professional and personal development goals
- Work on research projects in the area of computer engineering
- Be independent and work as an effective team member on multidisciplinary projects
- Communicate effectively through speaking, writing and audio-visual tools with peers, management and the public at large
- Play leadership roles in their professions

### Program Outcomes

Upon graduation, the student of the computer engineering program is able to:

- Demonstrate proficiency in the areas of digital systems, computer architecture, electronics, computer networks and embedded systems
- Demonstrate proficiency in the areas of software design and development, data

structures, algorithms and operating systems

- Identify, formulate and solve computer engineering problems, including the planning, specification, design, implementation and operation of integrated hardware/software and networking systems, and/or processes that meet performance, cost, time, safety and quality requirements
- Apply knowledge of mathematics (especially calculus, differential equations, linear algebra, discrete mathematics and statistics), sciences and engineering to the analysis of computer engineering problems
- Use modern computing techniques and skills and software and hardware tools needed to solve computer engineering problems
- Show an understanding of professional, legal and ethical issues in computer engineering, including software copyright, intellectual property, patents and computer crimes
- Demonstrate the broad education and knowledge of contemporary issues necessary to understand the impact of computer engineering solutions in a global and societal context
- Enter graduate school and/or to engage in a lifelong learning process
- Successfully take professional and certificate exams to improve career opportunities
- Communicate effectively both orally and in written form
- Function as an effective contributing member on multidisciplinary teams

### Degree Requirements

Students must complete 140 credits to graduate. After the third year, each student is required to devote at least five weeks to the summer internship prior to graduation. In the fourth year, each student is required to complete a senior design project. All computer engineering students are required to take a comprehensive assessment examination during this capstone course sequence.

Students seeking the BSCoE degree must complete the following requirements:

### General Education Requirements (44 credits)

- English language competency requirement: 12 credits comprising WRI 101, WRI 102, ENG 204 and ENG 207. Students who have advanced placement in the WRI and ENG sequence must replace the exempted course(s) by a course(s) in ENG.
- Any course listed as an Arabic heritage requirement
- Mathematics and/or statistics requirement: MTH 103 and MTH 104
- Science requirement: CHM 101 and PHY 101
- Humanities and social sciences requirement: 15 credits to be selected from the courses listed as humanities and social sciences requirements with at least six credits taken from the humanities area and at least six credits taken from the social sciences area. If the three credits in courses on Arab heritage are satisfied by one of the theme courses (THM 301 or THM 302), three additional credits must be taken from the humanities or social sciences courses.
- Computer literacy requirement: satisfied through extensive use of computer resources in courses throughout the engineering curriculum
- Information literacy requirement: satisfied through WRI 102 and ENG 204

### Major Requirements (78 credits)

- COE 210 Programming I
- COE 211 Programming II
- COE 221 Digital Systems
- COE 311 Data Structures and Algorithms
- COE 312 Software Design for Engineers
- COE 331 Microprocessors
- COE 341 Computer Architecture and Organization
- COE 360 Probability and Stochastic Processes
- COE 370 Communications Networks
- COE 371 Computer Networks I
- COE 381 Operating Systems
- COE 397 Professional Training in Computer Engineering
- COE 412 Embedded Systems
- COE 420 Software Engineering I
- COE 424 Advanced Digital System Design

- COE 490 Design Project I
- COE 491 Design Project II
- ELE 211 Electric Circuits I
- ELE 241 Electronics I
- ELE 241L Electronics I Lab
- ELE 323 Signal Processing
- ELE 341 Electronics II
- MCE 225 Statics and Dynamics for Computer Engineering
- MTH 205 Differential Equations
- MTH 213 Discrete Mathematics
- MTH 221 Linear Algebra
- NGN 110 Introduction to Engineering and Computing
- NGN 111 Introduction to Statistical Analysis
- PHY 102 General Physics II

### Major Electives (12 credits)

Four three-credit courses from the approved technical elective courses listed below must be completed. At least three of the four courses should be in computer engineering.

- COE 394 Special Topics in Computer Engineering
- COE 422 Database Systems
- COE 423 Computer Networks II
- COE 425 Modern Computer Organizations
- COE 427 Internet Computing
- COE 428 VLSI Design
- COE 431 Industrial Computer Systems
- COE 434 Mobile Computing
- COE 481 Real-time Industrial Networks
- COE 482 Soft Computing
- COE 494 Special Topics in Computer Engineering
- COE 496 Independent Study in Computer Engineering
- CMP 341 Computational Methods
- CMP 433 Artificial Intelligence
- CMP 435 Computer Security
- ELE 311 Electromagnetics
- ELE 432 Medical Instrumentation I
- ELE 441 Microelectronic Devices

### Free Electives (6 credits)

Six credits of any courses offered at or above the 100 level.

### Minor in Computer Engineering

Students enrolling in the computer engineering minor should have completed a minimum of 60 credit hours of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 20 credit hours including at least 10 credit hours in courses at or above 300 level in computer engineering.
- Free electives may be taken towards the minor.
- At least 10 credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in the courses taken to satisfy the minor.

Students seeking a minor in computer engineering must complete the following courses on their equivalent. All course prerequisites must be satisfied.

### Minor Requirements (11 credits)

- COE 210 Programming I (3 credits)
- COE 221 Digital Systems (4 credits)
- COE 331 Microprocessors (4 credits)

### Minor Electives (9 credits)

Depending upon the student's interests in a specific area (option) in computer engineering, the following courses should be completed:

#### Option 1—Networking

- COE 370 Communication Networks
- COE 371 Computer Networks I
- COE 4XX

#### Option 2—Hardware

- COE 341 Computer Architecture and Organization
- COE 412 Embedded Systems
- COE 4XX

#### Option 3—Software (not open to computer science majors)

- COE 211 Programming II
- COE 311 Data Structures and Algorithms
- COE 381 Operating Systems or COE 4XX

**Proposed Course Sequence of Study (Years 2 and Later)**  
**Bachelor of Science in Computer Engineering (BSCoE)**

SECOND YEAR (42 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	COE 210	Programming I	3	MTH 103	MJR
	COE 221	Digital Systems	4	PHY 102	MJR
	ENG 204	Advanced Academic Writing	3	WRI 102	MJR/GER ELC 3 of 4
	ELE 211	Electric Circuits I	3	PHY 102	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	MCE 225	Statics and Dynamics for Computer Engineering	2	MTH 104, PHY 101	MJR
		<b>Total</b>		<b>18</b>	
Spring	COE 211	Programming II	3	COE 210	MJR
	COE 331	Microprocessors	4	COE 210 and COE 221 or CMP 120	MJR
	MTH 205	Differential Equations	3	MTH 104	MJR
	MTH 221	Linear Algebra	3	MTH 104	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
	MTH 213	Discrete Mathematics	3	MTH 103	MJR
		<b>Total</b>		<b>19</b>	
Summer	ENG 207	English for Engineering	3	ENG 204	MJR/GER ELC 4 of 4
	COE 312	Software Design for Engineers	2	COE 211	MJR
		<b>Total</b>		<b>5</b>	

THIRD YEAR (34 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	COE 311	Data Structures and Algorithms	3	COE 211, MTH 213	MJR
	COE 370	Communications Networks	3	COE 221 or CMP 210, MTH 104	MJR
	ELE 241	Electronics I	3	ELE 211	MJR
	ELE 241L	Electronics I Lab	1	ELE 241	MJR
	COE 360	Probability and Stochastic Processes	3	NGN 111, MTH 221	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
		<b>Total</b>		<b>16</b>	
Spring	COE 341	Computer Architecture and Organization	3	COE 331	MJR
	COE 371	Computer Networks I	3	COE 370	MJR
	COE 381	Operating Systems	3	COE 311/CMP 232 and COE 331/CMP 240	MJR
	ELE 341	Electronics II	3	ELE 241	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	ELE 323	Signal Processing	3	MTH 205, ELE 211	MJR
	<b>Total</b>		<b>18</b>		
Summer	COE 397	Professional Training in Computer Engineering	0	approval of training coordinator of major	MJR

FOURTH YEAR (33 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	COE 412	Embedded Systems	3	COE 331, ELE 241	MJR
	COE 420	Software Engineering I	3	COE 311/CMP 232	MJR
	COE 424	Advanced Digital System Design	3	COE 341	MJR
	COE 490	Design Project I	1	senior standing	MJR
	COE XXX	Major Elective	3		MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
		<b>Total</b>	<b>16</b>		
Spring	COE XXX	Major Elective	3		MJR
	COE 491	Design Project II	2	COE 490	MJR
	COE/ELE/ MTH/ CMP XXX	Elective	3		MJR
	COE XXX	Major Elective	3		MJR
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	FRE XXX	Free Elective	3		FRE 2 of 2
		<b>Total</b>	<b>17</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

## Department of Electrical Engineering

Mohamed El-Tarhuni, Chair

### Faculty

Yousef Al-Assaf  
 Hasan Al-Nashash  
 Khaled Assaleh  
 Mourad Barkat  
 Rached Dhaouadi  
 Ayman El-Hag  
 Ahmed Emira  
 Mohamed Hassan  
 Nasser Qaddoumi  
 Habib-ur Rehman

## Bachelor of Science in Electrical Engineering (BSEE)

### Program Mission and Description

The mission of the electrical engineering program is to prepare graduates for successful professional engineering careers emphasizing electrical engineering capabilities necessary to engage in service, research and development that serve the United Arab Emirates, the Middle East and the world.

The electrical engineering curriculum is a four-year program leading to a Bachelor of Science in Electrical Engineering (BSEE). The program is based on a solid foundation of science and mathematics needed to understand advanced engineering topics and applications. The curriculum has been designed with the aim of providing breadth and depth of knowledge and significant design experience across the key areas of electrical engineering that evolve with society's needs. The Department of Electrical Engineering provides access to state-of-the-art resources in communications, control and instrumentation, digital signal processing, microelectronics, electromagnetics and microwaves, electric drives, power systems and biomedical electronics.

Faculty members are committed to helping students develop the intellectual, technological and personal skills that allow them to excel in both

academia and electrical engineering careers. AUS electrical engineering graduates should be able to employ their knowledge, analysis and design skills to realize engineering systems and advance the frontiers of science and technology.

### Program Educational Objectives

Electrical engineering graduates are expected to be able to:

- Utilize mathematics, basic and engineering sciences, problem solving and design skills to pursue a career or advanced studies in electrical engineering
- Maintain the desire for innovation, creativity and lifelong learning
- Communicate effectively in multidisciplinary teamwork environments
- Recognize professional and ethical responsibilities and act accordingly within a global and societal context

### Program Outcomes

Upon graduation, an AUS graduate in electrical engineering should demonstrate the ability to:

- Identify, model and formulate electrical engineering problems
- Propose, design and implement solutions for electrical engineering problems
- Use techniques, skills and modern engineering tools for engineering practice
- Work individually and in team environments
- Act professionally and ethically in the practice of engineering
- Use written and oral communications to document work and present project design and results
- Pursue graduate studies and/or professional development activities
- Show how contemporary issues impact engineering solutions in a global and societal context

### Degree Requirements

Students must complete 140 credits to graduate. After the third year, each student is required to devote at least five weeks to the summer internship prior to graduation. Each student is required to complete a senior design

project in the fourth year. All electrical engineering students are required to take a comprehensive assessment examination during their senior year.

Students seeking the BSEE degree must satisfy the following requirements:

### General Education Requirements (44 credits)

- English language competency requirement: 12 credits comprising WRI 101, WRI 102, ENG 204 and ENG 207. Students who have advanced placement in the WRI and ENG sequence must replace the exempted course(s) by a course(s) in ENG.
- Any course listed as an Arabic heritage requirement
- Mathematics and/or statistics requirement: MTH 103 and MTH 104
- Science requirement: CHM 101 and PHY 101
- Humanities and social sciences requirement: 15 credits to be selected from the courses listed as humanities and social sciences requirements with at least six credits taken from the humanities area and at least six credits taken from the social sciences area. If the three credits in courses on Arab heritage are satisfied by one of the theme courses (THM 301 or THM 302), three additional credits must be taken from the humanities or social sciences courses.
- Computer literacy requirement: satisfied through extensive use of computer resources in courses throughout the engineering curriculum
- Information literacy requirement: satisfied through WRI 102 and ENG 204

### Major Requirements (77 credits)

- COE 210 Programming I
- COE 221 Digital Systems
- COE 331 Microprocessors
- ELE 211 Electric Circuits I
- ELE 212 Electric Circuits II
- ELE 241 Electronics I
- ELE 241L Electronics I Lab
- ELE 251 Electrical Energy Conversion
- ELE 311 Electromagnetics
- ELE 321 Signals and Systems
- ELE 332L Measurements and Instrumentation Lab
- ELE 341 Electronics II

- ELE 341L Electronics II Lab
- ELE 353 Control Systems I
- ELE 353L Control Systems I Lab
- ELE 360 Probability and Stochastic Processes
- ELE 361 Communications
- ELE 361L Communications Lab
- ELE 371 Power Systems Analysis
- ELE 371L Electric Machines and Power Systems Lab
- ELE 397 Professional Training in Electrical Engineering
- ELE 424 Digital Signal Processing
- ELE 490 Electrical Engineering Design Project I
- ELE 491 Electrical Engineering Design Project II
- NGN 110 Introduction to Engineering and Computing
- NGN 111 Introduction to Statistical Analysis
- MCE 224 Statics and Dynamics
- MTH 203 Calculus III
- MTH 205 Differential Equations
- MTH 221 Linear Algebra
- PHY 102 General Physics II

### Major Electives (13 credits)

Thirteen credits of elective courses, including a one-credit laboratory, from the following approved list of major electives must be completed. Students may complete one major engineering elective outside electrical engineering (ELE) from the approved list available in the department.

- COE 370 Communications Networks
- ELE 394 Special Topics in Electrical Engineering
- ELE 426 Imaging Systems
- ELE 432 Medical Instrumentation I
- ELE 433 Medical Instrumentation II
- ELE 439L Medical Electronics Systems Lab
- ELE 441 Microelectronic Devices
- ELE 444 Control Systems II
- ELE 452 Digital Communications
- ELE 451 Wireless Communications
- ELE 453 Microwave Engineering
- ELE 454 Antennas and Wave Propagation
- ELE 455 Digital Image Processing

- ELE 457 Satellite Communications
- ELE 458L Communications Systems Lab
- ELE 459 Introduction to Radar Systems
- ELE 471 Digital Control Systems
- ELE 472 Nonlinear Control
- ELE 473 Industrial Instrumentation and Control
- ELE 476L Instrumentation and Control Systems Lab
- ELE 481 Power Systems Protection
- ELE 482 Electric Power Distribution Systems
- ELE 483 Power Systems Operation
- ELE 484 Control of AC Machines
- ELE 485 Power Electronics
- ELE 486 Electric Drives
- ELE 488L Power Engineering Lab
- ELE 494 Special Topics in Electrical Engineering
- ELE 496 Independent Study in Electrical Engineering

### Free Electives (6 credits)

Six credits of any courses offered at AUS at or above the 100 level.

### Minor in Electrical Engineering

Students enrolling in the electrical engineering minor should have normally completed a minimum of 60

credits of course work and be in good academic standing. Non-engineering majors normally cannot enter an engineering minor.

The following rules apply:

- The minor consists of a minimum of 19 credits including at least 10 credits in courses at or above the 300 level in electrical engineering.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in electrical engineering must complete the following courses or their equivalent. All course prerequisites must be satisfied.

### Minor Requirements (7 credits)

- ELE 212 Electric Circuits II
- ELE 241 and ELE 241L (Electronics I and lab)

### Minor Electives (12 credits)

- Any ELE courses at or above the 300 level
- At least three credits in a 400-level ELE course



**Proposed Course Sequence of Study (Years 2 and later)**  
**Bachelor of Science in Electrical Engineering (BSEE)**

SECOND YEAR (41 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	COE 210	Programming I	3	MTH 103	MJR
	ENG 204	Advanced Academic Writing	3	WRI 102	MJR/GER ELC 3 of 4
	ELE 211	Electric Circuits I	3	PHY 102	MJR
	MTH 203	Calculus III	3	MTH 104	MJR
	MTH 221	Linear Algebra	3	MTH 104	MJR
	MTH 205	Differential Equations	3	MTH 104	MJR
	<b>Total</b>		<b>18</b>		
Spring	ELE 212	Electric Circuits II	3	ELE 211, MTH 205	MJR
	ELE 241	Electronics I	3	ELE 211; pre/con ELE 241L	MJR
	ELE 241L	Electronics I Lab	1	pre/con ELE 241	MJR
	ELE 251	Electrical Energy Conversion	3	pre/con ELE 212	MJR
	COE 221	Digital Systems	4	PHY 102	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	<b>Total</b>		<b>17</b>		
Summer	MCE 224	Statics and Dynamics	3	MTH 104, PHY 101	MJR
	ENG 207	English for Engineering	3	ENG 204	MJR/GER ELC 4 of 4
	<b>Total</b>		<b>6</b>		

THIRD YEAR (35 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ELE 311	Electromagnetics	3	MTH 203, MTH 205, PHY 102	MJR
	ELE 321	Signals and Systems	3	ELE 212	MJR
	ELE 341	Electronics II	3	ELE 241	MJR
	ELE 341L	Electronics II Lab	1	pre/con ELE 341	MJR
	ELE 353	Control Systems I	3	ELE 212; pre/con MCE 224 or MCE 225	MJR
	ELE 371	Power Systems Analysis	3	ELE 251, pre/con MTH 221	MJR
	ELE 371L	Electric Machines and Power Systems Lab	1	pre/con ELE 371	MJR
	<b>Total</b>		<b>17</b>		
Spring	ELE 332L	Measurements and Instrumentation Lab	1	ELE 341	MJR
	ELE XXX	Major Elective	3		MJE 1 of 5
	ELE 353L	Control Systems I Lab	1	ELE 353	MJR
	ELE 360	Probability and Stochastic Processes	3	NGN 111, MTH 221	MJR
	ELE 361	Communications	3	ELE 321	MJR
	COE 331	Microprocessors	4	COE 221, COE 210	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
	<b>Total</b>		<b>18</b>		
Summer	ELE 397	Professional Training in Electrical Engineering	0	approval of training coordinator of major	MJR

FOURTH YEAR (33 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ELE 361L	Communications Lab	1	ELE 361	MJR
	ELE 424	Digital Signal Processing	3	ELE 321	MJR
	ELE XXX	Major Elective	3		MJE 2 of 5
	ELE XXX	Major Elective	3		MJE 3 of 5
	ELE 490	Electrical Engineering Design Project I	2	senior standing	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	<b>Total</b>		<b>18</b>		
Spring	ELE XXX	Major Elective	3		MJE 4 of 5
	ELE XXXL	Major Elective Lab	1		MJE 5 of 5
	ELE 491	Electrical Engineering Design Project II	2	ELE 490	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	FRE XXX	Free Elective	3		FRE 2 of 2
	<b>Total</b>		<b>15</b>		

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

## Department of Mechanical Engineering

Hany El-Kadi, Interim Chair

### Faculty

Mamoun Abdel-Hafez  
Saad Ahmed  
Ibrahim Deiab  
Ameen El-Sinawi  
Mohamed A. Gadalla  
Mohammad-Ameen Jarrah  
Ahmad Sleiti

## Bachelor of Science in Mechanical Engineering (BSME)

### Program Mission and Description

The mission of the mechanical engineering program at AUS is to prepare students for successful careers in industry, government and academia by providing a high-quality mechanical engineering education.

Mechanical engineering provides an

excellent broad education for today's technological world. Mechanical engineers model, analyze, test and manufacture engines that power ground as well as aerospace vehicles. They also design, operate and modify power plants that convert the energy in fuels, atoms, wind and sunlight into electricity, and they construct intelligent machines and robots in industry. Mechanical engineers also build prototypes of conventional, electric and sports vehicles; develop energy management systems for industry; design and manufacture smart products; and develop new engineering materials that are used in manufacturing high-tech products. Mechanical engineers use computers extensively in their everyday operation; they develop computer control systems for automobiles and industrial processes and design computer interfaces to mechanical and energy systems. In short, the mechanical engineer is a vital backbone element of the engineering profession.

The BSME curriculum produces high-quality graduates whose work is notable for its breadth and technical excellence. Graduates have the ability to work logically, accurately and efficiently; to gather and use information effectively; and to continue enhancing their careers through lifelong learning. The program stresses the effective use of technology, information resources and engineering tools. It prepares graduates to work in a broad range of areas related to the mechanical engineering profession. The program instills leadership qualities based on moral and ethical principles coupled with sound and rational judgment. Finally, the program is designed to prepare interested students for graduate studies in mechanical engineering and other areas of professional practice.

### Program Educational Objectives

Graduates of the mechanical engineering program are expected to be able to:

- Pursue a successful career as a

mechanical engineer and/or advanced studies in mechanical engineering or related fields

- Use their broad base of knowledge and systematic thinking to be creative and effective problem solvers
- Have a commitment to lifelong learning and motivation toward continued professional development
- Understand the cultural, ethical and global environment in which professional engineers contribute to society
- Be self-confident team members capable of functioning effectively in multidisciplinary design activities yet carrying out tasks independently
- Communicate effectively with a wide range of audiences

### Program Outcomes

Upon graduation, an AUS graduate in mechanical engineering is able to demonstrate the ability to:

- Apply knowledge of mathematics, science and engineering fundamentals to a mechanical engineering problem
- Design and conduct experiments, analyze and interpret results and draw correct conclusions
- Design a component or a system by formulating constraints, assessing alternative solutions and implementing one that satisfies specific requirements
- Function on multidisciplinary teams as an individual contributor and sometimes in a leadership role
- Communicate effectively with a wide range of audiences in oral, written, graphical and visual forms within the context of mechanical engineering practice
- Understand the professional and ethical responsibilities of an engineer
- Understand the general contemporary issues and their influence on technology evolution and implementation including the impact of mechanical engineering solutions in a global and societal context
- Use techniques, skills and modern engineering tools necessary for engineering practice and ability to adapt to emerging technologies

### Degree Requirements

Students must complete 140 credits to graduate. After the third year, each student is normally required to devote at least five weeks to the summer internship prior to graduation. In the fourth year, each student is required to complete a senior design project. All mechanical engineering students are required to take a comprehensive assessment examination during the capstone course sequence.

Students seeking the BSME degree must satisfy the following requirements:

#### General Education Requirements (44 credits)

- English language competency requirement: 12 credits comprising WRI 101, WRI 102, ENG 204 and ENG 207. Students who have advanced placement in the WRI and ENG sequence must replace the exempted course(s) by a course(s) in ENG.
- Any course listed as an Arabic heritage requirement
- Mathematics and/or statistics requirement: MTH 103 and MTH 104
- Science requirement: CHM 101 and PHY 101
- Humanities and social sciences requirement: 15 credits to be selected from the courses listed as humanities and social sciences requirements with at least six credits taken from the humanities area and at least six credits taken from the social sciences area. If the three credits in courses on Arab heritage are satisfied by one of the theme courses (THM 301 or THM 302), three additional credits must be taken from the humanities or social sciences courses.
- Computer literacy requirement: satisfied through extensive use of computer resources in courses throughout the engineering curriculum
- Information literacy requirement: satisfied through WRI 102 and ENG 204

#### Major Requirements (78 credits)

- ELE 225 Electric Circuits and Devices
- MCE 215 Engineering Drawing and Workshop
- MCE 220 Statics

- MCE 222 Dynamics
- MCE 223 Mechanics of Materials
- MCE 230 Materials Science
- MCE 234 Computer Applications in Mechanical Engineering
- MCE 240 Fluid Mechanics
- MCE 241 Thermodynamics I
- MCE 311 Engineering Measurements
- MCE 321 Mechanical Design I
- MCE 322 Mechanical Design II
- MCE 325 Computational Methods
- MCE 328 Dynamic Systems
- MCE 331 Manufacturing Processes
- MCE 341 Thermodynamics II
- MCE 344 Heat Transfer
- MCE 397 Professional Training in Mechanical Engineering
- MCE 410 Control Systems
- MCE 482 Intermediate Fluid Mechanics
- MCE 490 Design Project I
- MCE 491 Design Project II
- MTH 203 Calculus III
- MTH 205 Differential Equations
- MTH 221 Linear Algebra
- NGN 110 Introduction to Engineering and Computing
- NGN 111 Introduction to Statistical Analysis
- PHY 102 General Physics II

#### Major Electives (12 credits)

Four technical elective courses (12 credits) in the major areas of mechanical engineering must be completed. Two courses (six credits) should be from the applied mechanics area and two courses (six credits) should be from the thermofluids area.

#### Applied Mechanics

- MCE 416 Kinematics and Dynamics of Machinery
- MCE 423 Mechanical Vibrations
- MCE 434 Fundamentals of Computer-Aided Design and Manufacturing
- MCE 439 Computer Integrated Manufacturing
- MCE 464 Introduction to Robotics

- MCE 466 Introduction to Mechatronics
- MCE 473 Applied Finite Element Analysis
- MCE 477 Composite Materials
- MCE 494 Special Topics in Mechanical Engineering
- MCE 496 Independent Study in Mechanical Engineering

Thermofluids

- MCE 445 Energy Systems
- MCE 446 Refrigeration and Air Conditioning
- MCE 447 Internal Combustion Engines
- MCE 450 Energy Conservation and Management
- MCE 473 Applied Finite Elements Analysis
- MCE 487 Turbomachines
- MCE 494 Special Topics in Mechanical Engineering
- MCE 496 Independent Study in Mechanical Engineering

**Free Electives (6 credits)**

Six credits of any courses offered at or above the 100 level.

**Minor in Mechanical Engineering**

Students enrolling in the mechanical engineering minor should have normally completed a minimum of 60 credits of course work and be in good academic standing.

According to the university regulations, the following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level in mechanical engineering.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and an average GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in

mechanical engineering must complete the following courses or their equivalent. All course pre-requisites must be satisfied.

**Minor Requirements (9 credits)**

Student can choose one of the following lists of courses:

*Option 1:*

- MCE 222 Dynamics or MCE 224 Engineering Mechanics—Statics and Dynamics
- MCE 223 Mechanics of Materials
- MCE 240 Fluid Mechanics or MCE 241 Thermodynamics I

*Option 2:*

- MCE 223 Mechanics of Materials or MCE 222 Dynamics or MCE 224 Engineering Mechanics—Statics and Dynamics
- MCE 240 Fluid Mechanics
- MCE 241 Thermodynamics I

**Minor Electives (9 credits)**

Any three mechanical engineering courses at or above the 300 level.

**Proposed Sequence of Study (Years 2 and Later)  
Bachelor of Science in Mechanical Engineering (BSME)**

SECOND YEAR (42 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ENG 204	Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	MTH 205	Differential Equations	3	MTH 104	MJR
	MCE 215	Engineering Drawing and Workshop	3		MJR
	MCE 220	Statics	3	PHY 101	MJR
	MCE 230	Materials Science	3	CHM 101	MJR
		<b>Total</b>	<b>18</b>		
Spring	MCE 222	Dynamics	3	MCE 220, MTH 205	MJR
	MCE 223	Mechanics of Materials	3	MCE 220	MJR
	MCE 234	Computer Applications in Mechanical Engineering	3		MJR
	MCE 240	Fluid Mechanics	3	MCE 220, MTH 104	MJR
	MCE 241	Thermodynamics I	3	PHY 101	MJR
	MTH 203	Calculus III	3	MTH 104	MJR
		<b>Total</b>	<b>18</b>		
Summer	ENG 207	English for Engineering	3	ENG 204	MJR/GER ELC 4 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
		<b>Total</b>	<b>6</b>		

THIRD YEAR (36 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	MTH 221	Linear Algebra	3	MTH 104	MJR
	MCE 321	Mechanical Design I	3	MCE 215, MCE 223, NGN 111	MJR
	MCE 344	Heat Transfer	3	MCE 240, MCE 241	MJR
	MCE 341	Thermodynamics II	3	MCE 241	MJR
	ELE 225	Electric Circuits and Devices	3	PHY 102	MJR
		<b>Total</b>		<b>18</b>	
Spring	FRE XXX	Free Elective	3		FRE 2 of 2
	MCE 311	Engineering Measurements	3	MCE 222, MCE 240, ELE 225	MJR
	MCE 322	Mechanical Design II	3	MCE 321; pre/con MCE 331	MJR
	MCE 325	Computational Methods	3	MTH 205, pre/con MTH 221	MJR
	MCE 328	Dynamic Systems	3	MCE 222, MCE 234, MTH 205, ELE 225	MJR
	MCE 331	Manufacturing Processes	3	MCE 215, MCE 223, MCE 230	MJR
		<b>Total</b>		<b>18</b>	
Summer	MCE 397	Professional Training in Mechanical Engineering	0	approval of training coordinator of major	MJR

FOURTH YEAR (31 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MCE 410	Control Systems	3	MCE 311, MCE 328	MJR
	MCE 482	Intermediate Fluid Mechanics	3	MCE 240, MCE 241; pre/con MCE 325, MTH 203	MJR
	MCE XXX	Major Elective	3		MJE 1 of 4
	MCE 490	Design Project I	2	senior standing	MJR
	MCE XXX	Major Elective	3		MJE 2 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
		<b>Total</b>		<b>17</b>	
Spring	MCE XXX	Major Elective	3		MJE 3 of 4
	MCE 491	Design Project II	2	MCE 490	MJR
	MCE XXX	Major Elective	3		MJE 4 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
		<b>Total</b>		<b>14</b>	

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

## Department of Computer Science

Joachim Diederich, Chair

### Faculty

Gerassimos Barlas

Khaled El-Fakih

Jalal Kawash

Kassem Saleh

Tamer Shanableh

## Bachelor of Science in Computer Science (BSCS)

### Program Mission and Description

The mission of the computer science program is to deliver a modern curriculum that will equip graduates with strong theoretical and practical backgrounds to enable them to excel in the workplace and to be lifelong learners. The program is designed to meet the growing needs for computer science experts in the rapidly evolving 21st century economy. It provides graduates with a strong computer science base that will enable them to capitalize on increasing career opportunities in the information technology sector, especially software-related fields; to expand the limits of their knowledge by pursuing further graduate studies; and to explore innovative approaches to computer-related problems. A computer science degree from AUS provides the graduate with a highly demanded level of expertise, great mobility and flexibility, and a wide range of career choices in the broad software and information technology industry.

The program includes general education requirements and core requirements. In addition, technical and free elective courses are required. A senior design project is also accomplished in close coordination with a faculty advisor. A summer internship experience is required.

### Program Educational Objectives

Graduates of computer science are expected to be able to:

- Have successful professional careers, play leadership roles and be able to grasp and apply emerging technologies

through training, self-learning or postgraduate studies

- Possess problem-solving and software development skills involving all aspects of the product development process including analysis and design
- Communicate effectively, both orally and in writing, and interact effectively in a multidisciplinary team environment
- Understand and deal with the ethical, legal and social concerns faced in their work and contribute positively to the betterment of society

### Program Outcomes

Upon graduation, the student of the computer science program is able to:

- Obtain appropriate employment in an information technology field
- Secure admission into a postgraduate program
- Acquire new knowledge through self-learning and training
- Apply knowledge of mathematical concepts in the design and analysis of algorithmic solutions to software problems
- Apply knowledge of one or more specialization areas of computer science to develop feasible solutions to software problems
- Propose feasible software development project plans
- Define software requirements, and analyze and design software system solutions
- Implement and test software systems
- Use modern software development tools effectively while developing software systems
- Communicate effectively, in formal or informal meetings, with clients, managers or peers
- Communicate effectively both orally and in writing
- Interact and work effectively with colleagues in a multidisciplinary team
- Recognize the ethical, legal and social issues involved in the computing profession
- Assess the ethical, legal and social implications of his/her own professional behavior and conduct
- Participate in local, regional and/or global professional organizations and societies

## Degree Requirements

Students must complete 130 credits to graduate. These should include 48 credits of general education requirements, 58 credits of major requirements, 12 credits of computer science elective courses and 12 credits of free electives. After the third year, each student is normally required to devote at least five weeks to the summer internship prior to graduation. In the last year, each student is required to complete a senior design project.

Students seeking the BS in Computer Science degree must complete the following requirements:

### General Education Requirements (48 credits)

- English language competency requirement: 12 credits comprising WRI 101, WRI 102, ENG 204 and ENG 207. Students who have advanced placement in the WRI and ENG sequence must replace the exempted course(s) by a course(s) in ENG.
- Any course listed as an Arabic heritage requirement
- Mathematics requirement: MTH 103 and MTH 104
- Science requirement: 12 credits from CHM, BIO or PHY. Two out of the three courses must be in the same area
- Humanities and social sciences requirement: 15 credits to be selected from the courses listed as humanities and social sciences requirements with at least six credits taken from the humanities area and at least six credits taken from the social sciences area. If the three credits in courses on Arab heritage are satisfied by one of the theme courses (THM 301 or THM 302), three additional credits must be taken from the humanities or social sciences courses.
- Computer literacy requirement: satisfied through courses throughout the computer science curriculum
- Information literacy requirement: satisfied through WRI 102 and ENG 204

### Major Requirements (58 credits)

- CMP 120 Introduction to Computer Science I
- CMP 210 Digital Systems
- CMP 211 Digital Systems Laboratory

- CMP 213 Discrete Structures or MTH 213 Discrete Mathematics
- CMP 220 Introduction to Computer Science II
- CMP 232 Data Structures and Algorithms
- CMP 235 Ethics for Computing and Information Technology
- CMP 240 Introduction to Computer Systems
- CMP 310 Introduction to Operating Systems
- CMP 320 Database Systems
- CMP 321 Programming Languages Laboratory
- CMP 340 Design and Analysis of Algorithms
- CMP 350 Introduction to Software Engineering
- CMP 397 Professional Training in Computer Science
- CMP 416 Internet and Network Computing
- CMP 490 Project in Computer Science I
- CMP 491 Project in Computer Science II
- MTH 221 Linear Algebra
- MTH 341/CMP 341 Computational Methods
- NGN 110 Introduction to Engineering and Computing
- STA 201 Introduction to Statistics for Engineering and Natural Sciences

### Major Electives (12 credits)

Students must complete 12 credits from the following:

- CMP 352 Human-Computer Interaction
- CMP 394 Special Topics in Computer Science
- CMP 412 Introduction to Distributed Systems
- CMP 415 Computer Networks
- CMP 417 Parallel Computing Systems
- CMP 430 Computer Graphics
- CMP 432 Image Processing
- CMP 433 Artificial Intelligence
- CMP 435 Computer Security
- CMP 437 Introduction to Neural Networks
- CMP 450 Object-oriented Software Engineering
- CMP 452 Compiler Construction

- CMP 454 Software Testing and Quality Engineering
- CMP 470 Formal Languages and Computability I
- CMP 472 Multimedia Computing
- CMP 494 Special Topics in Computer Science
- COE 370 Data Communications
- COE 423 Computer Networks II

### Free Electives (12 credits)

Twelve credits of any courses offered at or above the 100 level.

### Minor in Computer Science

Students enrolling in the computer science minor should have normally completed a minimum of 60 credits of course work and be in good academic standing. A minor in computer science is open to all AUS students.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level in computer science.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in computer science must complete the following courses or their equivalent. All course prerequisites must be satisfied.

### Minor Requirements (9-12 credits)

- Requirements for School of Architecture and Design students: CMP 120, CMP 220, CMP 430 and CMP 472
- Requirements for College of Arts and Sciences students: CMP 220, CMP 232 and CMP 340
- Requirements for School of Business and Management students: CMP 220, CMP 232 and CMP 340
- Requirements for School of Engineering students: CMP 321, CMP 340 and CMP 416

### Minor Electives (6-9 credits)

Any computer science courses offered at the 300 level or above. Approval of the chair of the Department of

Computer Science is required.

### Minor in Software Engineering and Security

Students enrolling in the minor in software engineering and security should have normally completed a minimum of 60 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits.
- Free and major electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in software engineering and security must complete the following courses or their equivalent. All course prerequisites must be satisfied.

### Minor Requirements (12 credits)

- CMP 350 Introduction to Software Engineering (equivalent to COE 420)
- CMP 352 Human-Computer Interaction
- CMP 435 Computer Security
- CMP 454 Software Testing and Quality Engineering

### Minor Electives (6 credits)

Six credits of elective courses covering one or more of the following topics: database systems, object-oriented software engineering, specifications methods, software project management and software security.

- CMP 320 Database Systems (equivalent to COE 422)
- CMP 450 Object-Oriented Software Engineering (equivalent to COE 421)
- CMP 494 Special Topics in Computer Science

**Proposed Course Sequence of Study**  
**Bachelor of Science Degree in Computer Science (BSCS)**

FIRST YEAR (32 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	MTH 103	Calculus I	3	MTH 001 or MPT	MJR/GER MTH 1 of 2
	SCI XXX	Science	4		GER SCI 1 of 2
	WRI 101	Academic Writing	3	WRI 001 or EPT 4	GER ELC 1 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 1 of 5
	NGN 110	Introduction to Engineering and Computing	2		MJR
	<b>Total</b>		<b>15</b>		
Spring	MTH 104	Calculus II	3	MTH 103	MJR/GER MTH 2 of 2
	SCI XXX	Science	4		GER SCI 2 of 2
	ARA XXX	Arabic Heritage	3		GER ARA 1 of 1
	WRI 102	Writing and Reading Across the Curriculum	3		GER ELC 2 of 4
	CMP 120	Introduction to Computer Science I	4		MJR
		<b>Total</b>		<b>17</b>	

SECOND YEAR (35 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3	WRI 102	GER ELC 3 of 4
	MTH 221	Linear Algebra	3	MTH 104	MJR
	CMP 210	Digital Systems	3	CMP 120	MJR
	CMP 211	Digital Systems Laboratory	1	pre/con CMP 210 or COE 221	MJR
	CMP 213/MTH 213	Discrete Structures	3	MTH 103	MJR
	CMP 220	Introduction to Computer Science II	3	CMP120; pre/con MTH 103	MJR
	<b>Total</b>		<b>16</b>		
Spring	ELC XXX	English Language Competency	3		GER ELC 4 of 4
	HSS XXX	Humanities/Social Sciences	3		GER HSS 2 of 5
	SCI XXX	Science	4		MJR
	STA 201	Introduction to Statistics	3	MTH 103	MJR
	CMP 232	Data Structures and Algorithms	3	CMP 220; pre/con CMP 213 or MTH 213	MJR
	CMP 235	Ethics for Computing and Information Technology	3	WRI 102	MJR
	<b>Total</b>		<b>19</b>		

THIRD YEAR (33 credit hours)					
Term	Course #	Course Title	Credit	Prerequisite(s)	Fulfills
Fall	HSS XXX	Humanities/Social Sciences	3		GER HSS 3 of 5
	FRE XXX	Free Elective	3		FRE 1 of 4
	CMP 240	Introduction to Computer Systems	3	CMP 210 or COE 221	MJR
	CMP 320	Database Systems	3	CMP 232 or CMP 233 or COE 311	MJR
	CMP 321	Programming Languages Laboratory	3	CMP 232	MJR
	CMP 340	Design and Analysis of Algorithms	3	CMP 232 or COE 311 and STA 201	MJR
		<b>Total</b>		<b>18</b>	
Spring	HSS XXX	Humanities/Social Sciences	3		GER HSS 4 of 5
	CMP 310	Introduction to Operating System	3	CMP 232, CMP 240	MJR
	CMP 341/MTH 341	Computational Methods	3	MTH 221	MJR
	CMP 350	Introduction to Software Engineering	3	CMP 232 or CMP 233 or COE 311	MJR
	CMP XXX	Major Elective	3		MJE 1 of 4
		<b>Total</b>		<b>15</b>	
Summer	CMP 397	Professional Training in Computer Science		approval of training coordinator of major	MJR

FOURTH YEAR (30 credit hours)					
Term	Course	Course	Credit	Prerequisite(s)	Fulfills
Fall	CMP 416	Internet and Network Computing	3	CMP 310 or COE 381, and CMP 320 or COE 422	MJR
	CMP 490	Project in Computer Science I	3	CMP 350 or COE 420	MJR
	CMP XXX	Major Elective	3		MJE 2 of 4
	CMP XXX	Major Elective	3		MJE 3 of 4
	FRE XXX	Free Elective	3		FRE 2 of 4
		<b>Total</b>		<b>15</b>	
Spring	CMP 491	Project in Computer Science II	3	CMP 490	MJR
	HSS XXX	Humanities/Social Sciences	3		GER HSS 5 of 5
	CMP XXX	Major Elective	3		MJE 4 of 4
	FRE XXX	Free Elective	3		FRE 3 of 4
	FRE XXX	Free Elective	3		FRE 4 of 4
		<b>Total</b>		<b>15</b>	

**Abbreviations:** ARA: Arabic Heritage Requirement; con: concurrent; CPT: Computer Placement Test; ELC: English Language Competency Requirement; EPT: English Placement Test; FRE: Free Elective Requirement; GER: General Education Requirement; HSS: Humanities/Social Sciences Requirement; MJE: Major Elective; MJR: Major Requirement; MPT: Mathematics Placement Test; PPT: Physics Placement Test; pre/con: prerequisite/concurrent; SCI: Science Requirement

### Minor in Biomedical Engineering

Hasan Al-Nashash, Coordinator

Biomedical engineering is a multidisciplinary field that combines principles of physics, chemistry and biology with engineering sciences to study and advance knowledge in biology, physiology and human health. A biomedical engineer can develop diagnostic instruments, novel materials, drug delivery systems or informatics, for example. The main objective for a biomedical engineer is to improve the quality of life for patients, and to help in the advancement of health professions.

Students enrolling in the biomedical engineering minor should have normally completed a minimum of 60 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in biomedical engineering must complete the following courses or their equivalent. All course prerequisites must be satisfied.

#### **Minor Requirements (14 credits)**

- BIO 101 General Biology I
- BIO 210 Human Anatomy and Physiology for Engineers
- BME 310 Biomedical Ethics

Two of the following three courses:

- BME 410 Biomedical Systems Modeling I
- BME 420 Biomedical Electronics I
- BME 430 Biomechanics

#### **Minor Electives (4 credits)**

Four credits of elective courses covering one or more of the following topics: nanotechnology, biomedical systems modeling, biomedical electronics, biomechanics simulation, biomaterials, biothermofluids,

biomedical imaging and bioinformatics.

- BME 494 Special Topics in Biomedical Engineering (1 to 4 credits)
- BME 496 Independent Study in Biomedical Engineering (1 to 4 credits)
- COE 412 Embedded Systems (3 credits)
- ELE 455 Digital Image Processing (3 credits)

### Minor in Engineering Management

Hazim El-Baz, Coordinator

The engineering management minor provides students the opportunity to learn how to manage major engineering projects. The content of the courses offered in the minor is a unique blend of engineering tools and business management skills.

Students enrolling in the engineering management minor should have normally completed a minimum of 60 credits of course work and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least nine credits in courses at or above the 300 level in engineering management.
- Free electives can be taken toward the minor.
- At least nine credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and an average GPA of at least 2.0 must be earned in courses taken to satisfy the minor.

Students seeking a minor in engineering management must complete the following courses or their equivalent. All course prerequisites have to be satisfied.

#### **Minor Requirements (12 credits)**

- ECO 201 Principles of Microeconomics
- EGM 362 Management for Engineers
- EGM 364 Engineering Project Management
- EGM 464 Engineering Economy

#### **Minor Electives (6 credits)**

- ACC 201 Fundamentals of Financial Accounting
- CHE 470 Waste Management and

Control in Chemical Engineering

- COE 420 Software Engineering (equivalent to CMP 350)
- CVE 463 Construction Management
- ECO 202 Principles of Macroeconomics
- EGM 463 Quantitative Engineering Management
- EGM 465 Quality Engineering
- EGM 494 Special Topics in Engineering Management
- ELE 483 Power System Operations
- FIN 201 Fundamentals of Financial Management
- MCE 450 Energy Conservation and Management

# AUS



# College of Arts and Sciences

## ARA Arabic

### Arabic Language

**ARA 104 Arabic as a Second Language I (3-0-3).** (Formerly ARA 100). (in Arabic and English) Introduces students to the script of modern written Arabic and develops their confidence and knowledge in the four skill areas. Materials are designed using a modern approach to foreign language teaching. Does not satisfy the Arabic heritage requirement. Graded on a Pass/Fail basis.

**ARA 200 Arabic as a Second Language II (3-0-3).** (in Arabic and English) Builds upon the language skills developed in ARA 104 to further extend students' knowledge and proficiency in modern Arabic. Does not satisfy the Arabic heritage requirement. Graded on a Pass/Fail basis. Prerequisite: ARA 104 or permission of the instructor.

**ARA 210 Composition for Native Speakers of Arabic (3-0-3).** (Formerly ARA 103). (in Arabic) Aims to develop the writing skills of the native speaker of Arabic. Develops themes such as letter writing and gives attention to the development of personal style. Takes a historical look at styles of composition in Arabic.

**ARA 220 Composition for Non-Native Speakers of Arabic (3-0-3).** (in Arabic and English) Aims to develop the writing skills of non-native speakers of Arabic. Develops themes such as letter writing and gives attention to the development of different styles in modern and contemporary Arabic writings. Prerequisite/concurrent: ARA 200.

**ARA 294 Special Topics in Arabic Language (1 to 4 credits).** (in Arabic and English) Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**ARA 300 Arabic as a Second Language III (3-0-3).** (in Arabic and English) Builds on the earlier Arabic courses using materials that are more advanced. Video materials that build on grammatical structures and conversational skills practiced in earlier courses will be used as the focus for this course. Does not satisfy the Arabic heritage requirement.

**ARA 309 Business Arabic (3-0-3).** (in Arabic and English) Develops students' abilities in reading and writing Arabic-language business documents and proposals. Teaches Arabic speaking and listening skills necessary for effective communication in the business world. Prerequisite: ARA 200 or ARA 210. Does not satisfy the Arabic heritage requirement.

**ARA 314 Media Arabic (3-0-3).** (in Arabic and English) Teaches and practices the language skills necessary to comprehend and contribute to a wide range of Arabic-language media. Prerequisite: ARA 200 or ARA 210. Does not satisfy the Arabic heritage requirement.

**ARA 340 The Social Context of Arabic (3-0-3).** (in English) Discusses language issues in the Arab world by relating language to national identity. Identifies and characterizes sociopolitical problems related to the development of Modern Standard Arabic in the Arab world today and how they affect language planning, literacy development and evolution of MSA. Prerequisite: ENG 203 or ENG 204.

**ARA 394 Special Topics in Arabic Language (1 to 4 credits).** (in Arabic and English) Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**ARA 404 Working with MSA Texts (3-0-3).** (in Arabic and English) Builds on the earlier Arabic courses using materials that are more advanced. Modern Standard Arabic texts (political,

economic and social) will be used to develop further the grammatical structures and the four skills practiced in earlier courses. The course will cover advanced language competency and skills such as skimming, summarizing, paraphrasing and extended writing. Prerequisite: permission of advisor. Does not satisfy the Arabic heritage requirement.

**ARA 494 Special Topics in Arabic Language (1 to 4 credits).** (in Arabic and English) Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**ARA 496 Independent Study in English Language (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: senior standing and approval of instructor.

### Arabic Literature

**ARA 101 and 102 Readings in Arabic Heritage (3-0-3).** (in Arabic and English) Surveys selections from writings in Arabic prose, literature and poetry that reflect the intellectual, literary and cultural development of the Arabs from pre-Islamic times up to the present day. Prerequisite/concurrent for ARA 101 (English): WRI 102.

**ARA 201 Arabic Literature in Translation (3-0-3).** (in English) Provides a detailed study of genre and theme in Arabic literature with special emphasis on the modern period. Prerequisite: WRI 102.

**ARA 202 Arab-Islamic History and the History of Arabic Literature (3-0-3).** (in English) Designed to illustrate the essential facts of Arab history. This very intensive and wide-ranging survey course focuses on the landmarks of Arabic literature from pre-Islamic to

modern times and provides glimpses of the literary fruits borne within that milieu. Prerequisite: WRI 102.

**ARA 206 Modern Arabic Prose (3-0-3).** (in Arabic) Surveys the renaissance of Arabic prose from the 19th century to the present. Probes and examines in the modern Arabic novel, short story, play and autobiography. The rise of these fundamentally Western literary forms in the Arab world as a result of the “Nahda.” Prerequisite: WRI 102.

**ARA 207 Arabic Drama (3-0-3).** (in Arabic) Looks at the emergence of Arabic drama in the 19th century until the present day and assesses prototype drama forms of the medieval period. Through a study of selected plays by prominent authors, a picture will emerge of the influence of Arabic drama on Arabic literature. Prerequisite: WRI 102.

**ARA 213 Contemporary Arabic Literature (3-0-3).** (in Arabic) Surveys modern and postmodern Arabic fiction, drama, poetry and criticism. Themes include love, death, exile, and social and political concerns. Examines the nexus between literary works and contemporary Arab life. Prerequisite: WRI 102.

**ARA 294 Special Topics in Arabic Literature (1 to 4 credits).** (in Arabic and English) Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**ARA 302 Arab Identity & Thought (3-0-3).** (in English) (Formerly CSC 302) Examines representative writings by Arab authors dealing with Arab identity formation in relation to or in opposition to other nations and cultures. WRI 102

**ARA 303 Classical Arab/Islamic Culture (3-0-3).** (Cross-listed as CSC 303). (in English) Explores the ways in which Islam has shaped the history and culture of the Arabs and discusses some of the significant features of Arab/Islamic culture and the several contributions this culture has made. Prerequisite: WRI 102.

**ARA 304 Modern Arabic Poetry (3-0-3).** (in Arabic) Surveys the

renaissance of Arabic poetry from the 19th century to the present. Prerequisite: WRI 102.

**ARA 310 Images of America in Arabic Literature and Film (3-0-3).** (in English) Discusses the way in which America and the Americans have been portrayed in the Arabic travel accounts, Arab mass media, films, plays and cartoons from the 1890s to present. Prerequisite: WRI 102.

**ARA 312 Modern Arabic Literature: Prose and Poetry (3-0-3).** (in Arabic) Surveys the renaissance (Nahda) of Arabic literature from the early 20th century to the present. Illustrates contemporary literary trends such as neo-classicism, romanticism and modernism through the study of selected novels, short stories, drama and poetry. Prerequisite: WRI 102.

**ARA 394 Special Topics in Arabic Literature (1 to 4 credits).** (in Arabic and English) Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**ARA 401 Literary Criticism from the Arab Perspective (3-0-3).** (in Arabic) Surveys the history of literary criticism in Arabic literature from the classical period to the present. Prerequisite: WRI 102.

**ARA 405 Literature of the Arabian Gulf (3-0-3).** Delete: [(Formerly ARA 305)]. (in Arabic) Examines the contribution of literary figures in the Arabian Gulf, especially those of the United Arab Emirates, to Arabic literature in general. Prerequisite: ARA 213.

**ARA 494 Special Topics in Arabic Literature (1 to 4 credits).** (in Arabic and English) Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**ARA 496 Independent Study in English Literature (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision

beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: senior standing and approval of instructor.

## AMS American Studies

**AMS 294 Special Topics in American Studies (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**AMS 394 Special Topics in American Studies (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**AMS 494 Special Topics in American Studies (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**AMS 496 Independent Study in American Studies (1 to 4 credits).**

Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: senior standing and approval of instructor.

## BIO Biology

**BIO 101 General Biology I (3-3-4).** Covers the molecular basis of life, the carbon atom, cells, organelles, plant and animal physiology, genetics, speciation, evolution, the origins of life and bacteriology. Designed to give students an in-depth study of biology that will prepare them for a profession in biology. Lab/Tech fee rate A applies.

**BIO 102 General Biology II (3-3-4).** Covers plant and animal diversity, animal evolution, plant and animal form

and function, body systems, animal behavior, ecology and conservation biology. Designed to give students an in-depth study of organism biology that will prepare them for a profession in biology. Prerequisite: BIO 101. Lab/Tech fee rate A applies.

**BIO 103 Introduction to Life Sciences (3-0-3).** Surveys biological concepts with a strong emphasis on human biology. Topics include the scientific method, biochemistry, cell biology, functions and dysfunctions of the human organ systems, and a strong emphasis on maintaining a healthy lifestyle. Not open to science or engineering students.

**BIO 210 Human Anatomy and physiology for Engineers (3-0-3).** Provides a basic foundation in human anatomy and physiology with an emphasis on the normal functions of the major human organ systems. Current literature on some human diseases resulting from dysfunction are also discussed. Prerequisite: BIO 101.

**BIO 251 Environmental Ecology (2-3-3).** (Cross-listed as ENV 251). Deals with the general principles of ecology with an emphasis on desert ecology and conservation. Students will learn from case studies that illustrate important ecological principles. Laboratory exercises emphasize basic field ecology techniques, experimental design, data collection, modeling and analysis. Two professional quality written reports are required. Prerequisite: BIO 102. Lab/Tech fee rate A applies.

**BIO 260 Genetics (3-0-3).** Covers the general principles of genetics from Mendelian to modern molecular genetics, including genetic engineering, the human genome project and genetics in medicine, agriculture and law enforcement. The student will also obtain a strong understanding of genetic principles as applied to population dynamics, behavior, conservation and evolution. Prerequisite: BIO 102.

**BIO 294 Special Topics in Biology (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**BIO 330 Ecosystems Management (3-0-3).** (Formerly BIO 230). Focuses on the policies of ecosystems management from a scientific and natural approach. Special attention will be given to current research and case studies of organism adaptations and roles in specific habitats and adverse environments, and to formulate approaches and policies most suitable for the management of natural, restored and artificial ecosystems. Management practices will be reviewed in light of current scientific and sociobiological understanding of biodiversity, conservation and sustainability. Prerequisite: ENV 251 or BIO 251.

**BIO 335 Environmental Microbiology (3-3-4).** (Cross-listed as ENV 335). Covers the biology of microorganisms (viruses, bacteria, fungi and helminthes). It emphasizes the role they play in our lives in the environment, pathology, industry, bioremediation and health. Students will learn sterile techniques, how to culture and identify bacteria and how to control them in clinical, personal and environmental settings. Prerequisite: BIO 101. Lab/Tech fee rate A applies.

**BIO 361 Evolution and Biodiversity (3-0-3).** (Cross-listed as ENV 361). Introduces principles of evolution as applied to all organisms. Covers the origins of life, the history of evolution, biogeography, population genetics, speciation, phylogenetic analysis, human evolution and applications to current problems in agriculture, species conservation, population dynamics and the effects of environmental change. Prerequisite: BIO 260.

**BIO 394 Special Topics in Biology (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**BIO 421 Aquatic Environments (2-3-3).** (Cross-listed as ENV 421). Focuses on interactions between biological, chemical and physical processes in marine environments. Strong emphasis is placed on marine ecology and local fauna of the Gulf region. Topics include marine physics

and chemistry and their importance to marine biology, oceanic plankton and nekton, deep-water biology, coastal habitats, energy flow, fisheries and marine conservation issues. Prerequisite: ENV 251 or BIO 251. Lab/Tech fee rate A applies.

**BIO 461 Desert and Maritime Plants (3-0-3).** Gives students a good working knowledge of the desert and maritime plants that are unique to the United Arab Emirates. Also familiarizes them with the proper taxonomy and identification of species, as well as provides knowledge about the environment in which they grow. Emphasis will be on the adaptations of plant species to the special stresses plants encounter in the hot, dry and often salty environments found in this region. Prerequisite: BIO 251 or ENV 251.

**BIO 494 Special Topics in Biology (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**BIO 496 Independent Study in Biology (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: senior standing and approval of instructor.

## CHM Chemistry

**CHM 101 General Chemistry I (3-3-4).** Covers the fundamental practical principles, concepts and laws. Topics include reaction stoichiometry, types of chemical reactions, solution stoichiometry, gas laws, kinetic theory of gases, thermochemistry, atomic structure and periodicity, the Bohr model, Lewis structures, ionic and covalent bonding. Laboratory experiments illustrate principles discussed in the course. Lab/Tech fee rate A applies.

**CHM 102 General Chemistry II (3-3-4).** Covers the solid state and

crystallography, the liquid state and phase diagrams, properties of solutions, including colligative and chemical properties; reaction kinetics, acid-base and complex ion equilibria; laws of thermodynamics; enthalpy and free energy; electrochemistry and nuclear chemistry. Laboratory includes experiments illustrating principles discussed in the course. Prerequisite: CHM 101. Lab/Tech fee rate A applies.

**CHM 103 Chemistry and Everyday Life (3-0-3).** Introduces the fundamental principles of chemistry and the role of chemistry in everyday activities. Topics include chemistry of the nucleus and the atomic bomb, acids and bases, petroleum products, environmental chemistry, perfumes, cosmetics, soaps and detergents, chemistry in the kitchen, food additives and food coloring, pesticides, toxins and poisons, chemistry of the mind, forensic chemistry and DNA finger printing. Not open to science or engineering students.

**CHM 105 Chemistry and the Environment (3-0-3).** Covers topics related to air and energy, toxic substances, water and waste treatment. Special attention is paid to the ozone layer, ground level pollution, air and marine pollution, heavy metals in soil, global warming and environmental impact of energy production. Learning activities include projects, web searches, and demonstrations. Not open to science or engineering students.

**CHM 215 Organic Chemistry I (3-0-3).** Surveys reactions of aliphatic and aromatic compounds including modern concepts of bonding, mechanisms, conformational analysis and stereochemistry. Topics include alkanes and cycloalkanes, alkenes, alkynes, biologically active acetylenic compounds, electrophilic and nucleophilic reactions, resonance, alkyl halides, SN1, SN2, E1 and E2 mechanisms. Prerequisite/concurrent: CHM 102.

**CHM 216 Organic Chemistry II (3-0-3).** Deals with modern spectroscopic techniques for structure determination; chemistry of oxygen and nitrogen compounds; and chemistry of alcohols, ethers, carbonyl compounds and amines.

Special attention is given to mechanistic aspects. Prerequisite: CHM 215.

**CHM 217 Organic Chemistry Laboratory I (0-4-1).** (Formerly CHM 215L) Includes experiments on purification, separation and identification techniques. It also includes synthesis of various organic compounds. Prerequisite: CHM 215. Lab/Tech fee rate A applies.

**CHM 218 Organic Chemistry Laboratory II (0-4-1).** (Formerly CHM 216L) Includes experiments related to the theoretical principles and synthetic methods of modern organic chemistry. Prerequisites: CHM 216 and CHM 217. Lab/Tech fee rate A applies.

**CHM 241 Quantitative Analysis (2-3-3).** Introduces the basic theories underlying analytical methods of chemical analysis. Covers fundamentals and applications of electrochemistry; compleximetric titrations; spectrophotometry; gravimetric and combustion analysis. Special attention is given to analysis of environmental samples. The laboratory component deals with a variety of analytical techniques. Prerequisite: CHM 102.

**CHM 294 Special Topics in Chemistry (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**CHM 315 Organic Chemistry III (3-0-3).** Covers chemistry and reactions of b-dicarbonyl compounds, neighboring group effects, phenols, aryl halides, electrocyclic and cycloaddition reactions, thiols, reactions and synthesis of heterocyclic amines, alkaloids, carbohydrates, lipids, amino acids and proteins. Prerequisite: CHM 216.

**CHM 321 Chemistry of Transition Metals (3-3-4).** Covers principles and applications of transition metal chemistry. Topics include coordination chemistry, group theory, organometallic reaction mechanisms, electrochemistry, photochemistry, bioinorganic chemistry, catalysis and applications to organic synthesis. In the practical part, typical inorganic complexes of some non-transition and transition elements

are prepared and characterized using physical methods and spectroscopic techniques. Prerequisite: ENV 231. Lab/Tech fee rate A applies.

**CHM 330 Physical Chemistry I(3-0-3).** (Formerly CHM 231). Investigates in depth the basic concepts of thermodynamics. The properties of gases are analyzed as the basis for the study of the laws of thermodynamics, which are applied to questions of chemical equilibrium, phases and solutions, phase equilibrium and other applications. Prerequisites: CHM 102 and MTH 104.

**CHM 331 Physical Chemistry II (3-0-3).** Covers kinetics, electrochemistry, surface chemistry and transport properties. In kinetics, the emphasis is on the theory of reaction rates and methods of handling kinetic data. The electrochemical section examines the conventions, underlying theory and practical applications of electrochemical cells. Prerequisite: CHM 330 or CHE 303.

**CHM 332 Physical Chemistry III (3-0-3).** Comprises three parts: quantum mechanics (structure of the atom, simple quantum mechanical systems, H-atom, harmonic oscillator and angular momentum); chemical spectroscopy (atomic spectrum, IR spectroscopy and electronic spectra of molecules); and statistical mechanics (Maxwell's distribution, partition and thermodynamic functions). Prerequisite: CHM 331.

**CHM 335 Physical Chemistry Laboratory (1-5-2).** Comprises individually performed experiments. Topics in this advanced laboratory include thermodynamics, kinetics, electrochemistry, surface chemistry and transport phenomena. An original report is submitted after each experiment, including sample calculations and error analysis. Prerequisite/concurrent: CHM 331. Lab/Tech fee rate B applies.

**CHM 394 Special Topics in Chemistry (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**CHM 415 Spectroscopy in Organic Chemistry (3-0-3).** Deals with modern methods of structure determination employing spectroscopic techniques and stereochemistry. Topics include infrared spectroscopy of organic functional groups; nuclear magnetic spectroscopy (NMR) (chemical shifts, coupling constants, first and second order spectra, two-dimensional spectroscopic methods); ultraviolet spectroscopy, its origin and applications to different chromophores; mass spectrometry (spectrum generation, interpretation and fragmentation patterns of various classes of organic compounds); and solving combined structure problems. Prerequisite: CHM 216.

**CHM 431 Biophysical Chemistry (3-0-3).** Deals with the physical chemistry of biological and biochemical molecules. Covers applications of chemical potential to membranes; multiple equilibria in biochemical systems; binding of small molecules and ions to macromolecules; cooperative phenomena; types of molecular weights; transport process (diffusion, sedimentation, viscosity, and electrophoresis); polarography; light scattering; enzyme kinetics and pharmacokinetics; the physical chemistry of nucleic acids; the relation between structure and function of biological macromolecules; and conformational transitions. Prerequisite: CHM 331.

**CHM 445 Instrumental Analysis (2-3-3).** Introduces modern instrumental methods of analysis utilized by scientists, environmentalists and engineers. Provides an understanding of the principles, laws and operation of modern instrumentation. This includes molecular and optical spectroscopy, flame and plasma absorption spectroscopy, electrochemical and analytical methods, thermal methods, separation and chromatographic techniques, and mass spectroscopy. Prerequisite: CHM 102. Lab/Tech fee rate B applies.

**CHM 494 Special Topics in Chemistry (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for

credit. Prerequisite: junior standing and topic specific. Lab/Tech fee may apply.

**CHM 496 Independent Study in Chemistry (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: senior standing and approval of instructor.

## CSC Cultural Studies

**CSC 201 Western Cultural Studies (3-0-3).** Introduces the student to the basic doctrines and concepts of Western civilization. Covers reading material from the Renaissance to modern times, focusing on selections from the great books that have made Western civilization what it is. Deals with readings that cover theology, politics, science and literature. Prerequisite: WRI 102.

**CSC 205 World Cultures (3-0-3).** Explores the varied cultures of the world. Students acquire an appreciation for the critical importance of societal culture as a tool of human survival. The course provides the framework for an appreciation of cultural differences and similarities and thereby increases understanding of the complex world with which we must cope. Prerequisite/concurrent: WRI 102.

**CSC 294 Special Topics in Cultural Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech may apply.

**CSC 303 Classical Arab/Islamic Culture (3-0-3).** (Cross-listed as ARA 303). Explores the ways in which Islam has shaped the history and culture of the Arabs and discusses some of the significant features of Arab/Islamic culture and the several contributions this culture had made. Prerequisite: WRI 102.

**CSC 394 Special Topics in Cultural Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated

for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**CSC 402 Qur'anic Studies (3-0-3).** (Formerly ARA 402). Examines select issues studied in 'Ulum al-Qur'an. Compares sacred texts of other religions. Basic understanding of Qur'anic script is necessary. Prerequisites: ARA 101 and ENG 203 or ENG 204.

**CSC 494 Special Topics in Cultural Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**CSC 496 Independent Study in Cultural Studies (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: senior standing and approval of instructor.

## EDU Education

**EDU 210 Philosophy of Education (3-0-3).** Focuses on the aims and purposes of education and traces the development of education and the concept of schooling from Plato and Confucius to contemporary educational thinkers. Special attention is paid to issues of current educational concern including gender and educational values. Prerequisite: WRI 102.

**EDU 220 Introduction to Teaching (3-0-3).** Introduces students to the basic issues important to the teaching profession. Topics covered include effective teaching practices such as planning, classroom organization, behavior management and use of technology in the classroom. Other issues in teaching including motivation, leadership and multicultural and international education will also be explored. Prerequisite: WRI 102.

**EDU 294 Special Topics in Education (1 to 4 credits).** Explores a theoretical or practical topic proposed by the

faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**EDU 394 Special Topics in Education (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**EDU 494 Special Topics in Education (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**EDU 496 Independent Study in Education (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: senior standing and approval of instructor.

## ENG English English Language

**ENG 203 Writing about Literature (3-0-3).** (Formerly COM 203) Builds upon the skills acquired in WRI 102 to develop further students' critical thinking and academic writing competencies. Students read short stories, poetry and drama and produce a research paper using analytical and critical skills in response to literary texts. Prerequisite: WRI 102.

**ENG 204 Advanced Academic Writing (3-0-3).** (formerly COM 204) Builds upon the skills acquired in WRI 102 to develop further students' critical thinking and academic writing competencies. Students read and respond to a variety of texts from different disciplines and produce a research paper using analytical and critical skills in response to non-literary texts. Prerequisite: WRI 102.

**ENG 207 English for Engineering**

**(3-0-3).** (Formerly COM 207) Intended for engineering students only. Introduces students to English used for communication in their field with a special emphasis on writing and presenting technical reports. Prerequisites: ENG 204 and junior standing.

**ENG 208 Public Speaking (3-0-3).** (Formerly COM 208) Introduces students to the art of public speaking, debate and argument. Students gain confidence as public speakers by learning the techniques of making effective presentations and by gaining extensive practice in public speaking. Prerequisite: ENG 203 or ENG 204 or ENG 231 or MCM 231.

**ENG 223 Introduction to Language Study (3-0-3).** Defines language and how it works. Leads students to examine their own beliefs and attitudes about language and provides them with techniques of language analysis. Topics covered include grammar and appropriate usage, oral vs. written language, formal vs. informal language, standard vs. non-standard languages, language universals and language typology. Prerequisite: WRI 102.

**ENG 224 English Grammar (3-0-3).** Focuses on the fundamental rules of English grammar as they relate to sentence structure and function. Students also learn about different systems of analysis, including an introduction to the analysis of texts. Prerequisite: WRI 102.

**ENG 225 Writing for Business (3-0-3).** (Formerly COM 225) Aims to develop students' skills in writing business documents such as CVs, correspondence, memoranda, short and long reports, and proposals necessary to communicate effectively in the business world. Prerequisites: ENG 203 or ENG 204 and junior standing.

**ENG 226 Development of the English Language (3-0-3).** Traces the development of the English language from its Indo-European roots to the present day. Emphasizes linguistic change in English throughout its history. Prerequisite: WRI 102.

**ENG 231 Writing for Visual Media (3-0-3).** (Formerly COM 231) Introduces students to existing and

emerging communication technology and examines its impact on the communication process. This course also prepares students to manage the process of designing documents, from the planning stage through final production. Students learn basic rhetorical principles and apply them by writing articles, stories and advertising copy. Prerequisites: ENG 203 or ENG 204 and junior standing.

**ENG 234 Language in Society (3-0-3).** Introduces the student to the sociolinguistic approach to language. Focuses on how language structure and language use are interrelated and also examines variables responsible for language variation within a speech community. Definitions of language, dialect, diglossia and multilingualism are explored. Prerequisite: WRI 102.

**ENG 294 Special Topics in English Language (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply).

**ENG 302 Stylistics (3-0-3).** Examines the essential concepts and techniques of literary stylistics. Uses selected literary texts to illustrate and explain a variety of English language structures. Prerequisite: ENG 203 or ENG 204.

**ENG 320 Intercultural Communication (3-0-3).** (Formerly COM 220) (Cross-listed as MCM 320). Provides an overview of world cultural literacy and shows how cultures influence communication. Students acquire broad knowledge about the interrelation of the humanities, music, mythology, art, theatre, history and science. Prerequisite: ENG 203 or ENG 204.

**ENG 331 The Sound Patterns of Language (3-0-3).** Examines the nature of the rules governing the sound system of language with special emphasis on English. Introduces the study of the physiology of speech production and phonetic transcription through practical exercises. Students also examine inflectional and derivational rules in language and study word formation processes. Prerequisite: ENG 223 or ENG 224

**ENG 332 The Psychology of Language (3-0-3).** Introduces the study of the psychology of language by exploring the relationship between language and the mind. Examines processes involved in comprehension, production and acquisition of language, and initiates students to research techniques and linguistic data collection. Prerequisite: ENG 223 or ENG 224.

**ENG 394 Special Topics in English Language (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**ENG 401 Advanced English Grammar (3-0-3).** (Cross-listed as ELT 501). Provides an intensive investigation into contemporary English sentence structure, function and meaning. It also analyzes how structure types and sentence relationships are realized in various texts and genres. In addition, the course discusses issues relative to descriptive/prescriptive approaches to language. Prerequisite: ENG 223 or ENG 224 or TRA220.

**ENG 405 Discourse Analysis (3-0-3).** Looks at the interpretation of meaning situated beyond the level of the sentence. To achieve a better understanding of how language works as a communication medium, the role of notions such as background knowledge, cohesion and coherence in texts and conversational interaction are examined. Prerequisite: ENG 223 or ENG 224.

**ENG 494 Special Topics in English Language (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**ENG 495 Seminar in English (3-0-3).** Focuses on various topics in English language or English literature. Prerequisite: junior standing.

**ENG 496 Independent Study in English (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what

is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## English Literature

**ENG 202 English Poetry and Prose I: Beginnings to 1800 (3-0-3).** Surveys English poetry and prose from the Anglo-Saxon, Medieval, Renaissance, Restoration and the Age of Reason literary periods. Representative texts are studied in relationship to their social, political and historical background. Prerequisite: ENG 203 or ENG 204.

**ENG 210 Introduction to Literature (3-0-3).** Focuses on the study of fiction, poetry or drama and shows how writers use the basic elements of their craft to convey their insights into human nature. Whatever genre is featured in a given semester, the course will focus primarily on accessible modern and contemporary work. Designed for non-majors who need to fulfill their English language competency requirement or humanities requirement as well as for English majors. Prerequisite: ENG 203 or ENG 204.

**ENG 214 Nineteenth Century American Literature (3-0-3).** Examines American literature from the colonial period to 1900, concentrating on the philosophical, social and political issues that shaped the styles and ideas of such writers as Franklin, Poe, Emerson, Thoreau, Dickinson, Whitman and Twain. Prerequisite: ENG 203 or ENG 204.

**ENG 215 Contemporary World Literature (3-0-3).** Introduces students to contemporary literary movements such as postmodernism, magic realism, feminism, regionalism and postmodernism. Students study the works of major international writers such as Grass, Calvino, Kundera, Allende, Mahfouz, Mimouni and Soyenka. Works studied will be written in or translated into English. Prerequisite: ENG 203 or ENG 204.

**ENG 294 Special Topics in English Literature (1 to 4 credits).** Explores a

theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**ENG 300 Introduction to Literary Theory (3-0-3).** Highlights a variety of 20th century critical practices and theoretical approaches to the study of literature. Offers practical applications of the theoretical texts under examination. Prerequisite: ENG 202 or ENG 210 or ENG 214 or ENG 215.

**ENG 301 Creative Writing (3-0-3).** (Formerly ENG 201). Introduces the basic elements of writing and evaluating poetry, fiction and creative non-fiction. Students submit at least 20 pages of material suitable for inclusion in the student literary magazine. Prerequisite: ENG 203 or ENG 204.

**ENG 303 English Renaissance Drama (3-0-3).** Examines works by both Shakespeare and other major dramatists of his time. Focuses on at least three Shakespearean plays, a history play, a comedy, and a tragedy, considering the work in the context of such contemporary playwrights as Marlowe and Jonson. Prerequisite: ENG 203 or ENG 204.

**ENG 313 English Poetry and Prose II: 1800 to Present (3-0-3).** (Formerly ENG 213). Surveys English poetry, prose and drama from the Romantic, Victorian and Modern literary periods. Representative texts are studied in relationship to their social, political and historical background. Prerequisite: ENG 203 or ENG 204.

**ENG 314 Twentieth Century American Literature (3-0-3).** Examines American literature from 1900 to the present, concentrating on the philosophical, social and political issues that shaped the work of writers. Discusses the changing form and content of American fiction, drama, poetry and essay, as well as relevant literary theories. Prerequisite: ENG 203 or ENG 204.

**ENG 315 East Meets West: Colonial and Post-Colonial Encounters (3-0-3).** Examines the representations of the Middle East, India, China and North

Africa in the works of North American and European writers. Addresses the responses to and representations of Westerners by non-Western writers. Prerequisite: ENG 202 or ENG 210 or ENG 213 or ENG 214 or ENG 215.

**ENG 316 Modern Drama and Beyond (3-0-3).** (Formerly ENG 216). Introduces students to developments in drama from the modern period to the present. Exposes students to major literary developments in drama such as realism, theater of the absurd, epic theater and various types of experimental and contemporary theater. Prerequisite: ENG 203 or ENG 204.

**ENG 378 Literature as Film (3-0-3).** (Cross-listed as MCM 378). Uses literary works and their cinematic adaptations to introduce students to film theory ideas and their parallel techniques in literature. Prerequisite: ENG 203 or ENG 204.

**ENG 393 Shakespeare on Film (3-0-3).** (Cross-listed as MCM 393). Uses an interdisciplinary approach (incorporating English literature and media/film studies) to teach how to synthesize elements of film theory and literary criticism and incorporate them into a series of research papers. Prerequisite: ENG 203 or ENG 204.

**ENG 394 Special Topics in English Literature (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**ENG 410 The American Novel (3-0-3).** (Formerly ENG 309). Examines the styles and concerns of the American novel from the 19th century to the present and includes representative examples of such national and international literary movements as romanticism, realism, modernism, postmodernism and magic realism, with particular emphasis on how American novelists adapted these styles to suit their own society and culture. Prerequisite: ENG 210 or ENG 214 or ENG 215 or ENG 314.

**ENG 421 Early English Novel (3-0-3).** (Formerly ENG 420 ). Traces the

development of the novel from its rise in the early 18th century to its flowering in the great realistic novels of the 19th century. Prerequisite: ENG 202 or ENG 210 or ENG 215 or ENG 313.

**ENG 430 Modern British Novel (3-0-3).** (Formerly ENG 313). Examines trends in the 20th century British novel, including such literary movements as realism, modernism and postmodernism. Prerequisite: ENG 202 or ENG 210 or ENG 215 or ENG 313.

**ENG 490 Senior Research Project (3-0-3).** Focuses on the study of a literary movement or literary writer of the student's and professor's choice and the writing of a long critical paper or creative work on this writer or movement or in response to a specific literary problem. Prerequisite: senior standing.

**ENG 494 Special Topics in English Literature (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**ENG 495 Seminar in English (3-0-3).** Focuses on various topics in English language or English literature. Prerequisite: junior standing.

**ENG 496 Independent Study in English (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## ENV Environmental Science

**ENV 100 Principles of Environmental Science (3-0-3).** Introduces the basic principles of environmental science. Main topics include: the scientific method, structure of matter, energy principles, ecological concepts, organisms interactions, communities and ecosystems, population dynamics, energy sources, biodiversity, human activities and the environment, managed

ecosystems, water management, air quality, solid waste management. Not open to engineering and science students.

**ENV 101 Introduction to Environmental Science (3-0-3).** Combines ideas and information from chemical, physical and biological disciplines. Students will acquire knowledge on how nature works and how environmental systems are interconnected. This course employs scientific laws, principles and concepts to help understand environmental and resource problems and their possible solutions. Connections are made between natural systems and environmental issues using different physical science perspectives. The information presented in this course will ultimately be related to real-world environmental problems. Prerequisites: CHM 101.

**ENV 231 Transition Metals and their Compounds in the Environment (3-0-3).** Introduces the basic principles of bonding, stereochemistry, and reactivity of transition metals and their compounds; surveys coordination compounds that occur in, or have relevance to, natural processes of the environment; and discusses applications of coordination compounds in the environment, with emphasis on catalysis, enzymes, biological activity and pollution. Prerequisite: CHM 102.

**ENV 251 Environmental Ecology (2-3-3).** (Cross-listed as BIO 251). Deals with the general principles of ecology with an emphasis on desert ecology and conservation. Students will learn from case studies that illustrate important ecological principles. Laboratory exercises emphasize basic field ecology techniques, experimental design, data collection, modeling and analysis. Two professional-quality written reports are required. Prerequisite: BIO 102. Lab/Tech fee rate A applies.

**ENV 252 Environmental Chemistry (3-0-3).** Investigates in detail the interaction between natural systems and human activity. The following topics are emphasized: aquatic chemistry, with special attention paid to water pollution and water treatment; atmospheric

chemistry, with emphasis on air pollution, protection of the atmospheric environment and global atmosphere problems; soil chemistry; and sources and treatment of hazardous wastes. Local and regional pollution problems are emphasized and investigated in detail. Prerequisite: CHM 102.

**ENV 261 Physical Geography (3-0-3).** Covers the physical aspects of the geographic environment. Topics include cartography and geographic information systems, the global energy balance, air temperature and pressure, atmospheric moisture content and precipitation, global wind circulation, weather systems, earth materials, forming and weathering processes, water cycling, fluvial processes and landforms. Prerequisite: PHY 101 or CHM 101.

**ENV 294 Special Topics in Environmental Science (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**ENV 311 Environmental Modeling (3-0-3).** Deals with the study, collection, evaluation and interpretation of data and the modeling and analysis of urban and environmental problems. Topics include population, pollution, mass transportation systems and climate modeling. Prerequisite: MTH 104 and ENV 252.

**ENV 335 Environmental Microbiology (3-3-4).** (Cross-listed as BIO 335). Covers the biology of microorganisms (viruses, bacteria, fungi and helminthes). It emphasizes the role they play in our lives in the environment, pathology, industry, bioremediation and health. Students will learn sterile techniques, how to culture and identify bacteria and how to control them in clinical, personal and environmental settings. Prerequisite: BIO 101. Lab/Tech fee rate A applies.

**ENV 351 Environmental Monitoring and Analysis Techniques (2-3-3).** Provides students with an extensive understanding of sampling, storage, preservation and analytical techniques critical in obtaining quality data for environmental monitoring of

pollutants in each component of the environment. The interrelationship of these components and their importance to ecosystems will be stressed along with the difficulties in environmental sampling. Standard methods for the examination of environmental samples will be provided and applied in practical application for all compartments of the environment. Field trips will be taken to collect samples for characterization of water and soil quality in local areas. Prerequisites: ENV 252, CHM 241 and STA 201. Lab/Tech fee rate B applies.

**ENV 352 Environmental Toxicology (3-0-3).** Combines principles of chemistry, biochemistry, biology and environmental science. The basic principles of environmental toxicology, including toxicant fate, bioavailability, and biochemistry; dose-response relationships, toxicity testing, and species sensitivity distributions; and individual, population, and community effects are discussed. Principles of risk assessment and risk management of toxicants are briefly covered. Prerequisites: CHM 215 and ENV 252.

**ENV 361 Evolution and Biodiversity (3-0-3).** (Cross-listed as BIO 361). Introduces principles of evolution as applied to all organisms. The course covers the origins of life, the history of evolution, biogeography, population genetics, speciation, phylogenetic analysis, human evolution and applications to current problems in agriculture, species conservation, population dynamics and the effects of environmental change. Prerequisite: BIO 260.

**ENV 381 Environmental Strategies and Regulations (3-0-3).** Reviews the historical development of environmental awareness that led to the present day of law and order in environmental protection. Compares major environmental regulations relevant to resource conservation, pollution prevention and mitigation, and human health care. Critically analyzes issues of environmental strategies in the GCC. Includes the preparation of individual case studies relevant to environmental strategies and regulations enforcement. Prerequisites: ENV 100 or ENV 101, and junior standing.

**ENV 394 Special Topics in Environmental Science (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**ENV 400 Environmental Physiology Systems (2-3-3).** Explores the natural and anthropogenic stresses encountered by microorganisms, plants and animals in the environment and the roles they play in the environment. The general physiology of organisms will be explored first and then taken to the cellular and metabolic pathway levels. The student will gain an understanding of the functions and dysfunctions in plants and animals and the reactions and adaptations to environmental stresses, pollution and manipulation. Prerequisite: ENV 335. Lab/Tech fee rate B applies.

**ENV 411 Environmental Assessment and Management (3-0-3).** Deals with the impact of human activities on the ecosystem. This multidisciplinary course demonstrates how environmental assessment results provide a basis for comparing various management options, enabling decision makers and the public to make informed decisions about the management of ecological resources. Ethical and legal dimensions of a number of environmental problems are discussed. Local and regional issues are emphasized. Students cannot obtain credit for both ENV 411 and ENV 412. Prerequisite: ENV 252.

**ENV 412 Concepts and Models in Environmental Management Systems (3-0-3).** Introduces modern tools of environmental management. Presents various models of environmental management systems and explores their application in the UAE and GCC countries. Discusses the elements of decision making in environmental management heading to resource conservation and pollution prevention and mitigation. Ethical and legal dimensions of a number of environmental problems are discussed with emphasis on regional case studies. Students cannot obtain credit for both ENV 411 and ENV 412. Prerequisites: ENV 100 and junior standing.

**ENV 421 Aquatic Environments (2-3-3).** (Cross-listed as BIO 421). Focuses on interactions between biological, chemical and physical processes in marine environments. Strong emphasis is placed on marine ecology and local fauna of the Gulf region. Topics include marine physics and chemistry and their importance to marine biology, oceanic plankton and nekton, deep water biology, coastal habitats, energy flow, fisheries and marine conservation issues. Prerequisite: ENV 251 or BIO 251. Lab/Tech fee rate A applies.

**ENV 451 Waste Treatment (3-0-3).** Introduces the modern concepts of solid and liquid waste treatment. Covers sources and classifications of hazardous waste and their transport in the environment; hazardous waste management problems; physical, chemical and biological waste treatment processes; waste minimization; and analysis systems for regional planning. Prerequisite: ENV 252.

**ENV 452 Soil and Water Chemistry (3-0-3).** Deals with the development of soil/water chemistry. Includes modern analysis methods for humic substances, minerals, particulates and pollutants in the soil. Topics covered are mineralogy, soil solution, ion exchange/sorption, water acidity, wetlands and redox processes in aerobic soils and nitrogen transformations. Prerequisite: ENV 252.

**ENV 491 Senior Research Project I (0-6-3).** Requires student to select an environmental problem for independent research project. Upon approval by the department, the student begins with a literature search then follows up with field and laboratory studies. In addition to the scientific component of the project, students are expected to comment on the ethical and legal dimensions of the environmental issues being investigated. The results are then presented in a seminar as well as in a thesis form. This is a capstone course in the development of the student as an environmental scientist. Prerequisite: senior standing.

**ENV 492 Senior Research Project II (0-6-3).** Continuation of ENV 491. Requires student to select a new or related environmental problem for

independent research. Upon approval by the department, student begins with a literature search then follows up with field and laboratory studies. The results are presented in a seminar as well as in a thesis form. Prerequisite: senior standing.

**ENV 494 Special Topics in Environmental Science (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**ENV 496 Independent Study in Environmental Science (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: senior standing and approval of instructor.

**ENV 497 Internship in Environmental Science (0-0-0).** Requires applied work in environmental aspects with a government, municipal or private organization. Prerequisite: senior standing.

## GEO Geography

**GEO 201 World Cultural Geography (3-0-3).** Provides a broad survey of the cultural geography of the world. Among other topics, the course addresses cultural systems, agriculture and natural resources, urbanization, industrialization, development and political geography. Prerequisite/ concurrent: WRI 102.

**GEO 294 Special Topics in Geography (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/ Tech fee may apply.

**GEO 394 Special Topics in Geography (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated

for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**GEO 494 Special Topics in Geography (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific.

**GEO 496 Independent Study Geography (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: senior standing and approval of instructor.

## HIS History

**HIS 204 Modern Arab History (3-0-3).** Studies the history of the modern Arab world focusing mainly on the history of the region from 1800 and the changes that began to take place at that time. It concentrates on four aspects of the region's transformation: the experience of imperialism and colonialism, modernity, nationalism and the development of the modern state system. Prerequisite: WRI 102.

**HIS 205 World History I [up to 1500] (3-0-3).** Studies the world's major civilizations prior to 1500 concentrating on their primary institutions and their cultural contacts. Particular attention is devoted to the Arab and Islamic world and Western Europe. Prerequisite: WRI 102.

**HIS 206 World History II [1500 to present] (3-0-3).** Looks at some of the major changes that have taken place since 1500 including: the exploitation and settlement of the Americas; the shift in power from the East (the Middle East and Asia) to the West (Europe and the United States); the Industrial Revolution and the globalization of capitalism; the domination of most of the societies of the world by the European powers and the United States (i.e., colonialism and imperialism); political and social revolutions, including wars of national liberation against colonial regimes; and

changes in technology. Prerequisite: WRI 102.

**HIS 208 Women in History (3-0-3).** Comparatively surveys women's history from antiquity to the present in Europe and the Middle East. The course aims not only to examine the lives, achievements, contributions and position of women historically, but also to introduce students to the methodology of women's history, the sources for the study of women and the theories that provide the framework for the research and writing of women's history. Prerequisite: WRI 102.

**HIS 209 Modern Arab History through Literature (3-0-3).** Introduces students to modern Arab history through literature and links literary production to its historical and cultural context. Students become aware of how history and literature intersect and of the similarities and differences in historical and literary writing. The readings include works of fiction and non-fiction such as novels, short stories, memoirs, biographies and autobiographies. Prerequisite: WRI 102.

**HIS 221 History of Science and Technology (3-0-3).** Studies the development of scientific thought and methodology from ancient Greece to the modern era. Topics include contributions of China, Islamic lands and Europe; the surge of French and 17th century English science; and the influence of science on patterns of thinking and behavior. The course touches upon diverse areas such as the histories of astronomy, nuclear energy, chemistry and forensics, as well as life and environmental sciences. Prerequisite/concurrent: WRI 102.

**HIS 230 Resistance and Collaboration in Modern France and Algeria (3-0-3).** Analyzes the nature of resistance and collaboration in France and Algeria during 1940-1970. Students investigate the reasons why different groups and individuals chose to either resist or collaborate in the Second World War and the Algerian War of Independence. Through films, original documents, novels and academic writing, the course studies the history of moral behavior in war, the role of Islam in colonial struggles, and the ways in which

Western and Islamic forms of history are constructed in Europe and North Africa. The course demands a personal engagement with ethical questions such as the following: for what causes is it just to kill and in what circumstances would you collaborate with an enemy? Prerequisite: WRI 102.

**HIS 294 Special Topics in History (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: topic specific. Lab/Tech fee may apply.

**HIS 307 Modern Palestinian History (3-0-3).** Examines Palestinian history before 1948 and brings the story forward to the breakthrough Oslo Accord of 1993 and its troubled aftermath. It focuses primarily on the origins and key aspects of the Arab-Israeli conflict. Prerequisites: WRI 102 and junior standing.

**HIS 310 Modern Gulf History (3-0-3).** Introduces students to the history of the Gulf Arab states in the 19th and 20th centuries. The first half of the course examines the traditional economy of the Gulf before oil, traditional forms of rulership, the traditional role of merchants, British involvement in the region and the impact of oil. The second half of the course surveys the individual histories of the six Gulf Arab states. Prerequisites: WRI 102 and junior standing.

**HIS 311 America and the Middle East (3-0-3). (Formerly HIS 211).** Traces the connections between the United States and the Arab and Perian world from the first official contacts between the "Barbary Pirates" and the Jefferson Administration to the present. A wide variety of material will be studied, from politics, immigration, and war, to art, literature and film. A research paper on the topic of the student's choice will be a key component to the course. Prerequisite: HIS 206 or HIS 220.

**HIS 394 Special Topics in History (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore

standing and topic specific. Lab/Tech fee may apply.

**HIS 494 Special Topics in History (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**HIS 496 Independent Study in History (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: senior standing and approval of instructor.

## INS International Studies

**INS 290 Research Practicum (1 to 3 credits).** Involves faculty-supervised student projects in special topics of current interest. Both oral and written presentations on the topics are required from students. Graded as P/F. Prerequisite: WRI 102.

**INS 294 Special Topics in International Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**INS 301 Globalization (3-0-3).** (Formerly POL 301). Examines the process of globalization, which is well underway at all levels of society with socio-political impacts on all cultures. Introduces the globalization of economic systems, multinational organizations, technological, consumerism and worldwide communication systems. Prerequisite: POL 202.

**INS 322 Global Political Economy (3-0-3).** Deals with the roots and evolution of the global political economy from the end of the World War II and the launching of the Bretton Woods system, to the Asia crisis of 1997 and its spread to Russia, Latin America and the Middle East.

It focuses on the interplay between politics and economics for topics such as management of the international financial system via the IMF, World Bank, World Trade Organization, globalization, trade, multinational corporations and changes in world production patterns, trade agreements such as the European Union, development strategies, debt crises, and attempts at political and economic liberalization in various countries. Prerequisites: POL 202, ECO 201 and ECO 202.

**INS 394 Special Topics in International Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: topic specific.

**INS 400 Ethnic Politics in the Developing World (3-0-3).** Examines the historical origins and contemporary dynamics of ethnic politics in the developing world. It surveys different theoretical approaches to the study of ethnic conflict, as well as the impact of colonialism on ethnic identities, and the legacy of decolonization on nationalist movements in the developing world. The course also examines a number of post-independence challenges faced by multiethnic states through the use of case studies. Prerequisite: POL 202.

**INS 413 Political Economy of the Arab World (3-0-3).** Surveys the political economic trajectories of selected states in the Arab world, paying special attention to the politics, societies and ideological currents of the Eastern (Mashreq) Arab world. Themes explored include the process of post-colonial state formation, the rise of Arab nationalism and other forms of proto-nationalisms, variations in regime consolidation and state-society relations, the institutional structures of authoritarianism, the challenges of economic restructuring and political liberalization, and the Islamist challenge. Prerequisites: POL 202, ECO 201 and ECO 202.

**INS 414 Political Economy of the Asia Pacific Region (3-0-3).** (Formerly INS 314). Explores political, economic, social and environmental issues in the

Asia Pacific Region, which includes South, Southeast, East and Northeast Asia; Australasia; and the Pacific littoral states of North, Central and South America. Special emphasis is placed upon the efforts of regional cooperation organizations and lessons to be gleaned by the states of Southwest Asia and the Middle East. Prerequisites: ECO 201 and ECO 202, and POL 300 or POL 304 or INS 301 or INS 322.

**INS 415 War and Peace in the Middle East (3-0-3).** Examines inter-state conflict, and efforts to negotiate peace in the Middle East. Special attention is given to the interaction between the Arab-Israeli conflict, regional rivalries, the policies of the main international powers, and domestic politics in shaping regional dynamics. Some of the topics covered include the Arab-Israeli Wars, the different Gulf Wars and the Arab-Israeli peace process. Prerequisite: POL 202.

**INS 494 Special Topics in International Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: topic specific and junior standing.

**INS 495 Senior Seminar (3-0-3).** Offered once a year and is considered the capstone course of the concentration. The topic of the course changes from year to year. Students are required to write a major research paper on the seminar topic. Prerequisite: senior standing. Restricted to international studies students.

**INS 496 Independent Study in International Studies (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

**INS 497 Internship in International Studies) (0-0-0).** Involves applied work in international studies with businesses, a government organization or private agencies. Admission to the class must be approved by the student's advisor. Prerequisite: senior standing.

## MCM Mass Communication

**MCM 100 Introduction to Digital Media Design (3-0-3).** Introduces students to digital media as part of developing practical communication skills. It covers aspects of advertising and public relations design and layout, Web page design and basic animation techniques using keyboard, mouse, scanners, graphics tools such as graphics pad and stylus as well as still and video inputs and the use of printers. Students will be introduced to the basic use of digital design and animation software. Prerequisite: None. Students cannot obtain credit for both MCM 100 and DES 100. Restricted to mass communication students. Lab/Tech fee rate A applies.

**MCM 102 Introduction to Media Literacy (3-0-3).** Introduces students to media as history as well as how and why various media forms were created. Comparisons and relationships between visual arts, music, and oral, written and technological media will be discussed. It gives students broad background knowledge on art, myth, music and the forces that helped foster their development. Prerequisite/concurrent: WRI 102.

**MCM 150 Introduction to Mass Communication Studies (3-0-3).** Examines the nature of the various areas of the mass media, (i.e., television, radio, newspapers, magazines and interactive outlets) and how they impact the individual and society. Prerequisite: WRI 102.

**MCM 155 Introduction to Film Studies (3-0-3).** Looks at influences and impact of pioneer and early silent filmmakers on modern popular film. Topics include the evolution of the comedic form, cinema and society, and the effect of artistic movements such as impressionism and expressionism. Relationships between the film and its technological and cultural impact will help develop students' analytical and interpretive skills. A variety of techniques and concepts will be discussed. Prerequisite/concurrent: WRI

102. Lab/Tech fee rate A applies.

**MCM 156 Introduction to Film Studies: The Sequel (3-0-3).** Looks at influences and impact of landmark films and filmmakers on modern popular film. Specific topics include the development of new technologies and techniques, as well as approaches that helped make film a distinct art form. comparison with other art forms and the use of frame and image to convey emotional content will be discussed, along with concepts such as montage, genre, auteur and mise-en-scène. Prerequisite/concurrent: WRI 102. Lab/Tech fee rate A applies.

**MCM 209 Dramatic Expression (3-0-3).** Gives students an opportunity to perform publicly in a variety of formats, including poetry reading, acting, miming and singing. Prerequisite: MCM 150.

**MCM 225 Theories of Mass Communication (3-0-3).** Introduces students to the various prevailing communication theories, including agenda setting, uses and gratification, and diffusion constructs. Prerequisite: MCM 150.

**MCM 227 Principles of Public Relations (3-0-3).** Surveys the fundamentals and techniques involved in public relations operations, including the history, philosophy and ethics of the practice and functions of management, planning, research and communication. Explores the theoretical and practical applications of public relations in contemporary society. Prerequisite: MCM 150.

**MCM 231 Writing for Mass Communication (3-0-3).** Introduces students to existing and emerging communication technologies, and examines their impact on the communication process. Prepares students to manage the process of designing documents, from planning stages through final production. Basic principles and applications are covered by writing news stories, press releases and advertising copy. Prerequisite: MCM 150.

**MCM 255 Principles of Advertising (3-0-3).** Provides students with an analysis of Commercial advertising from a global perspective with attention

to communication theory. Examines the structure of advertising messages, how they are adapted to specific audiences, and the social settings in which they occur. Explores issues of Internet advertising and e-commerce. Prerequisites: prerequisite/concurrent: MCM 100 or DES 100, and MCM 150. Lab/Tech fee rate A applies.

**MCM 275 Principles of Journalism (3-0-3).** Introduces students to the basic principles of journalism as it occurs in a variety of media forms. The history of journalism is discussed, from the penny press, yellow journalism and muckraking to modern responsible journalism and tabloid journalism. The class also discusses a variety of legal and ethical journalistic concerns. Writing techniques for newspapers, radio and television broadcast news are practiced. Prerequisites: MCM 100 or DES 100, and MCM 150; prerequisite/concurrent: MCM 231.

**MCM 281 Principles of Media Production and Performance (3-0-3).** Surveys a variety of media production and performance techniques. Media elements, such as concept development, writing, supervision, performance, scheduling and execution of a variety of media formats, are presented. Background information on the history of specific media, media theory and aesthetics are discussed. Prerequisites: MCM 100 or DES 100, and MCM 150; prerequisite/concurrent: MCM 231. Lab/Tech fee rate B applies.

**MCM 294 Special Topics in Mass Communication (3-0-3).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: topic specific. Lab/Tech fee may apply.

**MCM 300 Mass Communication Research Methods (3-0-3).** (Formerly MCM 280). Introduces students to social science research methods within a mass communication context. It emphasizes the scientific method and surveys basic concepts of theoretical and empirical research. Covers a variety of methodologies, elementary statistics and criteria for adequate research. Prerequisites: MCM 150 or MCM 225, and STA 202 or QAN 201

or QBA 201 or NGN 111.

**MCM 306 Broadcast Journalism (3-0-3).** Introduces students to the basic principles of broadcast journalism as it occurs in radio, TV and online (webcasting). The course includes discussions of technological, ethical and legal issues affecting broadcast news, as well as lab/studio practice in writing and producing broadcast reels. Prerequisites: MCM 275 and MCM 281. Lab/Tech fee rate B applies.

**MCM 307 Film Criticism (3-0-3).** (Formerly MCM 277). Introduces students to film genres and formulas (film noir, polyphonic narrative, comedy, romance, verities, etc.) and to critical approaches with which to analyze the cinematic text. Students will explore, discuss, research and write about films as well as screenplay texts, using such theoretical approaches as semiotics and structuralism, feminist, psychoanalytic, formalist and social criticism. Prerequisite: MCM 231.

**MCM 320 Intercultural Communication (3-0-3).** (Formerly MCM 220) (Cross-listed as ENG 320). Provides an overview of world cultural literacy and shows how cultures influence communication. Students acquire a broad knowledge about the interrelation of the humanities, music, mythology, art, theater, history and science. Prerequisite: ENG 203 or ENG 204.

**MCM 321 Mass Media Law & Ethics (3-0-3).** Examines global legal issues affecting mass communication practices in advertising, journalism, and public relations. Introduces students to professional ethical theory and decision making, and corporate social responsibility. Prerequisite: MCM 227 or MCM 255 or MCM 275.

**MCM 329 Mass Communication and Society (3-0-3).** (Formerly MCM 229). Provides students with an overview of the effect of media on culture and society. Explores how media reflect and mold culture. It examines the role the media play in creating "the global village." It also examines how the audience uses and is used by various media outlets and how that use affects the perception of various cultures. Prerequisite: MCM 225.

**MCM 351 Advertising Copy and Layout (3-0-3).** Explores issues, strategies, theories and practices in writing and editing advertising messages. This course also teaches the technical aspects of advertising: writing advertising copy and designing effective layouts based on clients' strategies, and elements of reproduction mechanicals. Students learn how to embrace new technologies and design parameters to produce effective advertising. Audience differentiation, media strategy and creative strategy all are considered. Emphasis is on persuasive and attention-getting techniques. Prerequisite: MCM 255. Lab/Tech fee rate A applies.

**MCM 353 Direct Response Advertising (3-0-3).** Introduces students to the marketing communication that achieves an action-oriented objective as a result of the advertising message sent through a number of media. These include telemarketing, direct mail and point-of-purchase. Prerequisite: MCM 255. Lab/Tech fee rate A applies.

**MCM 360 Crisis and Conflict Management (3-0-3).** Provides practical insights into ways communication professionals recognize and manage organizational crisis and conflict, and ways of planning, executing and evaluating damage control mechanisms. Prerequisite: MCM 227 or MCM 255 or MCM 275.

**MCM 361 Case Studies in Public Relations (3-0-3).** Teaches students how to apply the principles and theories of public relations to solve problems or initiate opportunities for actual occurrences in the practice of public relations. Prerequisite: MCM 227.

**MCM 363 Organizational Communication and Leadership (3-0-3).** Teaches students the role of communication in creating a productive organizational environment in terms of interpersonal and group behavior. Reviews the theory and practice of team building, conflict resolution and problem solving and explores how communication and organizational cultures relate to each other. Prerequisite: MCM 227 or MCM 255 or MCM 275.

**MCM 369 Public Relations Writing (3-0-3).** (Formerly MCM 269).

Introduces the student to the essentials of how to prepare and present written material for use in the practice of public relations. It teaches the student the techniques needed for creating effective written communication at a standard generally expected of persons entering into the practice of public relations. Prerequisites: MCM 227 and MCM 231.

**MCM 371 News Writing (3-0-3).** Builds students' expertise in the writing of news for newspapers and magazines. Students experience concentrated practice in the methods of research, interviewing, writing, marketing and publishing of articles, and in the skills required in the production of newspapers. Prerequisite: MCM 275.

**MCM 373 Scriptwriting (3-0-3).** Teaches students the craft of writing for the electronic media. Students explore the types of scripts used in the media profession, such as industrials, in-house promotional vehicles, corporate training, public service and documentary forms, as well as entertainment and features. Course work consists of practice in research, interviewing, production planning and budgeting, the treatment, writing for picture and writing for talent (i.e., actors, narrators). Prerequisite: MCM 231.

**MCM 374 Feature Writing (3-0-3).** Teaches students how to plan, write and edit news features, personality profiles, issue-oriented articles and human impact stories for the print media. Emphasis is placed on narrative, descriptive, analytic and storytelling skills. One-on-one instructor-student conferences stress story-building and revision techniques. Prerequisite: MCM 231 or MCM 275.

**MCM 375 Editing for the Print Media (3-0-3).** Provides students with practical exposure to skills in preparing and editing manuscripts for publications. Emphasis is placed on a number of editing styles, and appropriate editing symbols are employed. Prerequisite: MCM 275.

**MCM 377 Photojournalism (3-0-3).** Teaches the technical basis of using a 35mm or digital camera to take photos for publication. Early lectures detail technical issues such as lens settings, shutter speed, lighting and composition.

Students are then given weekly photojournalism assignments for the student newspaper. Access to a digital or 35mm camera is required. Prerequisite: MCM 227 or MCM 255 or MCM 275. Lab/Tech fee rate A applies.

**MCM 378 Literature as Film (3-0-3).** (Cross-listed as ENG 378). Introduces the student to the critical terms and techniques used in both film and literary fiction, examining the ways of conveying meaning that both film and literature employ. It focuses on the attempts to translate literary classics to the medium of film, and evaluates reasons for success and/or failure of these attempts. Prerequisite/concurrent: ENG 203 or ENG 204.

**MCM 380 Persuasive Communication (3-0-3).** Teaches students a comprehensive and critical treatment of theory and research in persuasion. Attitudes, behaviors/actions, functional approaches to attitude, belief-based models of attitude, cognitive dissonance theory, theories of behavioral intention, campaign strategies, message factors, receiver and context factors, and persuasive effects constitute the most important subjects of discussion. Prerequisite: MCM 227 or MCM 255 or MCM 275.

**MCM 393 Shakespeare on Film (3-0-3).** (Cross-listed as ENG 393). Uses an interdisciplinary approach (incorporating English literature and media/film studies) to teach how to synthesize elements of film theory and literary criticism and incorporate them into a series of research papers. Prerequisite: ENG 203 or ENG 204.

**MCM 394 Special Topics in Mass Communication (3-0-3).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**MCM 401 Public Relations Publications (3-0-3).** (Formerly MCM 301). Introduces students to producing and editing techniques for public relations for a variety of publications, including brochures, business reports, newsletters, corporate videos, etc. Students also become proficient in the

art of copy preparation, typography, graphic design, layout and desktop publishing. Prerequisite: MCM 369.

**MCM 410 Media Producing and Project Management (3-0-3).**

Discusses media producing and its individual components of media supervision, operational management, contact and freelance personnel management. The course will also focus on project management as well as discussions on audience/marketing and advertising revenue. Other areas will include broadcast management, scheduling and budgeting. Prerequisite: MCM 281. Lab/Tech fee rate B applies.

**MCM 411 Multiple Camera Studio Production (3-0-3).**

Introduces students to multiple camera and studio production techniques. The class emphasizes practical knowledge of basic video and cinema production techniques from the viewpoint of the producer. Students develop and write multiple camera scripts in a variety of formats such as live news, game show and drama. The course also focuses on a variety of producing skills regarding supervision of crew and talent. Prerequisite: MCM 281 or MUM 310 or VIS 310. Lab/Tech fee rate B applies.

**MCM 421 Advanced Dramatic Expression (3-0-3).**

Builds on the skills learned in MCM 209 Dramatic Expression. The class focuses on developing acting and presentational techniques for television and film. The class teaches a variety of acting techniques including character analysis, scene interpretation, monologue and dialogue scenes as well as acting for single- and multiple-camera situations. Prerequisite: MCM 209.

**MCM 450 Critical Analysis of Mass Media (3-0-3).**

Examines the uses of critical theory and specific methodological approaches in the study of mass media. Sources of influence in society and the implications of media production and consumption are considered. Prerequisite: MCM 227 or MCM 255 or MCM 275.

**MCM 451 Strategic Communication Research (3-0-3).**

Expands on basic knowledge and skills introduced in MCM 300 and principles courses to prepare students to use relevant

research methods essential to strategic contributions in advertising and public relations campaigns. Emphasis is given to designing and developing research projects. Prerequisites: MCM 227 or MCM 255, and MCM 300.

**MCM 453 Advertising Media Planning (3-0-3).**

Examines media planning, buying and sales as performed by advertising agencies, clients and media. Students learn how to evaluate and select advertising media for various market situations. Examines target audience, media characteristics and data sources. Prerequisite: MCM 255. Lab/Tech fee rate A applies.

**MCM 454 Case Studies in Advertising (3-0-3).**

Exposes students to major issues in advertising, with a focus on the characteristics of successful ad campaigns. Examines international and cross-cultural problems in advertising within and across industry, government and institutions. Prerequisite: MCM 255.

**MCM 455 Advertising Campaigns (3-0-3).**

Requires students to collaborate on a semester-long project that includes the conception, research, development and execution of real-life advertising campaigns. Special emphasis is given to advanced copywriting, as well as to layout and production concerns for print, broadcast and new media. Students organize, manage and perform all functions: soliciting business, conducting market and consumer research, contacting clients, writing plans, creating advertising campaigns, evaluating media and preparing campaign evaluations for community service agencies. Prerequisite: MCM 351. Lab/Tech fee rate A applies.

**MCM 461 International Mass Communication (3-0-3).**

Helps students gain an understanding of world mass media systems: what they are like; how they operate; what impact they have on people; what policies are and could be used by the various countries to develop or regulate them; and how they are influenced by a country's political, economic, social and cultural make-up. Prerequisite: MCM 227 or MCM 255 or MCM 275.

**MCM 463 International Public Relations (3-0-3).**

Helps students

develop the skills necessary to plan and implement international public relations programs, taking into account social, economic, political, legal and cultural factors. Prerequisite: MCM 227.

**MCM 465 Public Relations Campaigns (3-0-3).**

Class functions as a full-service public relations firm. The aim is to have students embark on a semester-long PR project using all the relevant skills gained in other MCM courses. Prerequisite: MCM 369.

**MCM 467 Public Relations for Non-Profit Organizations (3-0-3).**

Explores fund-raising techniques, alumni relations and foundation management. Prerequisite: MCM 227.

**MCM 469 Advanced Public Relations Writing (3-0-3).**

Offers advanced public relations students experience in the wide range of writing styles and applications that are essential for students to successfully begin their professional career. Focuses on understanding and mastering action-oriented communication methods and best professional practices. Provides both a conceptual framework and in-depth training in advanced techniques. Prerequisite: MCM 369.

**MCM 470 Writing and Reporting for Broadcast News (3-0-3).**

Examines broadcast news writing, with emphasis on practical experience and exercises involving real or simulated airtime. Students are assigned beats and topics and are expected to regularly create scripts and at least three news packages by the end of the semester. Prerequisites: MCM 231 and MCM 281. Lab/Tech fee rate B applies.

**MCM 471 Advanced News Writing (3-0-3).**

(Formerly MCM 372). Teaches students how to write carefully researched stories, using writing, reporting and interviewing skills acquired in previous classes. Emphasis is placed on immersion or in-depth reporting; students spend a great deal of time with a subject to develop skills in storytelling and organization. Prerequisite: MCM 275.

**MCM 472 Editorial and Critical Writing (3-0-3).**

Teaches the basics of writing editorials, op-eds and columns, including analyzing arguments,

generating ideas, researching supporting data, assessing and engaging the audience, structuring the article, writing concisely, controlling style voice and tone appropriate to subject matter and audience, and writing to meet deadlines. Prerequisite: MCM 275.

**MCM 473 Writing for Multimedia (3-0-3).** Offers advanced students hands-on experience with writing and producing shorter-form texts for electronic media. Comparative perspectives of writing for radio, television, Internet and CD-ROM texts are studied. Projects will include generating ideas, writing proposals, research and development of topics, planning and employing the stylistic conventions of professional writers in the field. Students learn the distinctive competencies of writing for each medium and of working from concepts to actual productions. Prerequisites: MCM 231 and MCM 281.

**MCM 475 Writing and Producing for Documentaries (3-0-3).** Exposes students to representative documentaries with regard to history, form, technique, trends and audience objectives. Students examine different formats used in documentary production and the concepts used in transforming research efforts into production of a full half-hour program. The course emphasizes genre-specific research methodologies, planning a production schedule, interviewing skills, videotape shooting, sound, scriptwriting and rewriting for longer form reports, sound and video editing, graphics and post-production. Prerequisites: MCM 231 and MCM 281. Lab/Tech fee rate A applies.

**MCM 490 Senior Project (3-0-3).** Requires faculty-supervised student projects in special topics of current interest. Requires both oral and written presentations on the topics. Prerequisites: junior II standing and approval of instructor.

**MCM 491 Print Media Project (3-0-3).** (Formerly MCM 477). Requires students to conceptualize, write, develop, manage and produce a multimedia campaign using a variety of forms (e.g., print, broadcast, Web-based, etc.). The semester-long project culminates in discrete, marketable

productions as well as a coherent campaign, thus providing each student with a writer-producer's portfolio and demo reel to present to prospective employers as the student embarks on a career as a media professional. Prerequisite: MCM 275.

**MCM 494 Special Topics in Mass Communication (3-0-3).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: junior standing and topic specific. Lab/Tech fee may apply.

**MCM 496 Independent Study in Mass Communication (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: senior standing and approval of instructor.

**MCM 497 Mass Communication Internship (0-0-0).** Provides MCM students with a minimum of six weeks of on-the-job training and experience with a professional firm in either advertising creativity, sales, advertising media, writing and/or editing for print and/or electronic media. Students are expected to find their own placement for this requirement. Graded as Pass/Fail. Prerequisites: junior standing and consent of the department.

## MTH Mathematics

**MTH 001 Preparatory Mathematics for Engineers (3-2-4).** Preparatory for MTH 103 Calculus I. Emphasizes the basic skills and techniques of algebra and trigonometry. Topics included are real and complex numbers, basic arithmetic, equations and inequalities, study of functions, polynomial and rational functions, exponential and logarithmic function, trigonometric functions and introduction to limits. Prerequisite: Math Placement Test with grade less than D.

**MTH 002 Preparatory Business Mathematics (3-0-3).** Preparatory for MTH 101 Mathematics for Business. Covers integers and variable expression,

fractions, decimals and real numbers, basic algebraic operations, equations and inequalities, functions and graphs, polynomial and rational functions, and exponential and logarithmic functions.

**MTH 003 Preparatory Mathematics for Architects (3-0-3).** Preparatory for MTH 111 Mathematics for Architects. Covers basic ideas and concepts of arithmetic, algebra, geometry and trigonometry and calculus applications needed for architecture and design.

**MTH 004 Pre-Calculus (3-0-3).** Preparatory for MTH 103. Covers graphs and functions, exponential and logarithmic function and their graphs, trigonometric functions of real numbers and angles, analytic trigonometry and introduction to limits. Prerequisite: Math Placement Test with grade D.

**MTH 100 Fundamentals of Logic and Geometry (3-0-3).** Covers logic and set theory, geometry in the plane and space, and basic algebra. Topics include fundamentals of inductive and deductive reasoning; propositional and first order logic; sets, relations and functions; Euclidean and analytical geometries in two and three dimensions; and linear transformations and quadratic forms. Not open to architecture, architectural studies, engineering, interior design, science and School of Business and Management students.

**MTH 101 Mathematics for Business I (3-0-3).** Covers coordinate systems and graphs, matrices, linear systems and applications, elementary linear programming, set theory, counting techniques, permutations and combinations, introduction to probability, and the mathematics of finance. Emphasis is placed on techniques and applications. Not open to science or engineering students. Prerequisite: MTH 002 or Math Placement Test or SAT II Math 1C test with score 600 and above.

**MTH 102 Mathematics for Business II (3-0-3).** Covers the derivative, rules for differentiation and their applications, definite and indefinite integrals, methods of integration and applications, functions of more than one variable, partial differentiation and applications to optimization. Emphasis is placed on

techniques and applications. Not open to science or engineering students. Prerequisite: MTH 101.

**MTH 103 Calculus I (3-1-3).** Covers functions and limits, differentiation with applications including maxima and minima, related rates, approximations, theory of integration with applications including areas, volumes, lengths, moments, center of mass and work. The course has a computer laboratory component. Prerequisite: MTH 001 or MTH 004 or Engineering Math Placement Test or SAT II Math 1C test with score 600 and above. Not open to architecture and interior design students. Lab/Tech fee rate A applies.

**MTH 104 Calculus II (3-1-3).** Covers transcendental functions, exponential and logarithmic functions, and trigonometric functions; techniques of integration, indeterminate forms; infinite series, Taylor series, power series, Taylor series, parameterized curves, polar coordinates, integration in polar coordinates, and complex numbers. The course has a computer laboratory component. Prerequisite: MTH 103. Lab/Tech fee rate A applies.

**MTH 111 Mathematics for Architects (3-2-4).** Introduces the topics of geometry and calculus needed for architecture. Reviews trigonometry, areas and volumes of elementary geometric figures, and the analytic geometry of lines, planes and vectors in two and three dimensions. Covers differential and integral calculus, including applications on optimization problems, and areas and volumes by integration. The course has a computer laboratory component. Prerequisite: MTH 001 or MTH 004 or MTH 003 or Architecture and Engineering Placement Test or SAT II Math 1C test with score 600 and above. Restricted to architecture and interior design students. Lab/Tech fee rate A applies.

**MTH 203 Calculus III (3-1-3).** Covers calculus of functions of several variables, vectors and analytic geometry of three-dimensional space, partial derivatives, gradients, directional derivatives, maxima and minima, multiple integrals, line and surface integrals, Green's theorem, divergence theorem and Stokes' theorem. The

course has a computer laboratory component. Prerequisite: MTH 104. Lab/Tech fee rate A applies.

**MTH 205 Differential Equations (3-0-3).** Covers mathematical formulation of ordinary differential equations, methods of solution and applications of first order and second order differential equations, power series solutions, solutions by Laplace transforms and solutions of first order linear systems. Prerequisite: MTH 104.

**MTH 213 Discrete Mathematics (3-0-3).** (Cross-listed with CMP 213). Covers propositional and predicate calculus, sets, functions and related algorithms, mathematical induction, recursive definitions, counting, relations, graphs, trees and Boolean algebra. Prerequisite: MTH 102 or MTH 103.

**MTH 221 Linear Algebra (3-0-3).** Covers systems of linear equation, algebra of matrices, linear transformations, determinants, vector spaces, inner product spaces, eigenvalues and eigenvectors, diagonalization and orthogonality, special matrices and applications. The use of computer software is essential. Prerequisite: MTH 104.

**MTH 294 Special Topics in Mathematics (3-0-3).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**MTH 304 Theory of Interest and Life Insurance (3-0-3).** Covers a formal framework to interest theory including description and valuation of bounds annuities (due, immediate, increasing, decreasing), life tables and population problems, life annuities (due, immediate, temporary, deferred, increasing, decreasing) with basic pension application, life insurance (pure endowment, term insurance, deferred insurance, n-year endowment insurance, varying), net single premium, annual premium and reserves. Prerequisite: MTH 102 or MTH 103.

**MTH 311 Intermediate Analysis (3-0-3).** Covers sets and the real number system, functions, mathematical induction, sequences and series, limits

and continuity, uniform continuity, basic topology of the real number system, differentiation, Riemann integration, sequences and series of functions, and uniform convergence. Prerequisite: MTH 203.

**MTH 312 Advanced Calculus (3-0-3).** Provides an in-depth study of vector calculus including vector fields, Stieltjes integrals, the theory of integration of functions of two and three variables, divergence and Stokes' theorems, the inverse and implicit function theorems, as well as an introduction to the basic topology of Euclidean space, continuity and differentiation vector valued functions including linear operators on Euclidean space, and curves and surfaces. Prerequisite: MTH 203.

**MTH 313 Number Theory and its Applications (3-0-3).** Covers the Euclidean algorithm, linear congruencies and the Chinese Remainder Theorem, Fermat's Little Theorem, quadratic residues and quadratic reciprocity, Pythagorean triples and sums of squares. Includes applications in communication, public key cryptography, computer arithmetic, random number generators and music. Prerequisite: MTH 213.

**MTH 320 Modern Algebra with Applications (3-0-3).** Covers Boolean algebra, groups, subgroups, cyclic groups, Lagrange's theorem, quotient groups, direct product of finite groups, rings, polynomial rings, fields, and in particular, finite fields, circuits, machines, coding and decoding. Prerequisite: MTH 221.

**MTH 325 Coding Theory (3-0-3).** Introduces coding theory, linear codes, Hamming codes, Hamming distances, Hamming weights, probability, Shannon's theorem, dual codes, weight distribution of linear codes, cyclic codes, BCH codes, convolution codes, encoding and decoding. Prerequisite/concurrent: MTH 221.

**MTH 330 Fundamental Concepts of Geometry (3-0-3).** Describes elementary theory in foundations of geometry and logical systems, and basic theory in the fields of Euclidean, non-Euclidean and synthetic coordinate projective geometry, including

homogeneous coordinates. Prerequisite: MTH 103 or MTH 111.

**MTH 341 Computational Methods (3-0-3).** (Cross-listed as CMP 341) Introduces the fundamentals of numerical algorithms and their application for scientific computing. Includes topics such as error analysis, root finding, interpolation and function approximations, integration and differentiation, optimization techniques and linear programming. Prerequisite/ concurrent: MTH 221. Lab/Tech fee rate A applies.

**MTH 343 Numerical Analysis I (3-0-3).** Introduces numerical approximation techniques including topics such as error analysis, root finding, interpolation, function approximations, numerical differentiation, numerical integration and numerical solutions of initial value problems. Prerequisite: MTH 221.

**MTH 350 Introduction to Probability (3-0-3).** Introduces probability spaces, axioms of probability, combinatorial counting techniques for discrete probability spaces, conditional probability and independent events; random variables, univariate and multivariate probability density functions expectation; variance and higher moments and moment generating functions. Prerequisite: STA 201; prerequisite/concurrent MTH 203.

**MTH 351 Methods of Applied Mathematics (3-0-3).** Introduces a broad range of mathematical tools used to solve scientific and engineering problems. Topics include Fourier analysis, integral transforms, calculus of variation, special functions and coordinate systems. Applications problems will be discussed, including mechanical structures, electrical circuits, fluid mechanics, continuum mechanics and geometry. Prerequisite: MTH 205.

**MTH 360 Probability and Stochastic Processes (3-0-3).** (Cross-listed as COE 360, ELE 360 and STA 360). Covers set theory, preliminaries of probability theory and random variables, stochastic processes, Markov chains, examples of continuous time Markov chains and applications to systems. Prerequisites: MTH 221, and NGN 111 or STA 201.

**MTH 382 Linear Programming**

**and Optimization (3-0-3).** Introduces optimization theory and methods, nonlinear unconstrained optimization, linear programming, sensitivity analysis, various algorithms and search methods for optimization and their analysis. Examples from various disciplines are given. Prerequisite: MTH 221.

**MTH 394 Special Topics in Mathematics (3-0-3).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**MTH 412 Complex Variables (3-0-3).** Studies functions of a complex variable, algebra of complex numbers, elementary functions with their mapping properties, analytic functions, power series, integration, Cauchy's Theorem, Laurent series and residue calculus, elementary conformal mappings and boundary value problem. Prerequisite: MTH 203.

**MTH 418 Graph Theory (3-0-3).** Covers graphs and sub graphs, connected and disconnected graphs, matrices, trees and girth, planar and nonplanar graphs, graph embeddings, connectivity and edge connectivity, Hamiltonian graphs, matching, factorization and coverings, networks and applications to science and engineering. Prerequisite: MTH 213 or CMP 213.

**MTH 420 Advanced Modern Algebra (3-0-3).** Introduces group homomorphisms and isomorphism, classification of Abelian finite groups, Sylow theorems, ring homomorphisms, factorization of polynomials, unique factorization domains, field extensions and, in particular, cyclotomic field extensions and Galois's theory. Prerequisite: MTH 320.

**MTH 431 Dynamical Systems (3-0-3).** Examines the second order differential equations in phase plane, linear systems and exponential operators, canonical forms, stability of equilibria. Lyapunov functions, autonomous systems, the existence of periodic solutions and applications to various fields. Prerequisite: MTH 221 and MTH 205.

**MTH 432 Partial Differential Equations (3-0-3).** Covers mathematical formulations and solutions of partial differential equations of physical problems, includes the wave, heat and Laplace's equation. The mathematical tools include Fourier transform, Fourier series and Laplace transform. Prerequisite: MTH 205.

**MTH 443 Numerical Analysis II (3-0-3).** Introduces techniques and concepts of numerical analysis. Topics include direct and iterative methods for solving linear systems, and numerical methods for non-linear system of equations, initial and boundary value problems and partial differential equations. Prerequisite: MTH 341 or MTH 343.

**MTH 490 Senior Project (0-6-3).** Individualized study in which a student conducts research on a topic not specifically covered in other courses under the supervision of a faculty member with expertise in that area. Normally restricted to honors mathematics students. Prerequisite: senior standing and consent of instructor.

**MTH 494 Special Topics in Mathematics (3-0-3).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**MTH 496 Independent Study in Mathematics (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## PHI Philosophy

**PHI 201 Introduction to Philosophy (3-0-3).** Introduces basic questions, ideas and methods of philosophy. Philosophers are selected from various historical periods. Encourages and teaches students to develop a philosophical mind. Prerequisite: WRI 102.

**PHI 202 Introduction to Islamic Philosophy (3-0-3).** Surveys the major philosophers in Islam, focusing on religious doctrines interacting with philosophical traditions. Discusses the relationship between Islamic and Western philosophy. Prerequisite: WRI 102.

**PHI 204 Ethics for Professionals (3-0-3).** (Equivalent to PHI 206). Examines the ethical character of professional life. Develops a background for ethical judgment, and awareness of one's own viewpoint. Both historical sources and contemporary case studies may be used. Prerequisite: WRI 102. Not open to computer science students.

**PHI 206 Ethics and Information Technology (3-0-3).** (Equivalent to PHI 204). Examines the ethical questions raised by our life with information technology. Develops a background for ethical judgment, and awareness of one's own viewpoint. Both historical sources and contemporary case studies may be used. Prerequisite: WRI 102.

**PHI 294 Special Topics in Philosophy (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: topic specific.

**PHI 303 Political Philosophy (3-0-3).** Introduces the fundamental questions of how a polity should be structured. Emphasizes the justifications for fundamental decisions in shaping political orders. Both historical and contemporary readings apply. Prerequisite: POL 202 or PHI 201.

**PHI 309 Ethics and the Environment (3-0-3).** Explores the philosophical dimensions of how we are related to the environment. Studies why, or whether, life on Earth should be respected. Reflects on the philosophy of nature. Prerequisite: ENG 203 or ENG 204.

**PHI 394 Special Topics in Philosophy (3-0-3).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**PHI 494 Special Topics in Philosophy (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**ARA 496 Independent Study in Philosophy (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: senior standing and approval of instructor.

## PHY Physics

**PHY 001 Preparatory Physics (3-0-3).** Provides students with problem-solving skills and development using algebra, trigonometry, and calculus through the study of elements of kinematics (motion in one and two dimensions) and dynamics (Newton's laws, momentum, work and energy). Required for science and engineering students with an insufficient background in physics.

**PHY 100 Conceptual Physics (3-0-3).** Gives non-science and non-engineering majors an understanding of the basic concepts of physics without complex mathematics. Emphasizes conceptual understanding of physical phenomena, firmly grounded in the scientific methods. Covers simple elements of mechanics, waves and light, electricity and magnetism, atoms and nuclei. Prerequisite/concurrent: MTH 001 or MTH 002 or MTH 003 or MTH 004 or MTH 100 or Math Placement Test. Not open to engineering and science students.

**PHY 101 General Physics I (3-0-3).** Introduces the fundamental principles, laws and concepts of mechanics to students of science and engineering. Covers mechanics (kinematics in one and two dimensions; Newton's laws of motion with applications; work and energy; conservation of energy and momentum; general rotation, including torque and angular momentum; static equilibrium) as well as some introductory

material on and mechanical waves (simple harmonic motion). Prerequisite: PHY 001 or PHY Placement Test; Prerequisite/ concurrent: MTH 103.

**PHY 101L General Physics Laboratory I (0-3-1).** Provides the students with the opportunity to perform experiments that demonstrate the principles and laws of mechanics. Includes experiments on kinematics; Newton's laws of motion with friction and other forces; work and energy; conservation of momentum; rigid body rotational inertia; torque; static equilibrium; and simple harmonic motion. Prerequisite/ concurrent: PHY 101. Lab/Tech Fee rate A applies.

**PHY 102 General Physics II (3-0-3).** Builds upon General Physics I. Covers electricity (electric fields, including Gauss's law; electric potential; capacitors and resistors; DC circuits), magnetism (sources of the magnetic field, including Ampere's law; induction, including Faraday's law and Lenz's law), and alternating current circuits, as well as introductory material on electromagnetic waves. Prerequisites: PHY 101 and PHY 101L.

**PHY 102L General Physics Laboratory II (0-3-1).** Trains the students on how to use new equipment and perform experiments with it that demonstrate their understanding of the basics of electricity and magnetism. The experiments include charge of the electron; electric field mapping; Ohm's law; Wheatstone bridge; power transfer; Kirchhoff's rules; RC circuit; force on a current-carrying wire in a magnetic field; magnetic field due to a circular loop; and the charge-to-mass ratio of the electron. Prerequisite/ concurrent: PHY 102. Lab/Tech Fee rate A applies.

**PHY 103 Astronomy (3-0-3).** Presents a broad view of descriptive astronomy without complex mathematics. Introduces and familiarizes the students with basic astronomical facts and phenomena that one can observe, study and explain using scientific methods. Consists of studying the night sky, using celestial coordinates, understanding the motion of heavenly bodies, familiarizing oneself with the tools of astronomers, reviewing the

solar system, understanding what stars are and how they evolve, and getting a general overview of galaxies and the universe.

**PHY 104 Physics for Architects (3-0-3).**

Teaches selected set of algebra-based topics in physics to students of architecture. Topics covered include: elements of mechanics (kinematics and dynamics); optics (geometrical as well as interference); sound (including general principles of acoustics, such as the propagation, transmission, attenuation and reverberation of sound); heat and energy. Not open to engineering and science students. Prerequisite/concurrent: MTH 101 or MTH 103 or MTH 111. Not open for students who have taken PHY 101.

**PHY 105 Physics for Environmental Sciences (3-0-3).**

Introduces environmental science majors to the basic concepts of physics as they apply to environmental problems. Covers elements of fluid mechanics (fluid flow, Bernoulli's equation); electricity and magnetism (high voltages, electric power, transmission); optics (light dispersion, interference); atomic physics (Bohr model, atomic and molecular structure, absorption and emission, X-rays), and radioactivity. Also considers some specific applications in the general areas of energy processes. Restricted to environmental science students. Prerequisites: PHY 101 and PHY 101L.

**PHY 105L Physics for Environmental Sciences Laboratory (0-3-1).**

Provides the students with the opportunity to perform experiments that demonstrate the principles and laws underlying phenomena in environmental physics. Includes experiments on fluid mechanics (buoyancy, Archimedes' principle and viscosity); electricity and magnetism (electron charge, the charge to mass ratio  $e/m$  of the electron, and magnetic force on a current-carrying conductor); light and optics (prism spectrometer and Young's double-slit); and modern physics (the photoelectric effect and radioactivity). Prerequisite(s)/concurrent: PHY 105. Lab/Tech Fee rate A applies.

**PHY 106 General Physics III (3-0-3).**

Covers fluid mechanics (pressure, buoyant force, the continuity equation

and Bernoulli's equation); basics of oscillatory motion (simple harmonic motion and damped and forced oscillations); mechanical waves (waves on a string, sound waves, the Doppler effect, standing waves, resonance and beats); thermodynamics (temperature, heat and heat engines, the laws of thermodynamics, and the kinetic theory of gases); and light and optics (laws of geometric optics, image formation, and basics of interference). Prerequisites: PHY 101 and PHY 101L.

**PHY 106L General Physics**

**Laboratory III (0-3-1).** Comprises a selected set of experiments illustrating the principles, laws and concepts discussed in PHY 106. Includes experiments on fluid mechanics (buoyant force and viscosity); oscillatory motion (simple pendulum and the mass-spring system); mechanical waves (speed of sound); thermodynamics (specific heat and thermal expansion of metals); and optics (laws of reflection, Snell's law, the spherical mirror and lens-maker's equations, and Young's double-slit experiment). Prerequisite/ concurrent: PHY 106. Lab/Tech Fee rate A applies.

**PHY 201 Modern Physics (3-0-3).**

Deals with special relativity, introductory quantum mechanics, nuclear physics, elements of solid state and semi-conductor physics. It is very useful to engineering majors, particularly electrical and computer engineering. Prerequisite: PHY 102 or PHY 105.

**PHY 201L Modern Physics**

**Laboratory (0-3-1).** Provides the students with the chance to perform experiments that demonstrate the ideas of the 20th century physics. Includes  $e/m$  ratio of the electron, the photoelectric effect, Frank-Hertz experiment, spectrometer, fluorescence of a luminous screen by x-rays, Young's double slit and light interference, X-ray diffraction (Bragg Reflection), hall effect, the wave model of light vs. the quantum model ( $h/e$ ) experiment, and absorption of Beta and Gamma rays. Prerequisite/concurrent: PHY 201. Lab/Tech Fee rate A applies.

**PHY 251 Meteorology (3-0-3).** Deals with general weather phenomena and

overviews the physical processes involved including atmospheric pressure, laws of thermodynamics, general air circulation, atmospheric moisture, energy, laws and phenomena of radiation, and heat transfer. Also covers violent phenomena (storms and hurricanes) and important current event topics (meteorological control, weather forecasting, air quality and pollution, global warming and the El Nino oscillation phenomenon). Required for environmental physics majors but also very useful to other environmental science majors and engineering students. Prerequisites: PHY 101 and PHY 101L.

**PHY 294 Special Topics in Physics**

**(1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**PHY 301 Energy Sources (3-0-3).**

Examines energy from a physics perspective. Present and future alternative energy sources are examined, including hydroelectric, nuclear, solar, geothermal and tidal energy. Also investigates the problems caused by each energy source and the issue of sustainability. Recommended for environmental science majors and engineering students. Prerequisite: PHY 102 and PHY 102L, or PHY 105 and PHY 105L.

**PHY 303 Atmospheric Physics**

**(3-0-3).** Deals with applications of thermodynamics, radiation theory, optics and mechanics to atmospheric phenomena: composition, origin and structure; atmospheric processes; extra-tropical synoptic scale disturbances; cloud microphysical processes; radiation transfer and trapping; energy balance; and atmospheric dynamics. Prerequisite: PHY 105 and PHY 105L, or PHY 106 and PHY 106L.

**PHY 304 Issues in Environmental**

**Physics (3-0-3).** Examines current environmental issues from a physical perspective, including nuclear waste disposal and contamination, nuclear radiation and shielding, electromagnetic radiation and its effects, ozone depletion and global warming. Prerequisite: PHY

102 or PHY 105.

**PHY 394 Special Topics in Physics (1 to 4 credits):** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**PHY 494 Special Topics in Physics (1 to 4 credits):** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific Lab/Tech fee may apply.

**PHY 496 Independent Study in Physics (1 to 4 credits):** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## POL Political Science

**POL 201 Introduction to Political Studies (3-0-3).** Introduces the science of politics and examines the nature of government and public policymaking. Focuses on the processes of government, including public administration, foreign policy and international relations. Prerequisite: WRI 102.

**POL 202 Introduction to International Relations (3-0-3).** Aims to acquaint students with the main stages of the evolution of international relations as a discipline since 1945, which can be seen as an ongoing debate about the explanatory value of one particular theory—Realism. Gives a profound introduction to theories of international relations as well as a theory-based introduction to foreign policy analysis. Analyzes the different schools of international relations theory as well as their respective critiques. Prerequisite: POL 201.

**POL 208 Introduction to American Government (3-0-3).** Surveys American government and examines the essential

elements of the US political system. Covers such areas as the Constitution, Congress, the presidency, the judiciary, and the electoral system. Discusses the nature of American democracy and examines such topics as federalism, culture, public opinion, political parties, interest groups, elections, and the media. Prerequisite: WRI 102.

**POL 294 Special Topics in Political Science (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**POL 300 Comparative Politics (3-0-3).** Introduces students to key themes, theories and debates in comparative politics. Examines these topics either in the context of the developed or the developing world, depending on the instructor's choice. Provides students with an overview of the historical, political, economic and ideational dynamics that have shaped the states and societies of the developed and developing worlds. Prerequisite: POL 202.

**POL 302 Law and Diplomacy (3-0-3).** Introduces students to the core concepts of the law and legal philosophy and explores the relationship between the law and political dynamics. Explores the changing functions of the state and how they were manifest in law and diplomacy. Also introduces students to the concept of the diplomatic and consular law, and its sources and scope. Prerequisite: POL 201.

**POL 304 International Organizations (3-0-3).** (Cross-listed as SOC 304). Introduces the structure and function of international organizations and their role in economic, political, military, cultural or humanitarian relations among nation-states. Selected organizations such as the United Nations, NATO, OPEC and the WTO are examples. Prerequisite: POL 202.

**POL 305 Public International Law (3-0-3).** Examines substantive international law, including the Law of the Seas, crimes against humanity, environmental law, the Geneva accords, international treaties, regional treaties, the Charter of the United Nations

and trade agreements. Analyzes selected legal institutions such as the International Court of Justice in The Hague and other tribunals dealing with international disputes. Prerequisite: POL 202.

**POL 307 Wars, Conflicts and Diplomacy (3-0-3).** Introduces the causes of war and other levels of violent international conflict, and the efforts that nations and international organizations make to avoid them. Includes an examination of the techniques of diplomacy that have been utilized, historically speaking, in these attempts to avoid wars and violent conflicts. Emphasizes concepts of national self-interest, realpolitik, just and unjust wars, non-interference with internal sovereign issues and nuclear weapons issues. Analyzes case studies of specific wars and considers various theories for controlling potential future flare-ups and real international conflict situations. Prerequisite: POL 202.

**POL 308 American Foreign Policy (3-0-3).** Examines the evolution and impact of American foreign policy. Studies the major issues in past and current US foreign policy, with a focus on the historic debates that have shaped American international conduct and their relevance to today's politics. Studies the processes of American foreign policy and examines the various factors in both the domestic and international contexts that have shaped and currently shape foreign policy initiatives. Particular attention is given to the sources of basic American policies during the past half century, along with a focus on the various theoretical approaches to explanation. Also examines the pressing issues of today, particularly those pertaining to the Middle East and the West. Prerequisite POL 201 and POL 202 or POL 208.

**POL 309 The American Political System (3-0-3).** Aims to provide students with an understanding of the nature of the American political system, its constitutional framework, its principles and practice. Focuses on the constitutional system of separated powers and checks and balances, and examines the dynamics of American

politics, the interaction between its various political actors, and the relationships between the institutions of the presidency, congress and courts as “rivals for power.” Provides students with a better appreciation of the workings of the American political system and the issues that are essential to American political life. Prerequisite: POL 201 and POL 202 or POL 208.

**POL 394 Special Topics in Political Science (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**POL 494 Special Topics in Political Science (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**POL 496 Independent Study in Political Science (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## PSY Psychology

**PSY 101 General Psychology (3-0-3).** Explores topics such as research methods, the nature of psychological phenomena, physiological bases of behavior, life-span development, altered states of consciousness, sensation, perception, learning, conditioning, memory, language, thinking, motivation, emotion, personality, individual differences, conflict and stress, abnormal behavior, therapeutic techniques and social psychology. Prerequisite: WRI 102.

**PSY 102 Social Psychology (3-0-3).** Introduces the scientific study of social behaviour and social influences on behavior. Focuses on the study of how our behaviors, thoughts, and emotions

are affected by the real or imagined presence of other people. Presents theories and research on such topics as attitude change and persuasion, stereotypes and prejudice, conformity and obedience to authority, altruism, conflict, interpersonal attraction and friendship. Prerequisite: WRI 102.

**PSY 294 Special Topics in Psychology (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: topic specific. Lab/Tech fee may apply.

**PSY 301 Abnormal Psychology (3-0-3).** Covers different theoretical approaches and empirical studies of causes, symptoms and treatment of abnormal 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; and how such disorders arise from subtle interactions between organic or psychological predisposition. Prerequisite: PSY 101.

**PSY 302 Developmental Psychology (3-0-3).** Examines the biological, psychological and sociocultural determinants of human development from conception until death. Special attention is given to adolescent development with regards to identity, parent-adolescent relationships, values, sexuality, career development, psychopathology, substance abuse, delinquency and alienation. Prerequisite: PSY 101 or PSY 102.

**PSY 303 Health Psychology (3-0-3).** Takes a multi-disciplinary approach (psychology, sociology, anthropology and biology) to present the current research and controversies to explore the mind-body connection: how psychological and behavioral factors influence health and illness and how illness impacts the psyche. Prerequisite: PSY 101 or PSY 102.

**PSY 304 Personality Psychology (3-0-3).** Provides students with a comprehensive overview of the role of personality in psychology. Develops and engages the critical thinking skills that are characteristic of behavioral scientists. Examines contemporary

theories and explores the critique of social constructionists. Demonstrates the understanding of human behavior, drawing on phenomenology and personal construct theory. Prerequisite: PSY 101 or PSY 102.

**PSY 305 Cognitive Psychology (3-0-3).** Provides students with a comprehensive overview of the role of cognition in psychology. Develops and engages the critical thinking skills that are characteristic of behavioral scientists. Explores the basics of cognitive psychology through the coverage of cognitive neuroscience, attention and consciousness, perception, memory, knowledge representation, language, problem solving and creativity, decision making and reasoning, cognitive development and intelligence. Prerequisite: PSY 101 or PSY 102.

**PSY 306 Organizational Psychology (3-0-3).** (Formerly PSY 205). Develops and engages the critical thinking skills that are characteristic of behavioral scientists. Demonstrates the theories and application of psychology in the workplace with the following topics: psychology at work, establishing a strong workforce, social organization, and solving human problems of work. Prerequisite: PSY 101 or PSY 102.

**PSY 394 Special Topics in Psychology (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**PSY 494 Special Topics in Psychology (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**PSY 496 Independent Study in Physics (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## SOC Sociology

**SOC 201 Introduction to Sociology (3-0-3).** Surveys the discipline and provides a foundation for other sociology courses. Introduces some of the major concepts, theories, and research findings of sociology. Considers topics such as education, race and ethnicity, organizations, the mass media, poverty, and social deviance. Prerequisite: WRI 102.

**SOC 220 American Society (3-0-3).** Examines how American society is shaped by such social forces as race, class, and gender. Considers additional topics to include immigration past and present; social movements such as civil rights movement; citizenship and democracy; and social control and deviance. Prerequisite: WRI 102.

**SOC 294 Special Topics in Sociology (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**SOC 302 Environmental Sociology (3-0-3).** (Formerly SOC 202). Examines how societies adapt to and transform their physical environment. Considers topics such as sustainable development, environmentalism as a social movement, public policy, and urban sprawl. Prerequisite: WRI 102.

**SOC 304 International Organizations (3-0-3).** (Cross-listed as POL 304). Introduces the structure and function of international organizations and their role in economic, political, military, cultural or humanitarian relations among nation-states. Selected organizations such as the United Nations, NATO, OPEC and the WTO are examples. Prerequisite: POL 202.

**SOC 380 Urban Sociology (3-0-3).** Explores changing urban life in different cultural, social, and historical settings. Examines both classic and contemporary debates within urban sociology. Considers topics such as social segregation, urban planning, homelessness, urban development, and public service delivery. Prerequisite: WRI 102.

**SOC 394 Special Topics in Sociology (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**SOC 494 Special Topics in Sociology (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**SOC 496 Independent Study in Physics (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## STA Statistics

**STA 101 Engineering Statistics (2-0-2).** Covers summarizing data and descriptive statistics, designing experiments, sampling distributions, basics of probability theory, introduction to statistical inference (estimation and hypothesis testing), simple regression and correlation and using statistical software. Discusses engineering applications.

**STA 201 Introduction to Statistics for Engineering and Natural Sciences (3-1-3).** Explores descriptive statistics, probability distributions, experimental design and sampling, estimation, hypothesis testing, analysis of variance, regression analysis and correlation, analysis of categorical data and the use of statistical computer software. Prerequisite: MTH 103 or MTH 111. Not open to SBM students in BS and BSBA degree programs. Lab/Tech fee rate A applies.

**STA 202 Introduction to Statistics for Social Sciences (3-1-3).** Introduces acquisition and development of statistical methods that are commonly used in social sciences. Covers techniques for classification of data, descriptive statistics, probability distributions, sampling techniques,

estimation, hypothesis testing, analysis of variance, categorical data analysis, simple regression and correlation, and the use of statistical computer software. Prerequisite: MTH 100 or MTH 101 or MTH 103 or MTH 111. Not open to SBM students in BS and BSBA degree programs. Lab/Tech fee rate A applies.

**STA 294 Special Topics in Statistics (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**STA 360 Probability and Stochastic Processes (3-0-3).** (Cross-listed as COE 360, ELE 360 and MTH 360). Covers set theory, preliminaries of probability theory and random variables, stochastic processes, Markov chains, examples of continuous time Markov chains and applications to systems. Prerequisites: MTH 221, and NGN 111 or STA 201.

**STA 361 Probability and Statistics (3-0-3).** Covers random variables and their probability distributions, moments and generating functions, random vectors, some special distributions, limit theorems, sample moments and their distributions, and the theory of point estimation. Prerequisites: MTH 104 and STA 201.

**STA 394 Special Topics in Statistics (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**STA 494 Special Topics in Statistics (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**STA 496 Independent Study in Physics (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## THM

## Theme

## TRA

## Translation and Interpreting

**THM 301 Arabs and the West: The Andalusian Symbiosis I (3-0-3).**

Introduces students to the cultural symbiosis between Arabs and Europeans during the eight centuries of Arab/Muslim rule in Spain. Closely examines and reevaluates the literary, cultural and scientific developments of that time. In the first semester, students learn about the historical, literary, linguistic, artistic and architectural products of Al Andalus. Satisfies the Arabic heritage requirement. Prerequisite: junior standing.

**THM 302 Arabs and the West: The Andalusian Symbiosis II (3-0-3).**

Examines the channels through which philosophical, religious, scientific and technological knowledge, in Muslim Spain was produced and transmitted. Ends with a reevaluation of the Andalusian legacy to the Arab World and the West. Satisfies the Arabic heritage requirement. Prerequisite: junior standing.

**THM 310 Social Science Analysis of Environmental Issues I (3-0-3).**

(Cross-listed as ECO 281). Provides students with a broad overview of social science issues related to the use of environmental and natural resources. Provides an overview of current and historical environmental trends; a framework of environmental policy analysis; and an overview of environmental law, environmental ethics, special interest group politics, and the role of political and economy systems in determining environmental quality. Prerequisite: junior standing.

**THM 311 Social Science Analysis of Environmental Issues II (3-0-3).**

(Cross-listed as ECO 282). Uses the analytical tools and background studied in THM 310 to address specific environmental and natural resource problems. Addresses the environmental problems of global climate change, acid rain, ozone depletion, solid waste disposal, water resources, energy resources, fisheries, forests and biodiversity, among others. Prerequisite: THM 310 or ECO 281.

**TRA 210 Introduction to Translation (3-0-3).**

(Formerly TRA 101) Aims to familiarize students with the field of translation and the skills necessary to work as successful translators.

Emphasizes a problem-solving approach, supported by text analysis (both in the pre-translation phase and in subsequent editing and evaluation). Practical tasks will involve translation into and out of English and Arabic. Prerequisite/concurrent: WRI 101.

**TRA 220 Theoretical and Practical Issues in Translation (3-0-3).**

(Formerly TRA 201) Views translation practice as seen in the light of various theories and models of translation. Invokes theories informed by modern linguistics, cultural studies and literary criticism with the aim of sensitizing the translator to the intricacies of the task. Assesses and examines at various levels of language organization (word level, sentence level, text level, pragmatics, etc.) the key notion of "equivalence." Examines issues such as the translation of metaphor and idiomatic expressions, dealing with meaningful repetition and biased translation shifts. Prerequisite: WRI 102.

**TRA 294 Special Topics in**

**Translation (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**TRA 301 Modern Media Translation**

**(3-0-3).** Focuses on those modes and situations that relate to the translation of the print media. Includes the processing and translation of advertisements, news reports, magazine articles, public relations and promotional literature, and publicity materials within a framework of media translation studies. Prerequisite: TRA 210.

**TRA 303 Interpreting: Focus on the Community (3-0-3).**

(Formerly TRA 203) Introduces interpreting and distinguishes this skill from translation. Prepares students for interpreting

through nurturing the ability to understand and analyze a message in the source language and convey it in the target language in a straightforward and clear manner. Develops the basic skills of liaison interpreting, with special emphasis on community interpreting (doctor-patient, court, official transactions, etc.) Prerequisite: TRA 210. Lab/Tech fee rate B applies.

**TRA 401 Translation Evaluation and History (3-0-3).**

Explores the conceptual map of translation studies and reflects on important points in the history of translation. Emphasizes both Western and Eastern translation traditions and the role of translation in the development of culture and identity. Introduces translation evaluation, and develops rigorous assessments schemes. Prerequisite: TRA 210.

**TRA 394 Special Topics in**

**Translation (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**TRA 494 Special Topics in**

**Translation (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**TRA 496 Independent Study in**

**Translation (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## WST Women's Studies

**WST 240 Introduction to Women's**

**Studies (3-0-3).** Provides an introduction to women's studies, its perspectives and its interdisciplinary nature. Emphasizes feminist analysis and critical thought as a way of making

knowledge. Draws on history, literature, popular culture and the arts to analyze the forces that shape women's lives and examine women's position in culture and society. Prerequisite: WRI 102.

**WST 250 Women's Voices Across Cultures (3-0-3).** Examines debates surrounding the genre of autobiographical writing by women across cultures. Considers the aspirations, frustrations and achievements of women as documented in their own words. Explores the ways in which language and representation in various cultures shape subjectivity, challenge and redefine the boundaries of the autonomous self. Prerequisite: WRI 102.

**WST 294 Special Topics in Women's Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**WST 394 Special Topics in Women's Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific.

**WST 494 Special Topics in Women's Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific.

**WST 496 Independent Study in Women Studies (1 to 4 credits).** Involves a theoretical or practical project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## WRI Writing Studies

**WRI 001 Fundamentals of Academic Discourse (5-0-3).** (Formerly COM 001). Introduces students to basic strategies for university success with particular emphasis on reading and writing skills. Students develop goal setting, time management, and study skills while reading and responding to university texts. Through reading and writing activities students become familiar with the conventions of academic writing. This course includes contextualized grammar instruction. Prerequisite: EPT below 4.

**WRI 101 Academic Writing (3-0-3).** (Formerly COM 101). Challenges students to recognize, understand, and produce academic writing. Students practice strategies for reading academic material by responding to texts in both formal and informal writing assignments and classroom discussion. Students enhance their writing skills through use of the writing process. Students also develop the necessary grammar and mechanical skills for written English proficiency through contextualized grammar instruction. Prerequisite: EPT 4 or WRI 001.

**WRI 102 Writing and Reading Across the Curriculum (3-0-3).** (Formerly COM 102). Focuses on the development of active reading, critical thinking, and analytical writing. Students practice critical reading strategies by engaging with challenging and academically diverse texts and responding through formal and informal critical evaluations. Students develop their academic writing skills by identifying and fulfilling the requirements of supporting an academic thesis. Students address issues of grammar and mechanics within the context of their writing. This course also introduces students to basic

research techniques. Prerequisite: EPT 5 or WRI 101.

**WRI 294 Special Topics in Writing Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific. Lab/Tech fee may apply.

**WRI 394 Special Topics in Writing Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: sophomore standing and topic specific. Lab/Tech fee may apply.

**WRI 494 Special Topics in Writing Studies (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: junior standing and topic specific. Lab/Tech fee may apply.

**WRI 496 Independent Study in Writing Studies (1 to 4 credits).** Involves a theoretical or practical topic project conducted by an individual student under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: junior standing and approval of instructor.

# School of Architecture and Design

## ARC Architecture

**ARC 201 Architectural and Interior Design Studio I (12-0-6).** (Cross-listed as IDE 201). Studio-based investigation of the fundamentals of making architectural form and space with emphasis on design inquiry, exploration and process. Concentrates on classic instances of form sources in architectural and interior design: function, experience, structure, construction and context. Digital media are integral to the studio, and students receive instruction in software appropriate for design purposes. Prerequisites: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131, DES 132, WRI 101 or WRI 102 and MTH 003 or MTH 111 or MTH 103. Lab/Tech fee rate B applies.

**ARC 202 Architectural and Interior Design Studio II (12-0-6).** (Cross-listed as IDE 202). Continues the content and purpose of ARC 201 with increased emphasis on design development and physical and technical resolution. Digital media are integral to the studio, and students receive continued instruction and practice in software appropriate for design. Prerequisites: ARC 201 or IDE 201. Lab/Tech fee rate B applies.

**ARC 213 Analysis and Methods in Architecture (3-0-3).** (Formerly ARC 212). Introduces models of process and conception in architectural design, addressing fundamental concepts of method, spatial organization, material, structure and context as aspects of a comprehensive design intention. Course format includes lectures, seminars, field visits and readings. Assignments involve written and graphic communication. Prerequisites: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.

**ARC 215 Descriptive Geometry (4-0-3).** Introduces concepts and practices of the precise description of form in space. Systematic treatment of projection systems, including orthographic, oblique and perspective

projections. Instruction and assignments involve both traditional and digital design media. Course format includes lectures and supervised applications. Prerequisites: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132. Lab/Tech fee rate A applies.

**ARC 224 Modern Foundations of Art and Architecture (3-0-3).** (Formerly ARC 220). Covers principles and practices fundamental to an understanding of the art and architecture of the modern era. Presentation integrates history and theory with practical design and application and proceeds topically rather than chronologically. Prerequisites: WRI 102, and ARC 201 or IDE 201.

**ARC 225 Islamic Art and Architecture (3-0-3).** Concentrates on common and regional elements of Arab and Islamic material culture. Follows developments from formation of an architectural language to diverse regional expressions in calligraphy, ceramics, metals, carpets and other media of artistic work. Relates stylistic phenomena to underlying spiritual and intellectual intent. Prerequisite: WRI 102.

**ARC 232 Survey of Materials and Practices in Construction (3-0-3).** (Formerly ARC 231). Surveys building materials and their properties, assembly sequences and methods of construction in the context of their influence on the form, cost and quality of the built environment. Taught utilizing a case study approach to demonstrate both the continuing evolution of the building process and the timeless nature of the issues involved. Course format includes lectures and supervised applications. Prerequisite: ARC 201 or IDE 201.

**ARC 242 Statics and Mechanics of Materials for Architecture (3-1-3).** (Cross-listed as CVE 272). (Formerly ARC 240). Covers static equilibrium of forces and free body diagrams; analysis of simple beams, columns and trusses; truss forms, configuration and performance; tributary loads, load path and load tracing in structural systems; simple funicular forms (arches and cables); geometric properties and

forms of flexural elements (centroid and moment of inertia); internal forces (bending moment and shear force diagrams in beams); axial stress and strain; bending and shearing stresses; mechanical properties of common building materials; and tensile, compression, and bending and torsion tests for different building materials (steel, concrete, wood). Prerequisite: PHY 104. Not open to Civil Engineering students. Lab/Tech fee rate A applies.

**ARC 294 Special Topics in Architecture (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**ARC 301 Architectural Design Studio III (12-0-6).** Advances the fundamentals of the making of architectural form based on concepts derived from space, structure and building construction. Studio-based projects emphasize design strategies for small, multi-level, infill buildings with conventional, short-span structural systems. Prerequisites: PHY 104, and ARC 202 or IDE 202.

**ARC 302 Architectural Design Studio IV (12-0-6).** Includes studio-based projects with emphasis on the tectonics of building structure and envelope. Building case studies and design projects explore a range of material and construction system types including steel, wood, masonry and reinforced concrete. Prerequisites: ARC 301 and ARC 213.

**ARC 311 Illustration and Rendering (4-0-3).** (Cross-listed as IDE 311). Covers illustration and rendering techniques that enable students to express their ideas faster with more precise results. This course covers freehand color drawing techniques using markers, color pencils and watercolors. Prerequisites: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.

**ARC 312 Advanced Representation (4-0-3).** Expands on representational techniques. Focuses on the application

and use of these techniques in the presentation and representation of design concepts and drawing compositions. Introduces color drawing techniques using mixed media of hand drawing and computer generated drawings and illustrations, photomontage and collage.

Prerequisites: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132. Lab/Tech fee rate B applies.

**ARC 315 Modeling and Rendering (4-0-3).** (Cross-listed as IDE 315).

(Formerly ARC 310). Presents a rationalized, geometrical approach to the conception and description of form. Selected examples of architectural form are first rigorously analyzed to re-derive their constructional logic and then are “built” as detailed electronic models.

Students explore the potential of digital design technologies as instruments to achieve vivid, authentic, holistic simulations of architectural reality, appropriate to the testing of architectural ideas. Taught in a modified studio format. Prerequisite: ARC 301 or IDE 301. Lab/Tech fee rate A applies.

**ARC 322 Global Issues in**

**Architecture (3-0-3).** Examines our emerging understanding of global issues confronting humankind, including population growth, declining reserves of non-renewable resources, etc. Gives an overview of the environmental impact of human communities through history. Prerequisites: ARC 224 and PHY 104.

**ARC 325 Ideas in Architecture (3-0-3).** (Formerly ARC 321).

Introduces the conceptual basis of the work of specific architects, historical and contemporary architectural historians and theoreticians, and schools of thought in architecture with an emphasis on the understanding of both written and visual analysis of built form and design. Prerequisite: ARC 224.

**ARC 333 Rough Construction Process (3-0-3).** (Formerly ARC 330).

Offers an in-depth presentation of contemporary regional construction practices used to prepare the sites and to erect the building’s basic structure. These include site preparation; foundations; concrete, steel and timber structures; and masonry work. The basics of producing construction drawings are discussed. Prerequisite: ARC 232.

**ARC 344 Structural Design for**

**Architects (3-1-3).** (Cross-listed as CVE 372). (Formerly ARC 342). Covers classification of structural elements and systems; Analysis and behavior of structural elements and systems (simple beams, comprehensive members, continuous beams, frames, plates, membranes and shells); the relationship between behavior of structural elements used in architecture and their forms; the structural design process, codes and specifications; qualitative and preliminary selection of steel and concrete structural elements; types and behavior of structural connections; and types and behavior of foundations. Prerequisite: ARC 242 or CVE 272. Not open to Civil Engineering students. Lab/Tech fee rate A applies.

**ARC 354 Environmental Energies**

**and Building Form (3-0-3).** (Formerly

ARC 351). Studies the physical phenomena that make climate (rain, humidity, temperature, wind, sun, etc.) influence buildings. The topics include heat transfer methods, solar radiation, vapor in air, air leakage and water condensation and wind movement. Studies indoor thermal environment and thermal comfort of building occupants. Examples on how these phenomena are used in buildings design are discussed. Prerequisite: PHY 104.

**ARC 364 Introduction to Computer-**

**Aided Drawing (0-2-1).** (Cross-listed as IDE 364). (May test out of course). Training for mainstream CAD applications using Windows operating system. Develops basic familiarity and proficiency with applications commonly encountered during professional training. Graded as P/F. Prerequisite: ARC 202 or IDE 202. Lab/Tech fee rate B applies.

**ARC 365 Computer-Aided Design**

**(4-0-3).** (Cross-listed as IDE 365). (Formerly ARC 371). Systematically introduces computer-aided architectural design. Discussion and training focuses on a variety of CAAD applications in order to show the similarities (basic principles of CAAD) as well as the idiosyncrasies of the individual applications. Includes modeling of existing buildings utilizing CAAD applications from the core software suite utilized by SA&D. Topics include

objects, layers, classes, dimensions, units, scales, groups, symbols, different description models in 3D, levels of precision, different construction methods and work strategies.

Prerequisite: ARC 201 or IDE 201. Lab/Tech fee rate B applies.

**ARC 366 Applied Computer-Aided Design (4-0-3).** (Cross-listed as IDE

366). Systematically introduces the basic practice of computer-aided architectural design. Presentation and training focuses on two mainstream production CAAD applications, ArchiCAD and AutoCAD, with the intent to develop basic familiarity and proficiency with the applications most likely to be encountered in offices during professional training. Introduction to AutoCAD occurs on PCs running the Windows NT operating system. Topics extend those introduced in ARC 365 to include detailed treatment of tool palettes and inter-platform compatibility. Prerequisite: ARC 201 or IDE 201. Lab/Tech fee rate B applies.

**ARC 374 Environmentally**

**Sustainable Design (4-0-3).** (Cross-

listed as IDE 374). Develops a greater focus on holistic and sustainable approaches to design. Issues such as demand and supply of energy and water and the generation of waste are covered. Principles of reduce, reuse and recycle are reiterated. Predominant emphasis is on practical strategies directly applicable in design. Material is presented as lectures and seminars, supplemented with readings. Prerequisite: PHY 104.

**ARC 397 Internship in**

**Architecture I (0-0-0).** Requires a minimum of six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Graded as P/F. Registration fee applies. Prerequisite: ARC 302.

**ARC 401 Architectural Design**

**Studio V (12-0-6).** Requires design of open site projects of moderate scale with emphasis on building form derived from the analysis of site context and site planning strategies. Prerequisites: ARC 224, ARC 232, ARC 302; and ARC 242 or CVE 272.

**ARC 402 Architectural Design Studio VI (12-0-6).** Comprises comprehensive building design project integrating building technologies with other non-technical design issues. Introduces programming and includes a detailed, design development of an aspect of building technology. Prerequisites: ARC 325, ARC 333, ARC 397 and ARC 401; prerequisite /concurrent ARC 354.

**ARC 424 Evolution of Cities (3-0-3).** Introduces the origin, growth and development of cities throughout the history. Examines the various socio-economic, historic, political and environmental forces that help explain city form. Explores case studies of sites from ancient times to the present with particular emphasis on cities in Islamic and Middle Eastern cultures. Prerequisite: ARC 202 or IDE 202.

**ARC 434 Finish Construction Process (3-0-3).** (Formerly ARC 431). Examines in-depth the trades and processes involved in finishing a building. These are the major components that are built following the erection of the building's basic structure. They include stairs, doors, windows, partitions, ceilings, floors, claddings and joints. Includes discussion of design considerations and construction methods with hands-on experience in producing detailed drawings of some elements. Prerequisite: ARC 333.

**ARC 436 Working Drawings (4-0-3).** (Formerly ARC 472). Introduces the production of working drawings used in the building industry. A preliminary building design is developed to produce a set of complete architectural working drawings. Emphasis is placed on the use of computer technology in drawing production and information coordination. Prerequisite: ARC 301 or IDE 301.

**ARC 451 Lighting and Acoustics (2-3-3).** Introduces the basic concepts of acoustics and illumination. Explains and demonstrates both the qualitative and quantitative aspects of sound and light in the built environment to obtain an awareness and understanding of their impact on overall design decisions. The course is divided into two parts: the architecture of sound, its terminology and the process of transmission and practical applications;

and the architecture of light, its nature, sources, characteristics, calculation and application. Each part addresses both the art and science of the respective disciplines. Computer simulation and modeling is used as research tools. Prerequisites: PHY 104, and ARC 202 or IDE 202. Lab/Tech fee rate A applies.

**ARC 455 Environmental Control Systems (3-0-3).** (Formerly ARC 452). Presents the basic principles for the selection and the design of the main environmental control systems in buildings. These include plumbing, heating, ventilation, air conditioning, electric, lighting, and fire suppression and protection systems. Prerequisite: ARC 354.

**ARC 461 Project Management (3-0-3).** (Cross-listed as IDE 461 and DES 461). Introduces the basic and advanced concepts of running design projects. Explores the design process and project phases, analyzing them in detail under the project management concept of delivering projects "on time, on budget, every time." Prerequisite: ARC 397 or DES 397 or IDE 397.

**ARC 462 Design Management (3-0-3).** (Cross-listed as IDE 462 and DES 462). (Formerly ARC 460). Introduces the principles and practices of the economic and commercial aspects of architectural and design practice in a global economy. Includes microeconomics theory as it applies to private enterprise: basic business economics, planning and management. Attention is also given to the processes and skills required in establishing an independent architectural office. Prerequisite: ARC 397 or IDE 397 or DES 397.

**ARC 465 Advanced Computer-Aided Design (4-0-3).** (Cross-listed as IDE 465). Concentrates on the specific demands on CAD systems by the architecture and building professions. Application of CAD systems to the different phases of planning: preliminary design, design, construction documents, extraction of volumetric data and transfer to spreadsheet and/or database software, rendering software, post-rendering work in pixel-editing software, technical drawing layout software, etc. Prerequisite: ARC 301 or IDE 301. Lab/Tech fee rate B applies.

**ARC 471 Site Planning (4-0-3).** Focuses on the site as a fundamental component of building design. Examines the interrelationship of intended site use with the environment. Examines topography, vegetation and landscape, climate, geography as well as theoretical aspects of site development. Emphasizes the synthesis of programmatic and environmental requirements into a coherent concept for building placement and site improvements. Prerequisite: ARC 302.

**ARC 473 Introduction to Landscape Architecture (4-0-3).** Introduces the techniques of site inventory, analysis and design. Specific skills in reading and modifying topography, understanding micro-climatic influences, vehicular and pedestrian access, formal and functional relationships to surrounding buildings, respect for ecology and other site and site-use factors are treated in lecture/demonstration class settings. Prerequisite: ARC 302.

**ARC 493 Study Abroad (1 to 3 credits).** On-site visits offering the opportunity to experience first-hand regional and international design practices, highlighting particular themes relevant to the specific location. Department permission is required for enrollment and credit. Prerequisite: ARC 302 or IDE 302.

**ARC 494 Special Topics in Architecture (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**ARC 496 Independent Study (1 to 4 credits).** Involves investigation under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and consent of the instructor.

**ARC 497 Internship in Architecture II (0-0-0).** Requires a minimum of eight weeks of on-the-job experience with an approved professional firm. Work undertaken must be documented in a formal report to the department by mid-semester of the following term. Graded as P/F. Registration fee applies. Prerequisite: ARC 402.

**ARC 498 Studio Abroad (3 to 6 credits).** Provides studio activities conducted in regional and international sites promoting a global-oriented approach to design. Prerequisite: studio specific.

**ARC 505 Architectural Design Studio VII (12-0-6).** Research-directed investigation involving architecture and urban design. Prerequisites: ARC 402, and ARC 344 or CVE 372.

**ARC 506 Architectural Design Studio VIII (12-0-6).** Research-directed design studio. Studio topic is related to some aspect of architectural design (history/theory, technology, representation, urban or heritage resource management, etc.). Students pursue directed research in support of a design investigation. Prerequisites: ARC 402.

**ARC 520 Architectural Criticism (4-0-3).** Addresses a coherent understanding of contemporary architecture by focusing on readings, discussions and presentations in order to mature the student's cognition to today's architectural strategies. Prerequisite: ARC 325.

**ARC 530 Case Studies in Building Construction (4-0-3).** Provides in-depth study of the interrelationship of building construction and architectural design with consideration of the design development, taking into account the resulting changes throughout the development of a design. Students gain the ability to assess and analyze the relationship between tectonics and architecture, as well as to apply this to their own design work. Prerequisite: ARC 333.

**ARC 561 Construction Management (3-0-3).** (Cross-listed as CVE 561). Studies in-depth the interrelationships among the various professional disciplines in the building and construction industry as they pertain to issues of management and planning of complex construction projects. Reviews standard practices of tendering, contracting, quantity surveying, cost estimation, supervision, quality control and economy. Taught in Department of Civil Engineering. Prerequisite: ARC 397 or IDE 397.

**ARC 571 Fundamentals of Urban Planning (3-0-3).** (Cross-listed as

UPL 501). Introduces the discipline of urban planning. Surveys the history of the field as well as its links with other fields of environmental studies such as architecture, urban design, geography, engineering, etc. Overviews what planners do and the tools they use in their practice. Prerequisites: ARC 402 and CGPA of 2.5 or above.

**ARC 573 Principles of Urban Design (3-0-3).** (Cross-listed as UPL 582). Examines major concepts, principles, and theories of urban design. Reviews the historic development of urban design as a professional field and surveys current urban design issues, trends, and practices in both the Western and non-Western/Islamic contexts. Prerequisites/concurrent: ARC 402 and CGPA of 2.5 or above.

**ARC 578 Environmental Planning (3-0-3).** (Cross-listed as UPL 548). Comprehensive overview of the field of environmental planning and how it relates to efforts intended to manage, organize and protect environmental resources. Reviews the political and administrative context of environmental planning. Addresses principles of sustainability, ethics and the law in relation to land, air, water and other natural resources. Prerequisites/concurrent: ARC 402 and CGPA of 2.5 or above.

**ARC 591 Final Project Research (6-0-3).** Students choose a design topic with the guidance of an advisor and approval of the faculty. Each student prepares an individual program for ARC 592 Final Project Design, concluding with a formal, bound document. Prerequisites: ARC 344 or CVE 372, ARC 462 or IDE 462, and ARC 402, ARC 434, ARC 455 and consent of the department.

**ARC 592 Final Project Design (12-0-6).** Individual resolution of the design problems initiated in ARC 591, prepared under the guidance of a selected faculty advisor, presented and defended in a formal public critique. This course may substitute for ARC 506. Prerequisites: ARC 497, ARC 505, ARC 591 and consent of the department.

## DES

## Design

**DES 100 Digital Media in Design (4-0-3).** Introduces digital media as an integral part of design process and Internet communications. Covers care and operation of hardware; the function and features of the Mac operating system; and use of the keyboard, mouse and other input devices such as digital cameras and scanners, and output devices such as printers and plotters. The course introduces students to the integrated use of software appropriate for word processing, document layout, spreadsheets, communication and research, drawing and modeling. Restricted to SA&D and MCM majors. Lab/Tech fee rate A applies.

**DES 111 Descriptive Drawing I (6-0-3).** Introduces the students to the fundamental principles of observational and analytical drawing. Various representational and analytical approaches are explored through assignments that encourage the development of skills needed to effectively represent and communicate visual information. Restricted to SA&D students.

**DES 112 Descriptive Drawing II (6-0-3).** Further introduces the student to the principles of drawing. Emphasis is given to the development of an individual approach to representation, and a wide variety of assignments encourages the student to develop an understanding of a range of techniques and materials of drawing. Prerequisite: DES 111. Restricted to SA&D students.

**DES 121 History of Material Culture I (3-0-3).** Examines the artistic material culture of humanity through architecture, monuments, sculpture and painting. The technological, religious and social forces that shaped these works are explored. The first part of this course covers the time span from the Stone Age through the Ancient Middle East and the Classical, Medieval and Islamic eras. Restricted to SA&D students.

**DES 122 History of Material Culture II (3-0-3).** A continuation of DES 121 that traces development of world artistic material culture from the 15th century to the present time. Restricted to SA&D students.

**DES 131 Design Foundations I (6-0-3).**

Introduces the principles, conceptual and critical skills, and the techniques of design. Students learn to observe the world critically and meticulously and to analyze both the broad structures and the small details of visual phenomena. Students master skills needed to conceptualize and communicate their observations through traditional means (drawing, painting and drafting), as well as through digital and other media. They learn craft and acquire making skills with a variety of materials and methods. Class assignments, critiques and presentations will enable students to begin developing an aesthetic awareness coupled with critical thinking skills. Restricted to SA&D students.

**DES 132 Design Foundations II (6-0-3).**

Continues the principles of design, with an emphasis on testing aesthetic and perceptual assumptions. Students develop problem-solving techniques through individual design solutions. While Design I focuses on skills and the discovery and critical understanding of the phenomenal world, Design II is primarily concerned with manipulation and synthesis, and the design and creation of unique two- and three-dimensional design concepts. Prerequisite: DES 131. Restricted to SA&D students.

**DES 141 Introductory Painting (6-0-3).**

Introduces the fundamentals and principles of observational painting. Various representational strategies, methods, materials and techniques are explored, with exercises and assignments designed to develop skills needed to communicate visual information in a painterly context. Restricted to SA&D students.

**DES 142 Painting: The Practice of Color (6-0-3).**

Suitable for both beginners and intermediate level students interested in learning about color and paint. The course is designed to both build on the students' knowledge of the principles, techniques and critical skills developed in Introductory Painting I, as well as introduce new students to the basic theories of color and paint application. Restricted to SA&D students.

**DES 151 Introduction to Printmaking (6-0-3).**

Introduces the fundamental

methods, materials and processes of printmaking. The emphasis is placed on technique, craft and development of proper studio working habits, studio safety and the development of accurate printing skills and printing consistency. Students work on monochrome and polychrome projects using single and multiple matrixes. They learn the essentials of color printing and how to build color through CMYK methods.

**DES 200 Communication Design (6-0-3).**

Introduces the materials and techniques most commonly used by designers in the field of communication and stresses the development of skill in these areas through the completion of class assignments and projects representative of the concepts discussed in class. Students develop a deeper understanding of visual communication and become well-versed in the capacities and restrictions inherent in the materials and techniques most commonly used by professional designers. Prerequisite: DES 100. Not open to Multimedia Design and Visual Communication students. Lab/Tech fee rate A applies.

**DES 211 Intermediate Drawing Studio (6-0-3).**

Suitable for intermediate-level students interested in expanding their drawing skills and contextual knowledge of the field of drawing. Encourages experimentation through the introduction and exploration of various mediums and techniques. This course also further explores and enhances the student's knowledge of analytical and observational drawing skills. These objectives are pursued through intensive studio-based practice. Prerequisites: DES 111 and 112.

**DES 230 Digital Media in**

**Communication Design (6-0-3).** A continuation of DES 100 that builds on the development and skills associated with digital design. Working with the latest in industry-specific hardware and software, students gain a more complete understanding of how digital media is used in electronic design and learn the capabilities available to communication designers. Emphasis is given to the creation, preparation and presentation of finished digital media projects. Prerequisite: DES 100. Not open to Multimedia Design and Visual Communication students. Lab/Tech fee rate A applies.

**DES 231 History of Design (3-0-3).**

Explores topics in the history of design and visual communication. Introduces recognized schools of design philosophy and/or practice. Explores the relationship between design and culture. Prerequisites: SA&D second year standing and WRI 102.

**DES 294 Special Topics in Design (1 to 4 credits).**

Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**DES 300 Design Project (6-0-3).**

Further develops a practical understanding of designing for a purpose. Requires students to define a project that concludes with a presentation to a virtual client and an evaluation of the success of the project. Prerequisite: DES 200. Not open to Multimedia Design and Visual Communication students.

**DES 310 Introduction to Video and Audio Production (6-0-3).**

Provides a basic, hands-on introduction to the practical techniques of scriptwriting, video and audio production, and post-production editing using computer-based, non-linear technology. The development of skills is accomplished through the completion of individual and group projects that are representative of the concepts discussed in class. Students develop some practical abilities in the use of a comprehensive range of production equipment while gaining a deeper understanding and appreciation of the materials and techniques most commonly used by professional producers, directors and editors of educational, commercial, industrial and dramatic media programs. Prerequisite: DES 100. Lab/Tech fee rate A applies.

**DES 320 Introduction to Web Design (6-0-3).**

Introduces website design. Students learn to use a variety of graphic design and Web page authoring tools, and Internet technologies and other relevant issues are discussed. Students are expected to learn and use software packages for developing real-life Web pages. Prerequisite: DES 100. Not open to Multimedia Design and Visual Communication students. Lab/Tech fee rate A applies.

**DES 397 Internship in Design Management (0-0-0).** Requires a minimum of six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Graded as P/F. Registration fee applies. Prerequisite: VIS 361.

**DES 461 Project Management (3-0-3).** (Cross-listed as ARC 461 and IDE 461). Introduces basic and advanced concepts of running design projects. Explores the design process and project phases, analyzing in detail under the project management concept of delivering projects “on time, on budget, every time.” Prerequisite: senior standing.

**DES 462 Design Management (3-0-3).** (Cross-listed as ARC 462 and IDE 462). Introduces the principles and practices of the economic and commercial aspects of architectural and design practice in a global economy. Includes microeconomics theory as it applies to private enterprise: basic business economics, planning and management. Attention is also given to the processes and skills required in establishing an independent architecture or design office. Prerequisite/concurrent: DES 397.

**DES 472 Exhibition Project (3-0-3).** Introduces students to a keynote project. Involves the real planning and exhibition of the final portfolios produced by the Senior Visual communication and Multimedia students to the professional design community. Provides experience in producing and designing exhibitions. Utilizes design management skills in developing a project that relies on a working timeline and organization. Prerequisite: junior standing.

**DES 493 Study Abroad (1 to 3 credits).** On-site visits offering the opportunity to experience first-hand regional and international design practices, highlighting particular themes relevant to the specific location. Department permission is required for enrollment and credit. Prerequisite: Second year standing and consent of the department. Prerequisite: ARC 202 or IDE 202 or MUM 202 or VIS 202.

**DES 494 Special Topics in Design (1 to 4 credits).** Presents a theoretical or

practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**DES 496 Independent Study (1 to 4 credits).** Involves investigation under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: junior standing and consent of the instructor.

**DES 498 Studio Abroad (3 to 6 credits).** Provides studio activities conducted in regional and international sites promoting a global-oriented approach to design. Prerequisite: studio specific.

## HRM Heritage Management

**HRM 201 History of Material Culture in the Arabian Gulf I (3-0-3).** Traces the historical development of art and architecture in the Arabian Gulf region. Examines the material culture of the ancient Middle East, medieval Islam and its associated pan-Islamic and regional styles. Specific attention is paid to the art and architecture of the United Arab Emirates. Prerequisite: WRI 102.

**HRM 202 History of Material Culture in the Arabian Gulf II (3-0-3).** Charts the development of art and architecture in the Arabian Gulf after the 15th century, including the impact of non-Arab colonization on the material culture of the Emirates. It also examines the development of contemporary artistic and architectural expression. Prerequisite: WRI 102.

**HRM 294 Special Topics in Heritage Management (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**HRM 321 Introduction to Issues in Heritage Management I (3-0-3).** Introduces the relevant theories and history defining the practice

of heritage management. It also outlines the different disciplines and professions involved and their roles in the conservation of both movable and immovable cultural property. It further discusses the development of inter-government and non-government agencies for conservation and analyzes current critical thinking about defining and displaying heritage. Prerequisite: HRM 201 or HRM 202.

**HRM 322 Introduction to Issues in Heritage Management II (3-0-3).** Introduces the specific issues, skills and techniques associated with museum management, documentation, exhibition design, and the preservation and conservation of movable and immovable cultural property. Instruction is through a combination of faculty lectures, assigned readings, field trips and guest lectures and workshops. Prerequisite: HRM 201 or HRM 202.

**HRM 331 Traditional Regional Material and Climate (3-0-3).** Introduces how traditional building types were molded by indigenous building materials and climate. Students visit and explore the existing sites to study design responses to lifestyle and climate traditionally employed in the region.

**HRM 332 Theory and Practice of Building Restoration (3-0-3).** Explores the steps involved in the rehabilitation and restoration of historic buildings, including documentation, assessment, structural and material analysis, project planning, conservation and preservation intervention strategies. Discrete techniques to incorporate contemporary requirements regarding sanitary and air conditioning are explored. Instruction combines on-going readings and lectures, guest lectures, workshops and field trips. Prerequisite: HRM 201 or HRM 202.

**HRM 494 Special Topics in Heritage Management (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

## IDE Interior Design

**IDE 201 Architectural and Interior Design Studio I (12-0-6).** (Cross-listed as ARC 201). Investigates the fundamentals of making architectural form and space with emphasis on design inquiry, exploration and process. Concentrates on classic instances of form sources in architectural and interior design: function, experience, structure, construction and context. Digital media are integral to the studio, and students receive instruction in software appropriate for design purposes. Prerequisites: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131, DES 132, WRI 101 or WRI 102 and MTH 003 or MTH 111 or MTH 103. Lab/Tech fee rate B applies.

**IDE 202 Architectural and Interior Design Studio II (12-0-6).** (Cross-listed as ARC 202). Continues the content and purpose of ARC/IDE 201, with increased emphasis on design development and physical and technical resolution. Digital media are integral to the studio, and students receive continued instruction and practice in software appropriate for design. Prerequisite: IDE 201. Lab/Tech fee rate B applies.

**IDE 223 History of Interior Design (3-0-3).** (Formerly IDE 320). Gives an overview of interior design's historical development as a collective expression of art, architecture, science and culture as by-product of its own time and as a resource for stimulating new ideas. The history of interior design draws upon several different fields of scholarly study. It is based on architectural history but incorporates unique interior space typology, specific elements of the interior decorative arts and ornamentation including furniture, metal work, glass, ceramics and textiles. Prerequisites: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.

**IDE 235 Interior Construction (4-0-3).** (Formerly IDE 204). Covers basic interior detailing, millwork and cabinetry elements. These elements must be developed and coordinated to construct interior space. Detailing,

technical drawings, specifications and scheduling are therefore integral to design development. Prerequisites: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.

**IDE 236 Soft Furnishings (4-0-3).** Introduces the aesthetic, practical and technical aspects of interior finish materials. Presents composition of materials, texture, installation and maintenance, covering several categories of applied finishes: floor finishes, wall and ceiling finishes, window treatments, furniture and joinery finishes, and others. Prerequisite: IDE 235 or ARC 232.

**IDE 251 Color and Light (4-0-3).** (Formerly IDE 310). Introduces the fundamentals, principles and art of lighting and color, and their visual and physical effects in interior design. Content explores light and color as important elements in interior space through the study of related perceptual and physical factors. Introduces relevant terminology to define light and color as attributes of architectural and interior space: illumination levels and temperatures, light sources, fixtures, materials, etc. Prerequisite/concurrent: PHY 104.

**IDE 294 Special Topics in Interior Design (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**IDE 301 Interior Design Studio III (12-0-6).** Focuses on advanced concepts used in the development and application of planning techniques and spatial concepts. Concentrates specifically on the design of medium-scale residential and commercial projects. Emphasis is on research and analysis of existing structures, contextual development of interior solutions, building constraints, accessibility standards and specialized product and materials specifications. Prerequisites: PHY 104, and ARC 202 or IDE 202.

**IDE 302 Interior Design Studio IV (12-0-6).** Continues the content and purpose of IDE 301, with special

emphasis on planning techniques and volumetric concepts for the design of large-scale residences and public spaces. Course components include research applied to selected client identities, design criteria for special population groups, building constraints and accessibility standards, project specifications and creative presentation methods. Prerequisites: IDE 301 and IDE 223.

**IDE 311 Illustration and Rendering (4-0-3).** (Cross-listed as ARC 311). Covers illustration and rendering techniques that enable students to express their ideas faster with more precise results. This course covers free hand color drawing techniques using markers, color pencils and watercolors. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.

**IDE 315 Modeling and Rendering (4-0-3).** (Cross-listed as ARC 315). Presents a rationalized, geometrical approach to the perception and description of form. Selected examples of architectural form are first rigorously analyzed to re-derive their constructional logic and then are "built" as detailed electronic models. Students explore the potential of digital design technologies as instruments to achieve vivid, authentic, holistic simulations of architectural reality, appropriate to the testing of architectural ideas. Taught in a modified studio format. Prerequisite: ARC 301 or IDE 301. Lab/Tech fee rate B applies.

**IDE 324 Modern Practices in Interior Design (3-0-3).** Focuses on 19th and 20th century interior design theories and practices, exposing students to the various international schools of thought. Lectures and discussions focus on practitioners who have influenced contemporary practices worldwide. Prerequisite: IDE 223.

**IDE 335 Furniture Design Basics (4-0-3).** (Formerly ARC 410). Explores the basic function and design of furniture as it relates to human factors, such as anthropometrics and ergonomics. The course provides a link between historical, theoretical and practical experience. It defines the

elements of form, function and aesthetic by exploring experimental concepts and adopting alternative ways of thinking about the objects that surround us. Furniture models built to scale, or other presentation techniques, will be applied as needed to effectively support the evolution of new concepts. Prerequisite: IDE 235 or ARC 232.

**IDE 352 Environmental Control Systems in Interior Design (2-3-3).** (Formerly ARC 352). Provides an integrated presentation of environmental control systems (lighting, heating, ventilating, air conditioning, sanitary and acoustics) with special attention to the needs of interior designers. Systems are presented as they influence one another and as they constrain interior space planning and design. Prerequisite: PHY 104. Lab/Tech fee rate A applies.

**IDE 364 Introduction to Computer-Aided Drawing (0-2-1).** (Cross-listed as ARC 364). Training for mainstream CAD applications using Windows operating system. Develops basic familiarities and proficiency with applications commonly encountered during professional training. Prerequisite: ARC 202 or IDE 202. Lab/Tech fee rate B applies.

**IDE 365 Computer-Aided Design (4-0-3).** (Cross-listed as ARC 365). Systematically introduces computer-aided architectural design. Discussion and training focuses on a variety of CAAD applications in order to show the similarities (basic principles of CAAD) and the idiosyncrasies of the individual applications, as well as modeling of existing interior spaces utilizing selected CAAD applications. Prerequisite: ARC 201 or IDE 201. Lab/Tech fee rate B applies.

**IDE 366 Applied Computer-Aided Design (4-0-3).** (Cross-listed as ARC 366). Systematically introduces the basic practice of computer-aided architectural design. Presentation and training focuses on two mainstream production CAAD applications, ArchiCAD and AutoCAD, with the intent to develop basic familiarity and proficiency with the applications most likely be encountered in offices during professional training. Introduction

to AutoCAD occurs on PCs running the Windows NT operating system. Topics extend those introduced in IDE 365 to include detailed treatment of tool palettes and inter-platform compatibility. Prerequisite: ARC 201 or IDE 201. Lab/Tech fee rate B applies.

**IDE 374 Environmentally Sustainable Design (4-0-3).** (Cross-listed as ARC 374). Develops a greater focus on holistic and sustainable approaches to design. Issues such as demand and supply of energy and water, and the generation of waste are covered. Principles of reduce, reuse and recycle are reiterated. Predominant emphasis is on practical strategies directly applicable in design. Material is presented as lectures and seminars, supplemented with readings. Prerequisite: PHY 104.

**IDE 397 Internship in Interior Design (0-0-0).** Requires a minimum of six weeks of on-the-job experience with an approved professional firm. Work undertaken must be documented in a formal report to the department by mid-semester of the following term. Graded as P/F. Registration fee applies. Prerequisite: senior standing.

**IDE 405 Interior Design Studio V (12-0-6).** Comprehensive design project integrating all aspects of design, theoretical, technological and representational, allowing students various scales of investigation within one design problem. Prerequisite: IDE 302 or ARC 302.

**IDE 406 Interior Design Studio VI (12-0-6).** Research directed design studio. Focuses on a topic related to some aspect of architectural design (history/theory, technology, representation, heritage resource management, etc.). Students pursue directed research in support of a design investigation. Prerequisites: IDE 397 and IDE 405.

**IDE 432 Advanced Detailing (4-0-3).** Continuation of IDE 235 Interior Construction, focusing on advanced levels of detailing, design development, conceptual and technical drawing, specifications and craftsmanship. Prerequisite: IDE 235 or ARC 232.

**IDE 460 Exhibition Design (4-0-3).**

(Formerly IDE 503). Equips students with the essential research, planning and design tools to conceive, prepare and produce persuasive exhibition and educational environments such as product shows, museums and gallery interiors. Explores issues of planning, lighting, stagecraft, narrative composition and human perception. Prerequisite: IDE 202 or ARC 202.

**IDE 461 Project Management (3-0-3).** (Cross-listed as ARC 461 and DES 461). (Formerly IDE 431). Introduces the basic and advanced concepts of running design projects. Explores the design process and project phases, analyzing them in detail under the project management concept of delivering projects "on time, on budget, every time." Prerequisite: senior standing.

**IDE 462 Design Management (3-0-3).** (Cross-listed as ARC 462 and DES 462). Introduces the principles and practices of the economic and commercial aspects of architectural and design practice in a global economy. Includes microeconomics theory as it applies to private enterprise: basic business economics, planning and management. Attention is also given to the processes and skills required in establishing an independent architectural office. Prerequisite: ARC 397 or IDE 397.

**IDE 465 Advanced Computer-Aided Design (4-0-3).** (Cross-listed as ARC 465). Concentrates on the specific demands on CAD systems by the architecture and building professions. Covers application of CAD systems to the different phases of planning: preliminary design, design, construction documents, extraction of volumetric data and transfer to spreadsheet and/or database software, rendering software, post-rendering work in pixel-editing software, technical drawing layout software, etc. Prerequisite: ARC 301 or IDE 301. Lab/Tech fee rate B applies.

**IDE 491 Final Project Research (6-0-3).** (Formerly IDE 401). Students choose a design topic with the guidance of an advisor and approval of the faculty. Each student prepares an individual program for IDE 492 Final

Project Design, concluding with a formal, bound document. Prerequisites: IDE 302, IDE 335, IDE 352 and consent of the department.

**IDE 492 Final Project Design (12-0-6).** (Formerly IDE 490). Individual design resolution based upon the research findings initiated in IDE 491. The final project is developed under the guidance and advice of a faculty member and is presented and defended in a formal public jury. This course may substitute for IDE 406. Prerequisites: IDE 405, IDE 491, IDE 397 and consent of the department.

**IDE 493 Study Abroad (1 to 3 credits).** On-site visits offering the opportunity to experience first-hand regional and international design practices, highlighting particular themes relevant to the specific location. Department permission is required for enrollment and credit. Prerequisite: ARC 302 or IDE 302.

**IDE 494 Special Topics in Interior Design (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**IDE 496 Independent Study (1 to 4 credits).** Involves investigation under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and consent of instructor.

**IDE 498 Studio Abroad (3 to 6 credits).** Provides studio activities conducted in regional and international sites promoting a global-oriented approach to design. Prerequisites: consent of department, and ARC 302 or IDE 302.

## MUM Multimedia Design

**MUM 294 Special Topics in Multimedia (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated

for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**MUM 301 Design Studio III (6-0-3).** (Cross-listed as VIS 301). Requires students to apply a variety of methods and strategies to explore the relationship between visual form and content. Prerequisites: VIS 202, VIS 213 and VIS 360.

**MUM 302 Design Studio IV (6-0-3).** (Cross-listed as VIS 302). Explores the use of typography as an expressive visual vehicle through experimentation, applied with a range of media and methods. Prerequisites: MUM 301 or VIS 301

**MUM 310 Film Production I (6-0-3).** (Formerly MUM 210). Introduces the process, development and production of film projects. This class is a “hands-on” experience including production planning, pre-visualization, story boarding and location production. Screening of significant films provide a historical context for the production process. Prerequisite/concurrent: MUM 301 or VIS 301. Lab/Tech fee rate A applies.

**MUM 312 Film Production II (6-0-3).** (Formerly MUM 211). Continuation of MUM 310. Project based studies in film development, production and non-linear computer-based post-production. Screening of significant films provide a technical and critical context for the production process. Prerequisite: MUM 310. Lab/Tech fee rate A applies.

**MUM 320 Web Design I (6-0-3).** Explores web design through examination of developments in digital media and Internet enabling technologies. Introduces communication design practices for the World Wide Web. Considers information design, navigation plans and elements of interactivity in designing web pages. Requires students to design, author and edit web pages to create a coherent website. Prerequisites: VIS 202 and VIS 213; Prerequisite/concurrent: MUM 301 or VIS 301. Lab/Tech fee rate A applies.

**MUM 321 Photojournalism (6-0-3).** (Cross-listed as VIS 321). Explores the history and practice of photojournalism. Students are expected to have sound

black and white technical skills, as the course focuses on developing personal awareness and vision within the medium of photography. Through a series of slides, lectures and small photographic assignments, the course investigates subject matter through the development of the photographic essay. Prerequisites/concurrent: VIS 221, and MUM 301 or VIS 301.

**MUM 330 Web Design II (6-0-3).** Explores the process of web design from proposal to production through the fusion of content and interactivity. Studies dynamic web environments through the exploration of interactive authoring tools. Focuses on the tools and techniques of website development and management. Prerequisite/concurrent: MUM 320. Lab/Tech fee rate A applies.

**MUM 331 Animation II (6-0-3).** Builds on the techniques learned in MUM 311. Addresses strategies in animation and modeling: texture mapping, physics, dynamics, lighting and rendering for contemporary professional output. Prerequisite: MUM 311. Lab/Tech fee rate A applies.

**MUM 397 Internship in Multimedia Design (0-0-0).** Requires a minimum of six weeks of on-the-job experience with an approved professional firm. Work undertaken must be documented in a formal report to the department by mid-semester of the following term. Graded as P/F. Registration fee applies. Prerequisite: VIS 361.

**MUM 401 Design Studio V (6-0-4).** (Cross-listed as VIS 401). Requires students, through a series of hypothetical design projects, to present and critically evaluate their progress within the context of contemporary expectations. Prerequisite: MUM 301 or VIS 301.

**MUM 402 Design Studio VI (6-0-4).** (Cross-listed as VIS 402). Comprises self-directed senior design projects developed in consultation with faculty. Requires students to produce a portfolio of previous work in addition to their senior project. Prerequisite: MUM 401 or VIS 401.

**MUM 411 Film Production III (6-0-3).** Offers advanced studies in

film development, production and non-linear computer-based post-production for third- and fourth-year students. Screening of significant films provide a technical and critical context for the production process. Prerequisite: MUM 310 or MUM 312.

**MUM 410.01 Multimedia Design Senior Studio I (6-0-3).** Addresses strategies and techniques for advanced two- and three-dimensional creation in a time-based media environment. Focuses on composing multiple visual and audio components. Prerequisites: Any three of the following: MUM 310, MUM 311, MUM 312, MUM 320, MUM 330, MUM 331, MUM 340; Prerequisite/concurrent: MUM 401. Lab/Tech fee rate A applies.

**MUM 412 Documentary Film Production (6-0-3).** Establishes the fundamentals of documentary film production. Requires students' involvement in both production and editing, as well as in studying documentary works that exemplify the theory and practice of this genre. Prerequisites: MCM 100, MUM 310 or MCM 281, and junior standing. Lab/Tech fee rate A applies.

**MUM 420 Multimedia Design Senior Studio II (6-0-3).** Through the integration of multiple threads of narrative content emphasis is placed on the production of cohesive and comprehensive multimedia works. Students work individually or in groups to accomplish both development and production tasks in a capstone studio experience. Prerequisite: VIS 410

**MUM 493 Study Abroad (1 to 3 credits).** On-site visits offering the opportunity to experience first-hand regional and international design practice, highlighting particular themes relevant to the specific location. Department permission is required for enrollment and credit. Prerequisite: VIS 202.

**MUM 494 Special Topics in Multimedia (1 to 4 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**MUM 496 Independent Study (1 to 4 credits).** Involves investigation under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: junior standing and consent of instructor.

**MUM 498 Studio Abroad (3 to 6 credits).** Provides studio activities conducted in regional and international sites promoting a global-oriented approach to design. Prerequisites: studio specific.

## VIS Visual Communication

**VIS 201 Design Studio I (6-0-3).** Builds upon the foundation experience, Introduces formal elements and principles of design as they relate to letterform and image making. Prerequisites: DES 100, DES 112 and DES 132; DES 121 and DES 122; MTH XXX; and WRI 101 or 102. Lab/Tech fee rate A applies.

**VIS 202 Design Studio II (6-0-3).** Engages the formal elements and principles of design in a process-based environments that transforms ideas and concepts into visual communication. Prerequisites: VIS 201, VIS 221 and VIS 230. Lab/Tech fee rate A applies.

**VIS 213 Illustration Drawing (6-0-3).** Builds on skills introduced in foundation drawing and encourages students to utilize a wide variety of illustration media and techniques. Class projects focus on drawing from life, photo reference gathering techniques, and visualizing concepts and ideas within the genre of commercial illustration. Prerequisites: VIS 201, VIS 221 and VIS 230. Lab/Tech fee rate A applies.

**VIS 221 Photography Basics (6-0-3).** Introduces basic photographic skills of camera controls and photographic practices through the use of digital technology. Explores topics related to the history and theory of photographic practice. Prerequisites: DES 100, DES 112 and DES 132; DES 121 and 122; MTH XXX; and WRI 101 or 102. Lab/Tech fee rate B applies.

**VIS 230 Digital Media in Visual Communication (6-0-3).** (Formerly MUM 230). A continuation of DES 100 that further develops the skills associated with digital design. Working with PostScript illustration, bitmapped images and desktop publishing, students acquire interactive design skills and use industry specific software to create vector-based and bitmapped images. An introduction to layout and desktop publishing is included and class discussion encourages students to explore various design concepts. Emphasis is given to the creation, preparation and printing of finished designs and an interactive design portfolio. Prerequisites: DES 100, DES 112 and DES 132; DES 121 and DES 122; MTH XXX; and WRI 101 or 102. Lab/Tech fee rate A applies.

**VIS 294 Special Topics in Visual Communication (1 to 6 credits).** Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**VIS 301 Design Studio III (6-0-3).** (Cross-listed as MUM 301). Requires students to apply a variety of methods and strategies to explore the relationship between visual form and content. Prerequisites: VIS 202, VIS 213 and VIS 360.

**VIS 302 Design Studio IV (6-0-3).** (Cross-listed as MUM 302). Explores the use of typography as an expressive visual vehicle through experimentation, applied with a range of media and methods. Prerequisite: MUM 301 or VIS 301.

**VIS 311 Illustration Design (6-0-3).** By focusing upon illustration as a means of conveying ideas and concepts, this course introduces the students to various techniques of idea generation. Students are encouraged to arrive at visual equivalents to written and/or oral texts in the contexts of the history of design and illustration. Prerequisite/concurrent: MUM 301 or VIS 301.

**VIS 312 Illustration Genres (6-0-3).** Explores the potential of 19th and 20th century illustration genres as a means

of visual communication. Set projects encourage the student to investigate the contemporary implications of various historical illustration styles. Prerequisite/concurrent: MUM 301 or VIS 301.

**VIS 320 Printmaking I (6-0-3).** (Formerly VIS 222) Introduces a variety of techniques in traditional and alternative printmaking methods, including, but not limited to, intaglio, linocuts, monoprints, collographs, photoetching, stamping, relief and alternative methods. Investigates traditional mechanical reproductive processes as well as a basic history and theory of the graphic arts. Considers issues surrounding the mechanical reproduction of images using digital media to create a global visual culture. Prerequisite/concurrent: MUM 301 or VIS 301. Lab/Tech fee rate B applies.

**VIS 321 Photojournalism (6-0-3).** (Cross-listed as MUM 321). Explores the history and practice of photojournalism. Students are expected to have sound black and white technical skills, as the course focuses on developing personal awareness and vision within the medium of photography. Through a series of slides, lectures and small photographic assignments, the course will investigate subject matter through the development of the photographic essay. Prerequisite: VIS 221; prerequisite/concurrent MUM 301 or VIS 301.

**VIS 322 Printmaking II (6-0-3).** Requires students to conduct further and more in-depth investigation into the processes of mechanical reproduction with possible concentration(s) in a specific printing medium. Explores media, technologies and ideologies that include the information technologies, digital and analog photography, and many other methods and media of mechanical reproduction. Examines the role of the reproduced image in the economy and material culture and manipulation of meaning through image production and reproduction. Prerequisite/concurrent: MUM 301 or VIS 301. Lab/Tech fee rate B applies.

**VIS 323 Photography for Communication (6-0-3).** Covers the theory and practice of image manipulation through the extension of the traditional boundaries of photography. A wide range of historic and contemporary techniques and processes will be covered, such as polarization, non-silver methods, toning and digital media. Prerequisite: VIS 221; prerequisite/concurrent: MUM 301 or VIS 301. Lab/Tech fee rate B applies.

**VIS 325 Creative Studio Photography (6-0-3).** Explores the control and manipulation of artificial lighting for creative effect in the photography studio environment. In addition to learning the practical skills of handling a range of studio flash equipment, students explore the creative use of lighting in photographic image making both in practical work and in the review of historical examples of this genre. Prerequisite: VIS 221; prerequisite/concurrent MUM 301 or VIS 301. Lab/Tech fee rate B applies.

**VIS 341 Letterform (6-0-3).** Deals with the practice and application of letterform in visual communications. Arabic and Roman letters are explored in calligraphic and typeset forms. Approached as a historic sequence, the abstract, concrete and symbolic aspects of letters will be studied through studio practice. Prerequisite/concurrent: MUM 301 or VIS 301.

**VIS 360 Critical Discourse in Design (3-0-3).** Examines the relationship between intention and interpretation. Reviews the application of graphic language in visual media. Requires research on topics related to design communication. It complements studio based design courses by exploring design considerations and practice from a theoretical perspective. Prerequisite: DES 231

**VIS 361 The Design Profession (3-0-3).** Deals with issues of working in design-related fields, including professional practice, intellectual property, employability, freelancing and working within a cultural context. Imparts knowledge of the region's design

industry, through research and field trip documentation. Prepares students for their summer internship. Prerequisites: WRI 101 or WRI 102 and VIS 360.

**VIS 397 Internship in Visual Communication (0-0-0).** Requires a minimum of six weeks of on-the-job experience with an approved professional firm. Work undertaken must be documented in a formal report to the department by mid-semester of the following term. Graded as P/F. Registration fee applies. Prerequisite: VIS 361.

**VIS 401 Design Studio V (6-0-4).** (Cross-listed as MUM 401). Requires students, through a series of hypothetical design projects, to present and critically evaluate their progress within the context of contemporary expectations. Prerequisite: MUM 301 or VIS 301.

**VIS 402 Design Studio VI (6-0-4).** (Cross-listed as MUM 402). Comprises self-directed senior design projects developed in consultation with faculty. Requires students to produce a portfolio of previous work in addition to their senior project. Prerequisite: MUM 401 or VIS 401.

**VIS 410 Senior VisCom Studio (6-0-3).** Bases project work on a synthesis and selection of the students' experience in third-year major electives. Emphasizes critical assessment and the advancement of an individual aesthetic as applied skills. Prerequisites: any four of the following: VIS 311, VIS 312, VIS 320, VIS 321, VIS 322, VIS 323; Prerequisite/concurrent: VIS 401.

**VIS 420 Senior VisCom Portfolio (6-0-3).** Builds upon VIS 410. Requires students to refine their image-based skills through formal and critical analysis toward individual expression. Allows students to produce work for their exit portfolios. Prerequisite: VIS 410; Prerequisite/concurrent: VIS 402.

**VIS 493 Study Abroad (1 to 3 credits).** On-site visits offering the opportunity to experience first-hand regional and international design practices, highlighting particular themes relevant

to the specific location. Department permission is required for enrollment and credit. Prerequisite: VIS 202.

**VIS 494 Special Topics in Visual Communication (1 to 6 credits).**

Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**VIS 496 Independent Study (1 to 4 credits).** Involves investigation under faculty supervision beyond what is offered in existing courses. Prerequisite: junior standing and consent of instructor.

**VIS 498 Studio Abroad (1 to 6 credits).** Provides studio activities conducted in regional and international sites promoting a global-oriented approach to design. Prerequisites: consent of the department and VIS 202.

# School of Business and Management

## ACC Accounting

**ACC 201 Fundamentals of Financial Accounting (3-0-3).** Introduces the principles and concepts underlying financial statements. Course includes an introduction to the accounting profession, control, concepts, business entities and all elements of basic financial statements. The additional sessions consist of discussion and application of the principles and concepts of the course. Prerequisite/concurrent: MTH 101 or MTH 103, and QAN 201 or QBA 201 or NGN 111 or STA 201 or STA 202.

**ACC 202 Fundamentals of Managerial Accounting (3-0-3).** Introduces the principles and concepts underlying managerial accounting. Course includes an introduction to management accounting information and cost accounting. Prerequisites: ACC 201 and MTH 101 or MTH 103; prerequisite/concurrent: QAN 201 or QBA 201 or NGN 111 or STA 201 or STA 202.

**ACC 301 Intermediate Financial Accounting I (3-0-3).** Begins a two-course sequence providing an in-depth study of principles and elements associated with financial statements. This includes financial statement analysis, income measurement, valuation of assets and equities, and generally accepted accounting principles. Prerequisites: WRI 102 and ACC 202, and prerequisite/concurrent: MGT 201. OR Prerequisites: WRI 102 and ACC 202, and CMP 220.

**ACC 302 Intermediate Financial Accounting II (3-0-3).** Continuation of Intermediate Financial Accounting I; focuses on accounting for long-term liabilities, stockholder's equity, cash flow analysis and international financial statements. Prerequisites: ACC 301 and FIN 201, and prerequisite/concurrent: MIS 201. OR Prerequisites: ACC 301 and FIN 201, and CMP 220.

**ACC 303 Cost Accounting (3-0-3).** Covers the uses of accounting data for planning control and decision-making. Topics include budgets and

cost concepts, techniques and behavior. Prerequisites: ACC 202 and FIN 201, and prerequisite/concurrent: MIS 201 and MKT 201. OR Prerequisites: ACC 202, FIN 201 and CMP 220.

**ACC 305 Income Tax I (3-0-3).** Introduces the US federal income tax system as it applies to personal income taxes and examines the legislative, judicial and regulatory bases of the code, as well as exposure to the tax accounting concepts of income, examinations, exclusions, losses, expenses, credits, property transactions and AMT as they apply to theory and practice. Prerequisites: ACC 301 and BLW 301, and prerequisite/concurrent: QAN 202 or QBA 202. OR Prerequisites: ACC 301 and CMP 220.

**ACC 306 Income Tax II (3-0-3).** Introduces the US federal income tax system as it applies to corporations, partnerships, estates and trusts. Course includes a comparison and contrast of personal and corporate taxation, as well as an examination of corporate organization and capital structure, distributions and reorganizations and accumulated earnings rules. Prerequisite: ACC 301.

**ACC 394 Special Topics in Accounting (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**ACC 401 Advanced Financial Accounting (3-0-3).** Covers theory and practices of accounting for partnerships, business combinations and consolidated financial statements. Advanced topics in financial accounting. Prerequisites: ACC 302 and BLW 301, and QAN 202 or QBA 202. OR Prerequisites: ACC 302 and CMP 220.

**ACC 406 Accounting Information Systems (3-0-3).** Provides an overview of current accounting information systems concepts, Web technology, online auditing issues and contemporary accounting issues. Specific topics include e-business, computer hardware and software issues, accounting cycles,

systems development, computer crime, auditing, and expert systems. Prerequisite: ACC 301. Lab/Tech Fee Rate A applies.

**ACC 410 Auditing (3-0-3).** (Formerly ACC 304) Studies auditing theory, generally accepted auditing standards, audit procedures, audit reports and the responsibilities and ethics of the auditing profession. Topics include risk, evidence, internal controls, sampling, audit testing, subsequent events, professional liability, reporting statutory provisions, compilation and review services, and reporting under government auditing standards. Prerequisite: ACC 302, senior standing.

**ACC 420 International Accounting Standards (3-0-3).** Introduces the students to comparative global business; international accounting systems; harmonization of accounting standards; international financial reporting and disclosure issues; international financial statement analysis; and international auditing, tax, and management accounting issues. Prerequisite: ACC 301.

**ACC 494 Special Topics in Accounting (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**ACC 496 Independent Study in Accounting (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of department.

**ACC 497 Internship in Accounting (3-0-3).** Places accounting students in accounting internship positions so that they may utilize and enhance the skills and knowledge acquired in the classroom. Prerequisite: Junior II standing and permission of department. For students in B.S.B.A single concentration in ACC; fulfills SBM internship requirement.

## BIS Business Information Systems

**BIS 001 Software Applications for Business (3-0-3).** Introduces students to popular application software. Three types of applications are covered: HTML editing and Web development, spreadsheets, and DBMS. This course provides students with the essential computer literacy skills needed in higher-level courses. Lab/Tech Fee Rate A applies.

**BIS 101 Business Information Systems (3-0-3).** Applies knowledge accumulated by students in BIS 001 to solve basic business problems. Students work on major case assignments throughout the semester to develop spreadsheet and database applications for business. HTML editors are used to Web-enable various business applications. Students build a learning portfolio structure to keep track of the learning accumulated in SBM. Prerequisite: BIS 001 or DES 100 or MCM 100 or NGN 110 or placement test. Not open to computer science and engineering majors. Lab/Tech Fee Rate A applies.

## BLW Business Legal Issues

**BLW 301 Business Law (3-0-3).** Examines business legal issues such as legal concepts, philosophy and functions of court systems. Surveys contracts, sales, agents, legal forms of business and the regulation of businesses. The course is focused on US law but also considers international and global legal perspectives. Prerequisites: ACC 201 and ECO 202; prerequisite/concurrent: ENG 204 or ENG 208.

## BUS Business

**BUS 300 International Study Tour (3-0-3).** Provides a firsthand opportunity to learn by experiencing the world of international business. Students visit the headquarters of multi-national

organizations and attend seminars given by the professionals from these corporations. Prerequisite: good academic standing, and junior standing or sophomore standing with permission of instructor.

**BUS 394 Special Topics in Business (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**BUS 397 Business Internship (0-0-0).** Requires a minimum of six weeks (240 hours) of on-the-job experience with an approved organization. Work undertaken must be documented in a formal report as required by the School of Business and Management. Prerequisite: junior or senior standing. Registration fee applies.

**BUS 494 Special Topics in Business (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**BUS 496 Independent Study in Business (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of department.

## ECO Economics

**ECO 201 Principles of Microeconomics (3-0-3).** Introduces the basic principles of microeconomics and their applications: supply and demand, operation of markets, consumer and enterprise behavior, competition and monopoly, income distribution and international trade. Prerequisite: EPT 4 or WRI 001, and Math Placement Test or MTH 001 or higher.

**ECO 202 Principles of Macroeconomics (3-0-3).** Introduces the basic principles of macroeconomics, stressing national income, unemployment, inflation,

economic growth, business cycles and open economies. Prerequisite: EPT 4 or WRI 001, and Math Placement Test or MTH 001 or higher.

**ECO 281 Social Science Analysis of Environmental Issues I (3-0-3).** (Cross-listed with THM 310). Provides students with a broad overview of social science issues related to the use of environmental and natural resources. Among other topics, the course provides an overview of current and historical environmental trends; a framework of environmental policy analysis; and an overview of environmental law, environmental ethics, special interest group politics, and the role of political and economic systems in determining environmental quality. Prerequisite: junior standing.

**ECO 282 Social Science Analysis of Environmental Issues II (3-0-3).** (Cross-listed with THM 311). Uses the analytical tools and background studied in ECO 281 to address specific environmental and natural resource problems. Problems addressed include, among others, global climate change, acid rain, ozone depletion, solid waste disposal, water resources, energy resources, fisheries, forests and biodiversity. Prerequisites: ECO 281 or THM 310.

**ECO 301 Intermediate Microeconomics (3-0-3).** Studies the theory of consumer behavior, production and pricing. Emphasizes the comparison of resource allocation in competitive and non-competitive markets. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 302 Intermediate Macroeconomics (3-0-3).** Examines macroeconomic theory and its application to factors that determine the level of income, employment, output and prices in an economic system. Emphasizes stabilization policies and empirical applications. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 305 International Trade (3-0-3).** Introduces the economics of international trade, including why countries trade, commercial trade policies and their effects, growth and international trade, and multinational firms. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 306 International Monetary Economics (3-0-3).** Starts with basics of international capital flows, exchange rate determination, and the analysis of the international monetary system. The course uses theory to analyze contemporary issues such as globalization and liberalization of capital flows. Addresses the stability of foreign exchange markets with reference to currency crises in emerging markets. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 310 Development Economics (3-0-3).** Studies the economic transformation of developing countries. The course examines both standard models of economic growth and micro-level foundations of economic development. Among the latter are the role of institutional arrangements, the absence of fully functioning markets and the functional role of income distribution. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 312 Economics of Labor (3-0-3).** Provides an economic analysis of employment and wages, including the economics of education, unemployment, labor unions, discrimination and income inequality. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 315 Economics of the Middle East (3-0-3).** Provides a detailed historical and contemporary investigation of the Middle Eastern economies, including the role of oil in economic growth, trade relations, development patterns, labor and financial flows. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 320 History of Economic Thought (3-0-3).** Analyzes the development of economic theory. Uses specific historical contexts and also explores the major figures and schools in economic thought. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 321 Comparative Economic Systems (3-0-3).** Examines the major economic systems with emphasis on implications for resource allocation, income distribution and economic growth. Uses an evolutionary/institutional approach to examine the unique cultural and historical factors

that shape a particular economy. Examines and compares various economic systems beginning with those of ancient Rome and Medieval England and then moves toward the modern social economies present today. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 325 Public Economics (3-0-3).** Examines the microeconomic theory as a framework for understanding the problems of public managers. Resource scarcity, consumer behavior, production costs, economics of efficient management, operation of product markets under competition and monopoly, labor markets, market failure and public goods are considered. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 326 Economics and the Law (3-0-3).** Examines property rights, contract rights and liability rules. Both efficiency and fairness are analyzed. For efficiency, emphasis is placed upon the incentive effects that legal rulings create for economic behavior in the future. Fairness is analyzed mostly in terms of the effects that legal rulings have upon the distribution of wealth. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 327 Industrial Organization (3-0-3).** Studies the theory and the empirical evidence concerning the organization of firms and industries. Focuses on industry structure, on conduct and performance, and on more recent advances based on microeconomic theory, including transactions cost economics, game theory, strategic behavior and information theory. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 330 Money and Banking (3-0-3).** Examines the role of money and credit in the economy. Topics include the structure and operations of commercial banks, central banking and the operation of monetary policy, non-banking institutions and the structure of financial markets, and elements of monetary theory. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 333 Islamic Economics (3-0-3).** Introduces students to the positive and normative principles of Islamic

economics from a historical and history of thought perspective. Examines the role of the state in economic activity, comparing the Islamic economic system with contemporary systems such as capitalism and Marxism. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 334 Islamic Banking and Finance (3-0-3).** Studies the origin and contemporary development of Islamic banking and finance. Examines case studies of the experience of Islamic finance in several countries. Current and future challenges to Islamic finance in an integrated world economy are explored. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 345 Public Choice (3-0-3).** (Formerly Economics of Collective Decision-Making) Explores a range of economic theories that contribute to an understanding of the scope and limits of collective decision making in a mixed economy. These theories include welfare economics, transactions costs and the new institutional economics. They are used to identify issues where collective decision making is intrinsic and to offer insight into the design and assessment of such decision-making processes. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 351 Introduction to Econometrics (3-0-3).** Reviews the theory of statistics and statistical techniques. Emphasizes the application of statistical models to economics. Covers regression analysis and estimation of economic models, including violations of the basic assumptions of the regression model, dummy variables, analysis of variance, cross section and time series data analysis, and index numbers. Prerequisites: ECO 201, ECO 202, WRI 102 and any one of QBA 201, NGN 111, STA 201 or STA 202.

**ECO 394 Special Topics in Economics (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**ECO 401 Managerial Economics (3-0-3).** Managerial decision making

is considered from the perspective of the economic theory of the firm. Traditional topics in the theory of the firm, production, cost, and price are integrated with finance and the internationalization of firms, product markets, financial markets, and production. Prerequisite: ECO 301.

**ECO 404 Economics of Environmental and Natural Resources (3-0-3).** Deals with the economic issues that arise in the use of environmental resources. The course begins with an economic analysis of the contention that markets fail to adequately control environmental pollution. Alternative policy mechanisms that have been proposed for control on environmental pollution are also addressed. The environmental problems covered may include water and air pollution, global climate change, temperate and tropical forest management, fisheries, biodiversity and habitat preservation. Prerequisites: ECO 201, ECO 202 and WRI 102.

**ECO 410 Urban and Regional Economics (3-0-3).** Analyzes the economics of the location and growth of urban and regional areas with emphasis on public policy issues. Includes discussion of land-use patterns, measurements and change in regional economic activity, and urban problems such as transportation, housing, poverty and crime. Prerequisite: ECO 301.

**ECO 412 Monetary Economics (3-0-3).** Emphasizes an intermediate or advanced treatment of topics related to money, banking, monetary theory and monetary policy in the context of fully specified monetary economies with microeconomic foundations. Prerequisites: ECO 301 and ECO 302.

**ECO 494 Special Topics in Economics (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply

**ECO 495 Senior Seminar in Economics (3-0-3).** Intensely investigates special topics in economics chosen by the instructor. Prerequisites: ECO 301, ECO 302 and junior II standing.

**ECO 496 Independent Study (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

**ECO 497 Internship in Economics (3-0-3).** Requires applied work in economics with business or government organizations. Prerequisite: senior standing, consent of the instructor and consent of the chair of the department.

## FIN

## Finance

**FIN 201 Fundamentals of Financial Management (3-0-3).** Introduces business finance, including global aspects; acquisition and use of short-term funds and long-term capital; overview of money and capital markets; management of assets, liabilities and capital accounts; financial analysis and time value of money; cash operation and long-range budgeting; leasing; corporate securities; dividend policy; and cost of capital. Prerequisite: MTH 102 or MTH 103; prerequisite/concurrent: ACC 202, and QAN 202 or QBA 202. Or Prerequisite: MTH 104 and ACC 201.

**FIN 302 Financial Markets and Institutions (3-0-3).** Covers the history, purpose, function and organization of the short-term money market and long-term capital market. Offers an integrated view of the participating institutions and the markets in which they operate, their investment constraints and their resulting portfolios. Prerequisites: WRI 102 and FIN 201; prerequisite/concurrent: MIS 201.

**FIN 303 Investment Analysis (3-0-3).** Covers investment objectives; methods of appraising corporate equity, debt and other securities; portfolio theory and management; technical analysis; random walk theory; and the role of institutional investors. Prerequisites: ACC 202, FIN 201 and WRI 102; prerequisite/concurrent: MKT 201 and MGT 201.

**FIN 304 Real Estate Investing (3-0-3).** Covers terminology, legislation,

principles and analytical techniques pertaining to financing of real estate. Includes the perspective of lender, residential borrower and income property borrowers. Prerequisites: ACC 202, FIN 201 and WRI 102; prerequisite/concurrent: QAN 202 or QBA 202.

**FIN 306 Wealth Management for Individuals (3-0-3).** Introduces insurance and risk management and personal financial planning with specific applications to property, disability, health and life insurance. Also covers aspects of financial planning including mutual funds, retirement planning, offshore banking and investment objectives. Prerequisites: FIN 201, ACC 202 and WRI 102.

**FIN 310 Analysis of Financial Statements (3-0-3).** Provides students with the skills needed to read, analyze and interpret the information contained in a company's financial statements. Integrates accounting and financial principles and discusses the ethics of both professions. Prerequisites: FIN 201, ACC 202 and WRI 102.

**FIN 320 Banking (3-0-3).** Provides an overview of the banking industry with an emphasis on commercial bank management. Specific topics include the duration and term structure of interest rates, asset/liability management, and risk and credit management. Prerequisites: FIN 201 and WRI 102; prerequisite/concurrent: MIS 201.

**FIN 330 Investments (3-0-3).** Covers investment objectives, mechanics of buying and selling financial assets, and portfolio management. The focus is on risk versus return in investment theory, but students also construct and manage real-time hypothetical investment portfolios. Prerequisites: FIN 201, ACC 202 and WRI 102; prerequisite/concurrent: MKT 201 and MGT 201.

**FIN 394 Special Topics in Finance (1 to 4 credits).** Examines a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

### **FIN 401 International Finance (3-0-3).**

Covers financing of international trade and investment, foreign exchange markets and exchange rate determination, and balance of payments. Focuses on international financial management within the firm. Prerequisites: FIN 303 or FIN 330, and QAN 202 or QBA 202; prerequisite/concurrent: FIN 302 or FIN 320.

### **FIN 402 Futures and Options (3-0-3).**

Covers conceptual and practical aspects of the functioning of speculative markets various derivatives. Examines futures, options, swaps, and other products. Prerequisites: FIN 303 or FIN 330, and QAN 202 or QBA 202; prerequisite/concurrent: FIN 302 or FIN 320.

### **FIN 403 Commercial Banking (3-0-3).**

Covers the structure and internal organization of commercial banks and emphasizes the dynamic nature of assets, liability and equity management. It also covers the application of decision-making procedures to financial management situations, including evaluation of bank performance, capital acquisition, liquidity and loans. Prerequisite: FIN 302.

### **FIN 404 Portfolio Management (3-0-3).**

Provides the theoretical and operative framework for portfolio and advanced investment management. Students apply portfolio models and concepts to live market data to perform analytical skills and evaluate equities, fixed income securities and other investments. Asset pricing, diversification and other financial models are covered in detail. Prerequisites: FIN 303 or FIN 330, and QAN 202 or QBA 202.

### **FIN 430 Financial Forecasting (3-0-3).**

An applied computer intensive course that illustrates how to use statistical models and technical analysis to forecast future movements of financial variables such as stock prices, exchange rates and interest rates. Prerequisite: FIN 201 or ECO 405.

### **FIN 440 Asset Valuation (3-0-3).**

Covers concepts and techniques for analyzing financial decisions and asset valuation. Topics include valuation techniques for various asset classes, forecasting and estimation of free cash

flow, estimating the cost of capital and real options. Valuation is applied to single and multiple projects, individual businesses, subsidiaries and diversified companies. Prerequisite: FIN 303 or FIN 330; prerequisite/concurrent: FIN 302 or FIN 320.

### **FIN 450 Case Studies in Corporate Finance (3-0-3).**

Emphasizes the case study approach to intermediate financial management (corporate finance). Topics include capital budgeting, corporate governance, mergers, capital structure, dividend policy and short-term financial management. Prerequisites: FIN 303 or FIN 330, and FIN 302 or FIN 320.

### **FIN 494 Special Topics in Finance (1 to 4 credits).**

Examines a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

### **FIN 496 Independent Study in Finance (1 to 4 credits).**

Explores a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of department.

## MGT Management

### **MGT 201 Fundamentals of Management (3-0-3).**

Surveys the basic concepts and ideas of organizational behavior and the various functions and activities of the manager through global perspective. Topics include plans, goals, decision making, change, motivation, human resources, ethics and social responsibility, groups and teams, organization design, leadership and control. Prerequisite/concurrent: WRI 102.

### **MGT 301 Organizational Behavior (3-0-3).**

(Cross-listed with MGT 311). Takes an in-depth look at human behavior in organizations. Incorporating current management theory and research, the course looks into the factors that influence individual and group performance. Topics may include

perception, personality, attitudes, values, motivation, decision making, leadership, power and politics, conflict and negotiation, groups and culture. Prerequisites: MGT 201 and ACC 201, and QAN 201 or QBA 201 or NGN 111 or STA 201 or STA 202; prerequisite/concurrent: ENG 204.

### **MGT 302 Managing Human Resources (3-0-3).**

Examines the foundations, functions and activities involved in the managing of human resources, striking a balance between current theory and practice. Topics include manpower planning, recruitment and selection, policy and procedures, performance appraisal, compensation and benefits, training, safety and industrial relations. Prerequisites: MGT 201, ACC 201, QBA 201 and ENG 204.

### **MGT 303 Management and Leadership Development (3-0-3).**

Focuses on the necessary skills and abilities of the successful leader and manager. Students are not only introduced to these success factors but are challenged to both assess and develop their own managerial and leadership skills throughout the course. Prerequisites: MGT 201, FIN 201, ACC 202 and ENG 204.

### **MGT 305 International Business (3-0-3).**

(Cross-listed with MGT 315). Examines the nature and scope of international trade and investment, international institutions, the international monetary system and exchange markets and some of the major issues involved in the functional aspects of international business and management. Prerequisites: MGT 201, FIN 201, ACC 202 and ENG 204.

### **MGT 310 Fundamentals of Family Business (3-0-3).**

Introduces students to the unique challenges faced by family businesses and the potential solutions to these issues. Students will examine the characteristics that define family businesses and the potential risks and benefits these bring to family businesses in the UAE. Issues such as family dynamics, generational gaps, leadership, the role of non-family members, governance and succession planning will be discussed. Prerequisites: MGT 201, ACC 201 and QBA 201; prerequisite/concurrent: ENG 204.

**MGT 311 Organizational Behavior (3-0-3).** (Cross-listed with MGT 301). Takes an in-depth look at human behavior in organizations. Incorporating current management theory and research, the course looks into the factors that influence individual and group performance. Topics may include perception, personality, attitudes, values, motivation, decision making, leadership, power and politics, conflict and negotiation, groups and culture. Prerequisite: MGT 201; prerequisite/concurrent: ENG 203 or ENG 204 or ENG 231. Not open to SBM students.

**MGT 315 International Business (3-0-3).** (Cross-listed with MGT 305). Examines the nature and scope of international trade and investment, international institutions, the international monetary system and exchange markets and some of the major issues involved in the functional aspects of international business and management. Prerequisites: MGT 201, and ENG 203 or ENG 204 or ENG 231. Not open to SBM students.

**MGT 360 Business Ethics and Social Responsibility (3-0-3).** (Cross-listed with MGT 361). Introduces the student to the ethical dimensions of business as they relate to the various stakeholders inside and outside the organization. Topics may include business ethical theory, ethical decision-making, typical dilemmas and corporate social responsibility. Cases and projects are used to examine these issues, with special attention to local applications as well as the global perspective. Prerequisites: MGT 201 and ACC 201, and QAN 201 or QBA 201; prerequisite/concurrent: ENG 204.

**MGT 361 Business Ethics and Social Responsibility (3-0-3).** (Cross-listed with MGT 360). Introduces the student to the ethical dimensions of business as they relate to the various stakeholders inside and outside the organization. Topics may include business ethical theory, ethical decision-making, typical dilemmas and corporate social responsibility. Cases and projects are used to examine these issues, with special attention to local applications as well as the global perspective. Prerequisites: MGT 201; prerequisite/

concurrent: ENG 203 or ENG 204 or ENG 231. Not open to SBM students.

**MGT 380 Project Management (3-0-3).** Examines the concepts and techniques of managing projects in service and manufacturing settings. Topics include project selection and evaluation, dynamics, motivation and evaluation of team members, scheduling, budgeting and closure. Prerequisites: MIS 201, FIN 201, ACC 202 and ENG 204; and MGT 301 or MIS 303.

**MGT 394 Special Topics in Management (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**MGT 403 Entrepreneurship (3-0-3).** Focuses on the creation of new ventures: the people, the process and the dynamics. Topics include identifying and evaluating opportunities, success and failure factors, attitudes and characteristics of entrepreneurs, stand-alone and internal corporate ventures, and local and global issues in entrepreneurship. Students can expect to develop a viable business plan in the course. Prerequisites: ENG 204, and university senior standing or by permission of department.

**MGT 406 Business Policy and Strategy (3-0-3).** Applies the functional knowledge acquired in previous coursework to the analysis of strategic-level business problems and decisions. Business cases are used extensively in this course to highlight the diversity and complexity of organizational environments and systems. Topics include missions and objectives; environmental analysis; formulating, implementing and assessing strategies and policies; and international, social and ethical issues. Prerequisites: business senior standing; MGT 201, MKT 201, MIS 201, FIN 201 and ENG 204; or by permission of department.

**MGT 494 Special Topics in Management (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for

credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**MGT 496 Independent Study in Management (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of department.

## MIS Management Information Systems

**MIS 200 Principles of Business Programming (3-0-3).** Introduces students to the logic of business processing independently of any programming language. Students learn to extract program specifications from business narratives or business process descriptions. Flowcharts, decision tables, decision trees, use cases and structured English are used to document program specifications, which can easily be translated into any programming language. Prerequisites: MTH 101, and BIS 101 or BIS 201 or CMP 111.

**MIS 201 Fundamentals of Management Information Systems (3-0-3).** Covers information as an organizational resource. Focuses primarily on the organizational foundation of management information systems by establishing a link between business processes and information technology. Topics include decision-making frameworks, transaction processing systems, decision support systems, inter-organizational information systems, office automation, strategic information systems, enterprise systems, systems development, networks and IT infrastructure, social impacts of IT, and more. A technology update is provided in hardware and software basics, database management and telecommunications. Prerequisite: BIS 101 or BIS 201 or CMP 102 or CMP 105 or CMP 111 or NGN 110. Lab/Tech fee rate A applies.

**MIS 203 Software Development for Business Applications (3-0-3).** Analyzes business problems to design

and implement the software component of an information system. Introduces application development using an object-oriented language/event-driven language. Emphasizes the concepts and techniques for developing business applications, as well as an overview of object-oriented programming techniques and visual programming techniques. Laboratory sessions illustrate various aspects of visual programming languages, as well as testing and debugging. Prerequisites: MIS 200 and MIS 201. Lab/Tech fee rate A applies.

**MIS 300 Data Communications and Networking (3-0-3).** Provides a basic understanding of the technical and management aspects of business data communications and networking. Topics include: telecommunications services, technology and policy; standards organizations that contribute to global telecommunications technology specification; signaling and switching; physical transmission media; wireless transmission services; network access and transmission methods; data network topologies and network access methods (e.g., ethernet and ATM); network transmission methods (e.g., T-carriers, DSL and ISDN); data network connectivity; and networking in open source environments. Prerequisites: MIS 201 and WRI 102.

**MIS 301 Fundamentals of Database Management (3-0-3).** Addresses the beginning technical, business and application development issues associated with managing and using an organization's data resources. Employing ORACLE-SQL as the database language, the course covers organizational data management, data analysis and modeling with the entity relationship model, database design with SQL, normalization and the relational model. Prerequisites: MIS 200, MIS 201 and WRI 102; prerequisite/concurrent: FIN 201. Lab/Tech fee rate A applies.

**MIS 302 Advanced Database Management (3-0-3).** Addresses advanced technical, business and application development issues associated with managing and using an organization's data resources. Employing ORACLE DEVELOPER or PL/SQL as an application development

environment, the course covers the database development process, physical database design, database implementation with client/server and middleware technology, database access, data administration, and an introduction to object-oriented database management systems. Prerequisite: MIS 301; prerequisite/concurrent: QAN 202 or QBA 202. Lab/Tech fee rate A applies.

**MIS 303 Introduction to Systems Analysis (3-0-3).** Examines traditional analysis, logical design through a data flow analysis and the system development life cycle approach. Methods for structured analysis and design are covered. Data structures, definitions and normalization are also addressed. Emphasis is on gaining the ability to use the various tools associated with systems analysis. Prerequisites: MIS 200, MIS 201 and WRI 102; prerequisite /concurrent: FIN 201, MGT 201 and MKT 201.

**MIS 304 Applied Systems Design (3-0-3).** Builds on previous courses and allows students to apply the tools studied in MIS 303. It follows the life cycle process to produce specifications for a current system, develop the physical design for the system and implement the system using ORACLE tools. Project teamwork is emphasized. Prerequisites: MIS 303, and MIS 301 or CMP 320; prerequisite/concurrent: QAN 202 or QBA 202. Lab/Tech fee rate A applies.

**MIS 394 Special Topics in Management Information Systems (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**MIS 402 Technology and Knowledge Management (3-0-3).** Explores the theoretical foundation of technology and knowledge management and its value to the organization. The nature of technological change, innovation and intellectual capital, and the valuation of an organization's knowledge assets will also be examined. Prerequisites: MIS 301, MIS 303 and MGT 360; and QAN

202 or QBA 202. Lab/Tech fee rate A applies.

**MIS 404 Internet Business Applications (3-0-3).** Examines how the Internet and the World Wide Web are used for marketing and business purposes. Students study well-established US and UAE companies that have established a marketing presence on the Internet. Projects include building a website to market a specific product and establishing a simulated business on the Internet. Students use tools and techniques for project initiation, project analysis, design and implementation. Prerequisites: MIS 301 and MIS 303; prerequisite/concurrent: BLW 301. Lab/Tech fee rate A applies.

**MIS 405 Information Systems Strategy (3-0-3).** This is the capstone course in MIS. Discusses strategic IS issues, including planning IT infrastructures and architectures, business process reengineering, supply chain management, enterprise computing and systems integration. Emerging issues such as e-government and cyber ethics are also taught within this course. Prerequisites: business senior standing and MIS 304.

**MIS 406 Information Systems Auditing and Control (3-0-3).** Introduces the general concepts of information systems auditing, security and control. Aims to provide skills in systems auditing in functional areas within the organization where information technology is predominantly used. Use of information systems audit software is introduced in the course, where the practical nature of the subject will be developed through its use. Cases and job simulation are used throughout the course. Builds on knowledge and skills students acquired in prior IS courses and prepares students adequately for CISA certification. Prerequisites: MIS 301 and MIS 303. Lab/Tech fee rate A applies.

**MIS 494 Special Topics in Management Information Systems (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**MIS 496 Independent Study in Management Information Systems (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of department.

## MKT Marketing

**MKT 201 Fundamentals of Marketing (3-0-3).** (Cross-listed with MKT 211). Introduces the concept of making marketing decisions in business and non-profit organizations within the global context. Particular attention is devoted to analyzing consumer needs, segmenting markets, and developing product, promotion, pricing and distribution strategies. Relationships between consumers, business and governments are explored. Prerequisites: ECO 201 and ECO 202; prerequisite/concurrent: WRI 102.

**MKT 211 Fundamentals of Marketing (3-0-3).** (Cross-listed with MKT 201). Introduces the concept of making marketing decisions in business and non-profit organizations within the global context. Particular attention is devoted to analyzing consumer needs, segmenting markets, and developing product, promotion, pricing and distribution strategies. Relationships between consumers, business and governments are explored. Prerequisites: ECO 201 or ECO 202; prerequisite/concurrent: WRI 102. Not open to SBM students.

**MKT 301 Consumer Behavior (3-0-3).** Studies marketing, psychology, sociology and cultural anthropology to determine motivations for product purchases. A multimedia approach is used to illustrate the use of behavioral science theory to create new products and promotional campaigns. Prerequisites: MKT 201, ACC 201 and WRI 102; and QAN 201 or QBA 201.

**MKT 302 Marketing Research (3-0-3).** Examines research tools students can use to help make marketing decisions. Students learn to define research

problems, to select projects and to analyze data. The execution of a consumer survey is a major component of the course. Students use computer statistical packages to analyze research data. Prerequisites: MKT 201, ACC 201 and WRI 102; and QAN 202 or QBA 202; prerequisite/concurrent: MIS 201.

**MKT 303 E-Commerce (3-0-3).** Examines how the Internet and the World Wide Web are used for marketing and business purposes. Students study well-established US and UAE companies that have established a marketing presence on the Internet. Projects include building a website to market a specific product and establishing a simulated business on the Internet. Prerequisites: MKT 201, MIS 201, FIN 201, ACC 202 and WRI 102.

**MKT 304 Sales Management (3-0-3).** Introduces professional sales force management. This course is designed to develop student skills in planning a sales program, organizing the selling effort and in recruiting, training and motivating the sales force. Prerequisites: MKT 201, FIN 201, ACC 202 and WRI 102.

**MKT 305 Retail Management (3-0-3).** Explores the management of large and small retail institutions. Topics include buying, merchandising, pricing, promotion, inventory management, customer service, control and location selection. Prerequisites: MKT 201, FIN 201, ACC 202 and WRI 102.

**MKT 307 Business Marketing (3-0-3).** Provides an in-depth understanding of the unique aspects of marketing in a business-to-business environment through the use of lectures, cases, guest speakers and media presentations. Focuses on organizational buying, buyer-seller relationships, market analysis and planning, demand and sales estimation and marketing-mix decisions. Considers a variety of business marketing situations, such as marketing to manufacturers, other commercial organizations, government and institutions. Prerequisites: MKT 201, FIN 201, ACC 202 and WRI 102.

**MKT 309 International Marketing (3-0-3).** Provides a comprehensive understanding of the issues and challenges inherent in the formulation

and implementation of international marketing strategies. Examines and analyzes environmental forces affecting international marketing decisions, selection of international target markets, and the design and development of international marketing plans. Prerequisites: MKT 201, FIN 201, ACC 202 and WRI 102.

**MKT 365 Services Marketing (3-0-3).** Examines service-related issues, practice and strategy in business organizations. Topics include marketing analysis of service quality, service gaps, consumer expectations, service delivery strategies and customer relationship management. Builds on marketing concepts from other courses and applies them specifically to service industry settings. Prerequisites: MKT 301 and MKT 302.

**MKT 366 Sports Marketing (3-0-3).** Builds knowledge, skills and practical understanding of the nature, contexts and dynamics of sports marketing. Uses critical analysis to incorporate decision making and action in sports business as they relate to general marketing theories and practice. Encourages students to apply the leading-edge methods of sports marketing to sport as a business. Exposes students to the application of theories on the local growth and development of the sports marketing industry. Prerequisite: MKT 302.

**MKT 394 Special Topics in Marketing (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**MKT 401 Marketing Strategy (3-0-3).** Analyzes current marketing management issues. Students develop a marketing plan for an outside organization, analyze case studies and participate in computer simulation exercises. Prerequisites: MKT 301, MKT 302, FIN 201 and ACC 202.

**MKT 494 Special Topics in Marketing (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and

topic specific. Lab/Tech fee may apply.

**MKT 496 Independent Study in Marketing (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of department.

## PBA Public Administration

**PBA 101 Introduction to Public Administration (3-0-3).** Introduces the basic concepts and models of public administration including organization theory, leadership, communication, decision making, interpersonal relations, public policy processes, regulations, legal authority, politics and power relations.

**PBA 201 Public Management (3-0-3).** Introduces students to the contemporary techniques of management and leadership in public organizations. Problems of public agencies, nonprofit organizations and others are analyzed. Focuses on how to cope with the challenges, internal and external, that the top level of management faces. Prerequisites: PBA 101 and WRI 102.

**PBA 301 Organizational Behavior (3-0-3).** Focuses on leadership, communication, techniques of motivation, delegation of authority and strategic planning. Prerequisites: PBA 101 and WRI 102.

**PBA 302 Comparative Public Administrative Systems (3-0-3).** Examines governmental administrative systems in Europe, North America, the Arab world, Asia and Africa. The emphasis is on a comparative analysis of industrialized nations with nations of the Third World. Prerequisites: PBA 101 and WRI 102.

**PBA 304 Public Budgeting (3-0-3).** Surveys the principles of and problems of financial organization and management in the public service, with emphasis on fiscal planning, the annual budget process, program budgeting, political factors and accounting in Western systems and Third-World

nations. Prerequisites: PBA 101 and WRI 102.

**PBA 305 Classification, Job Analysis, Compensation and Fringe Benefits in Public Organizations (3-0-3).** Looks at classification systems and techniques, rational job analysis, compensation and incentive plans, and fringe benefit management as aspects of achieving maximum organizational efficiency and effectiveness. Prerequisites: PBA 101 and WRI 102.

**PBA 306 Human Resources Management in Public Organizations (3-0-3).** Introduces students to management and leadership tasks of running a professional-level, human resources subsystem. Focuses on the challenges, opportunities and strategies that human resources managers face, including the dynamics of external and internal conflict resolution and acting in an advisory capacity to executive-level managers. Prerequisites: PBA 101 and WRI 102.

**PBA 310 Research in Public Administration (3-0-3).** Introduces research methods in public administration. Topics include research design, the concept of validity, data collection and data analysis. Prerequisites: PBA 101 and WRI 102.

**PBA 311 Nonprofit Organization Management (3-0-3).** Covers concepts of management and organizational development that are appropriate to the nonprofit sector. Emphasis is on developing people skills, a volunteer workforce, fundraising, goal setting, motivation and communication techniques. Prerequisites: PBA 101 and WRI 102.

**PBA 315 Women in Public Management (3-0-3).** (Formerly PBA 204) Examines and analyzes the emerging role of women in management positions in government, business and nonprofit organizations. Explores the unique problems and challenges that may be related to gender, including building effective management, teamwork and esprit de corps in the context of a diverse workforce. Prerequisites: PBA 101 and WRI 102.

**PBA 316 Intergovernmental Relations (3-0-3).** (Formerly PBA 205) Explores

the political, fiscal and administrative relationships that help to shape complex intergovernmental systems. Focuses on federal, centrally unified, emirate (provincial), municipal and other jurisdictions. Prerequisites: PBA 101 and WRI 102.

**PBA 317 Urban Management (3-0-3).** (Formerly PBA 210). Covers structure, process and policy issues in urban public administration and public policy. Considers major theoretical approaches to urban government, local autonomy, public and private authority, economic constraints, social welfare and service delivery. Also examines race, gender and ethnicity, as well as policy on education, crime, social welfare and economic development. Prerequisites: PBA 101 and WRI 102.

**PBA 394 Special Topics in Public Administration (1 to 4 credits).** Explores selected topics of current interest in public administration. Prerequisites: sophomore standing, PBA 101 and WRI 102. Lab/Tech fee may apply.

**PBA 402 Local and Regional Administration (3-0-3).** Surveys the structure, function and process of administration in a local government setting and at regional levels. Focuses on the unique challenges public organizations face with respect to national issues, local issues, funding, social groups, environmental pollution and politics. Prerequisites: PBA 101 and WRI 102.

**PBA 410 Public Program Evaluation (3-0-3).** Introduces the elements of program evaluation in public organizations. Covers qualitative and quantitative analysis, and valid methods. Prerequisites: PBA 101 and WRI 102.

**PBA 411 Foundations of Public Policy Analysis (3-0-3).** Examines the public policy process in the Middle East and the West. Focuses on concepts of externalities, risk and uncertainty, and public choice models in public policy analysis. Prerequisites: PBA 101 and WRI 102.

**PBA 419 Seminar in Executive-Level Public Management (3-0-3).** Concentrates on identifying the tasks, challenges and responsibilities of being

a CEO, a CAO or an executive director of an organization. Prerequisites: PBA 201 and WRI 102.

**PBA 495 Seminar in Public Administration (3-0-3).** Synthesizes and contextualizes elements of the public administration curriculum to prepare students for a career in public management. Elements include expertise and bureaucratic power, administration and the law, ethics, business-government relations, economics, public policy and the role of public employees. Prerequisites: senior standing in PBA.

**PBA 494 Special Topics in Public Administration (1 to 4 credits).** Explores selected topics of current interest in public administration. Prerequisites: junior standing, PBA 101 and WRI 102. Lab/Tech fee may apply.

**PBA 496 Independent Study (1 to 4 credits).** Explores a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: junior standing and approval of instructor.

**PBA 497 Internship in a Public Organization (3 to 6 credits).** Requires a minimum of six weeks (240 hours) of on-the-job experience with an approved government agency, a nonprofit organization or a private firm. Emphasizes administrative-level, hands-on experience that benefits the agency and the student. A written report, a daily journal and an agency supervisor's evaluation are required. Graded as Pass/Fail. Prerequisite: senior standing and the approval of the department.

## QBA Quantitative Business Analysis

**QBA 201 Quantitative Business Analysis (3-0-3).** An applications-oriented course that covers descriptive and inferential statistics. Introduces students to the use of statistical software. Topics include descriptive statistics, probability distributions, estimation and hypothesis testing,

correlation, and simple and multiple linear regression. Prerequisite/concurrent: MTH 101.

**QBA 202 Operations Management (3-0-3).** Covers and applies the basic principles, functions and concepts involved in the design, operation, and control of operations in contemporary organizations to real operations management decisions. Topics include operations strategy, forecasting, capacity planning, location decisions, production planning, materials management, productivity management and quality management. Prerequisite: QAN 201 or QBA 201 or NGN 111 or STA 201 or STA 202.

**QBA 310 Management of Supply Chain (3-0-3).** Demonstrates the strategic importance of the supply chain and gives students an appreciation for the overall reach of SCM. Synthesizes supply chain management principles to deliver cost-effective customer service through the integration of functional areas including marketing, accounting/finance and purchasing. Examines supply chain performance metrics, introduces the analysis of supply chain finance and takes a closer look at the creating and managing supplier and the role of purchasing. Also considered are issues such as demand management, aggregate planning, total quality management, Just-in-Time and inventory management. Students who have taken MIS 410 may not take this course for credit. Prerequisite: QBA 202.

**QBA 311 Logistics Management (3-0-3).** Extends student understanding of planning, organizing, operating and controlling supply chains utilizing principles of logistics management. Brings together principles of logistics and supply chain management to deliver cost-effective customer service through the integration of transportation, inventory, warehousing, facility location, packaging and materials handling. Specific areas include supply chain performance metrics, supply chain finance, "inbound" (purchasing and materials management) and "outbound" (demand management and customer service) logistics, inventory management, warehousing,

transportation systems, SCM and preliminary concepts in logistics network design. Prerequisite: QBA 310.

**QBA 394 Special Topics in Public Administration (1 to 4 credits).** Explores selected topics of current interest in quantitative business analysis. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**QBA 494 Special Topics in Public Administration (1 to 4 credits).** Explores selected topics of current interest in quantitative business analysis. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

# School of Engineering

## BME Biomedical Engineering

### BME 310 Biomedical Ethics

**(1-0-1).** Applies ethical principles and decision-making processes to selected problems in medicine, health care and biotechnology. Gives special attention to end-of-life choices, reproductive rights and technologies, organ transplantation, research ethics, genetic engineering and allocation of scarce resources. Focuses on social, legal, economic and scientific issues in ethical decisions in medicine. Prerequisite: BIO 210.

### BME 394 Selected Topics in Biomedical Engineering (1 to 4 credits)

Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**BME 410 Biomedical Systems Modeling (3-0-3).** Introduces and applies engineering principles including biomechanics, fluid mechanics, heat transfer, chemical reaction kinetics and materials science to model physiological systems and solve medical problems. Prerequisite/concurrent: BIO 210.

**BME 420 Biomedical Electronics (3-0-3).** Covers biomedical sensors and instrumentation, biopotential electrode, chemical and clinical biosensors, bioelectric phenomena, the electrocardiograph, the electroencephalograph, blood pressure and cardiac output measurements, and electrical safety. Prerequisite: ELE 225 or ELE 341.

**BME 430 Biomechanics (3-0-3).** Covers electromyography (EMG), analysis of forces in static biological systems, fundamentals of biomechanics of human movement using mechanical modeling techniques, energy and power in human activity, and application of stress and strain analysis to biological tissues. Prerequisite: MCE 222 or MCE 224 or MCE 225 or CHE 230.

**BME 494 Selected Topics in Biomedical Engineering (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**BME 496 Independent Study (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: junior standing and approval of the instructor.

## CHE Chemical Engineering

**CHE 205 Principles of Chemical Engineering I (1-2-2).** Introduces the analysis of chemical process systems using mass conversion equations, stoichiometry and steady state calculations. Covers unit conversions and process flow sheets. Introduces ideal and real gas relationships. Prerequisite: CHM 101 and NGN 111; prerequisite/concurrent: MTH 104.

**CHE 206 Principles of Chemical Engineering II (2-2-3).** Covers the application of energy balances to chemical engineering equipment and processes. Topics include steady state energy balances with and without chemical reactions, heat of solution and mixing, humidity charts and simultaneous material and energy balances. Prerequisite: CHE 205; prerequisite/concurrent: CHM 102.

**CHE 215 Fluid Flow (3-0-3).** Explores introductory concepts of fluid mechanics and fluid statics, fluid properties, basic equations of fluid flow, flow of compressible and incompressible fluids in pipes and other shapes, velocity distribution, laminar and turbulent flow, flow past immersed bodies and dimensional analysis. Prerequisites:

PHY 101 and CHE 205; prerequisite/concurrent: MTH 203.

**CHE 230 Materials Science (2-3-3).** Introduces material science, relationships between structure and properties of materials. Topics include atomic bonding, crystalline structures, crystal defects and imperfections; phase diagrams and equilibrium microstructural development; and properties of engineering materials. Prerequisite: CHM 101. Lab/Tech fee rate B applies.

**CHE 240 Computer Methods in Chemical Engineering (2-2-3).** Covers the use of modern computational techniques and software to solve chemical engineering problems. Numerical techniques include: solution of linear and nonlinear algebraic equations; ordinary and partial differential equations; and numerical integration and differentiation. Introduces chemical process simulation. Prerequisite/concurrent: CHE 215 and MTH 221.

**CHE 303 Chemical Engineering Thermodynamics I (2-2-3).** Studies first, second and third law of thermodynamics and their application in chemical engineering; volumetric properties of pure fluids; definitions and use of internal energy, enthalpy, entropy and free energy; Maxwell relations; ideal and real cycles and processes; refrigeration and liquefaction. Prerequisites: PHY 101; prerequisite/concurrent: MTH 205 and CHE 206.

**CHE 304 Chemical Engineering Thermodynamics II (3-0-3).** Examines thermodynamic properties of fluids and mixtures, residual properties, excess properties, phase equilibria and chemical reaction equilibria for gases and liquids. Prerequisite: CHE 303.

**CHE 307 Heat Transfer (3-0-3).** Covers mechanism of heat transfer; heat transfer by conduction, convection and radiation; and analysis of heat transfer equipment used in chemical engineering. Prerequisite: CHE 206; prerequisite/concurrent: CHE 215.

**CHE 321 Chemical Reaction Engineering (3-0-3).** Examines

chemical reaction kinetics, interpretation of experimental rate data, design of batch and continuous reactors, effect of temperature and pressure, and heterogeneous catalysis. Prerequisite: CHE 215; prerequisite/concurrent: CHE 307, CHM 331 and CHE 304.

**CHE 329 Mass Transfer I (3-0-3).** Covers mechanisms of mass transfer, laws of diffusion, mass transfer coefficients, theories of mass transfer, and mass transfer and chemical reactions. Prerequisite/concurrent: CHE 307.

**CHE 332 Engineering Economy (3-0-3).** Covers topics in finance and economics involved in the design of chemical processes and equipment; time value of money, depreciation, profitability, evaluation of alternatives, replacement, and capital analysis. Prerequisite/concurrent: CHE 412.

**CHE 350 Transport Phenomena Laboratory I (0-3-1).** Covers experiments in fluid flow, heat transfer, and thermodynamic measurement and analysis of devices. Includes experimental design, safety, and report writing. Prerequisites: NGN 111. Prerequisite/concurrent: CHE 307 and CHE 303. Lab/Tech fee rate B applies.

**CHE 394 Special Topics in Chemical Engineering (1 to 4 credits).** Examines a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**CHE 397 Professional Training in Chemical Engineering (0-0-0).** Requires normally six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Prerequisite: approval of training coordinator for the major. Registration fee applies.

**CHE 412 Mass Transfer II (3-0-3).** Examines application of mass transfer principles to the design of multi-stage systems and countercurrent differential contacting operations. Prerequisite: CHE 329.

**CHE 421 Chemical Process Dynamics and Control (3-0-3).** Examines

principles of process dynamics and control in chemical engineering applications; transfer functions; block diagrams; input disturbance; frequency response and stability criteria; single and multi-loops; P, PI and PID controllers; advanced control; process control software Prerequisite: CHE 430.

**CHE 430 Process Modeling, Simulation and Optimization (2-3-3).** Introduces dynamic modeling of various chemical engineering problems in fluid, heat and mass transfer by using a variety of mathematical tools including analytical and numerical approaches. Covers Laplace Transform, process optimization, process modeling and optimization using process simulators. Prerequisite: CHE 304; prerequisite/concurrent: CHE 412 and CHE 321. Lab/Tech fee rate A applies.

**CHE 432 Process Design Safety and Economics (3-0-3).** Covers the application of chemical engineering principles to the design and integration of chemical equipment and processes. Topics include process safety, pollution prevention and waste minimization, plant economics and cost estimation. Prerequisite: CHE 321; prerequisite/concurrent: CHE 430.

**CHE 451 Transport Phenomena Laboratory II (0-3-1).** Covers hands-on lab experiments illustrating the application of chemical engineering principles and calculations: mass transfer equipment, reaction kinetics, and reactor design. Includes experimental design, safety, and report writing. Prerequisite: CHE 321 and CHE 350; prerequisite/concurrent: CHE 412. Lab/Tech fee rate B applies.

**CHE 452 Unit Operations and Control Lab (0-3-1).** Covers laboratory experiments illustrating various applications of chemical engineering principles and calculations in process control and physical and chemical separation. Includes experimental design, safety, and report writing. Prerequisite: CHE 350; prerequisite/concurrent: CHE 421. Lab/Tech fee rate B applies.

**CHE 461 Air Pollution (3-0-3).** Covers environmental pollution; acid gas removal; sulfur oxides, nitrogen oxides

and Carbon gases removal; removal of volatile organic compounds; design of main process equipment and control devices; and aerosols. Prerequisite/concurrent: CHE 412.

**CHE 466 Polymer Technology (2-3-3).** Covers polymerization and polymers; the process of homogeneous and heterogeneous polymerization; methods of producing plastics, synthetic fibers and synthetic rubber; and physical and chemical properties of polymers. Prerequisites: CHE 321 and CHE 304. Lab/Tech fee rate B applies.

**CHE 467 Corrosion (2-3-3).** Examines electrochemical principles; galvanic cell; Nernst equation; electromotive force; corrosion mechanisms and techniques; corrosion due to dissimilar metal, differential aeration, strain and temperature; corrosion types, cavitation, fatigue, microorganisms; corrosion prevention, inhibitors, electrical protection; and corrosion case studies in petroleum industry. Prerequisite: CHM 101. Lab/Tech fee rate B applies.

**CHE 470 Waste Management and Control in Chemical Engineering (3-0-3).** Covers management and control of gaseous, liquid and solid wastes; regulation and management procedures; waste minimization and resource recovery; and separations and reaction engineering approaches. Prerequisite: CHE 412.

**CHE 472 Water and Wastewater Treatment Design (2-2-3).** Covers design and selection of biological, physical and chemical processes used in water and wastewater treatment, disposal of treated effluent, water quality, and industrial wastewater characterization. Prerequisite: CHE 329. Lab/Tech fee rate B applies.

**CHE 481 Fundamentals of Biomedical Engineering (3-0-3).** Uses chemical engineering principles including fluid mechanics, heat transfer, kinetics and material science to model physiological systems and solve medical problems. Prerequisite/concurrent: CHE 215 and CHE 307.

**CHE 483 Oil and Gas Chemical Processes (2-2-3).** Studies chemical processes in the oil and gas industry. Topics include design and operation

of chemical processing facilities, gas sweetening, removal of sulphur and nitrogen compounds, and simulation of oil and gas processing. Prerequisite: CHE 321; prerequisite/concurrent: CHE 430.

**CHE 490 Senior Design Project I (0-3-1).** Requires a supervised design project of defined chemical engineering significance. Work includes data collection, analysis, calculation, design and presentation of the work in a detailed technical report. Students must present and defend their project in oral presentations. Prerequisite/concurrent: CHE 432.

**CHE 491 Senior Design Project II (0-6-2).** Continues the work of CHE 490. Prerequisite: CHE 490; prerequisite/concurrent: CHE 421.

**CHE 494 Special Topics in Chemical Engineering (1 to 4 credits).** Examines a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**CHE 495 Chemical Engineering Seminar (1-0-1).** Introduces leading-edge practices in the chemical engineering field through guest lectures. Graded as Pass/Fail. Prerequisite: senior standing.

**CHE 496 Independent Study in Chemical Engineering (1 to 4 credits).** A theoretical or practical topic project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: junior standing and approval of instructor.

## CMP Computer Science

**CMP 110 Visual Basic (2-2-3).** Introduces programming using Visual Basic. Topics covered include event-driven programming concepts, GUI design (using forms, labels, textboxes, buttons, listboxes, etc.), functions and procedures, and arrays. Emphasis is given to writing database applications using a relational DBMS. Not open to

junior and senior students in computer science or computer engineering. Lab/Tech fee rate A applies.

**CMP 120 Introduction to Computer Science I (3-2-4).** Covers problem-solving strategies and algorithm design. Includes fundamental programming constructs: data types, variables, operators, expressions and statements, decision and iteration control structures, and modules. Also covers fundamental data structures (arrays, records and self-referential structures), pointers and dynamic memory allocation, recursion and file IO. Explores basic principles of software engineering: stepwise refinement, modularity, documentation and testing. Lab work will be done using the C programming language. Lab/Tech fee rate A applies.

**CMP 210 Digital Systems (3-0-3).** (Equivalent to COE 221). Covers number systems, Boolean algebra, analysis and design of combinational circuits, minimization techniques, analysis and design of sequential circuits, and introduction to computer design. Prerequisite: CMP 120. Lab/Tech fee rate A applies.

**CMP 211 Digital Systems Laboratory (0-2-1).** Includes experiments and laboratory work to support CMP 210. Prerequisite/concurrent: CMP 210 or COE 221. Lab/Tech fee rate B applies.

**CMP 213 Discrete Structures (3-0-3).** (Cross-listed as MTH 213). Covers propositional and predicate calculus, sets, major classes of functions and related algorithms, principle of mathematical induction, proof techniques, recursive definitions, counting, relations, posets, graphs and trees. Prerequisite: MTH 103.

**CMP 220 Introduction to Computer Science II (2-3-3).** Covers object-oriented programming concepts: objects, classes, methods and attributes, method overloading and overriding, and inheritance. Explores abstraction principles (interfaces, information hiding and encapsulation), exception, event handling and multithreading. Lab work will be done using the Java programming language. Prerequisite: CMP 120; prerequisite/concurrent: MTH 103. Lab/Tech fee rate A applies.

**CMP 232 Data Structures and Algorithms (3-1-3).** Covers abstract data types, linked lists, stacks, queues, trees and graphs. Introduces the complexity of algorithms and data structures. Also covers searching and sorting, and basic graph algorithms. Lab work will be done using the C and/or Java programming language. Prerequisite: CMP 220; prerequisite/concurrent: CMP 213 or MTH 213.

**CMP 233 Introduction to Programming and Data Structures (2-3-3).** Introduces programming using an object-oriented language like Python or Java. Covers basic data structures and their applications; and elementary data structures: lists, stacks, queues and trees. This course is not open to Computer Science or Computer Engineering students. Lab/Tech fee rate A applies.

**CMP 235 Ethics for Computing and Information Technology (3-0-3).** (Equivalent to PHI 206). Examines ethical theory and applied ethics for computing and information technology. Includes some history of the computer and information technology and discussion of their utilitarian and social value. Offers in-depth discussion of professionalism and its meaning; professionalism and ethical codes; the Association for Computing Machinery code of ethics; intellectual property defined by copyright, patent and trade secrets; privacy; confidentiality; whistle-blowing security issues; conflict of interest, Mill's harm principle and offensive material on the Internet; computer crime; hacking; viruses; and identity theft. The course aims to prepare the student to understand both the potential of the computer to promote social good as well as its potential for ethical misconduct. Prerequisite: WRI 102.

**CMP 240 Introduction to Computer Systems (3-0-3).** Introduces computer organization, registers, machine instructions, data representations, execution control and addressing techniques, segmentation, linkage and recursion. Prerequisite: CMP 210 or COE 221.

**CMP 310 Introduction to Operating Systems (3-1-3).** (Equivalent to COE 381). Covers operating systems

architectures, process scheduling and synchronization, multithreading, memory management, virtual memory, deadlocks management, file system, input/output management and distributed systems. Prerequisites: CMP 232 or COE 311, and CMP 240 or COE 331.

**CMP 320 Database Systems (3-1-3).** (Equivalent to COE 422). Introduces database concepts, database advantages and users, data independence, relational data model, object-oriented model, database design by analysis and synthesis, relational algebra, data definition and manipulation languages, semantic integrity constraints, semantic query transformation and optimization. Prerequisite: CMP 232 or CMP 233 or COE 311.

**CMP 321 Programming Languages Laboratory (2-2-3).** Provides an overview of programming languages syntax and semantic definitions, language translators, language categories, and programming in a high-level language other than the one taken in CMP 120. Prerequisite: CMP 232. Lab/Tech fee rate A applies.

**CMP 340 Design and Analysis of Algorithms (3-0-3).** Covers algorithmic analysis; algorithmic strategies; advanced searching and sorting algorithms; hashing, graph and spanning trees algorithms; topological sort; pattern matching; numerical algorithms; matrix operations; complexity classes; approximation algorithms; and basic computability theory. Prerequisites: CMP 232 or COE 311, and STA 201 or NGN 111.

**CMP 341 Computational Methods (3-0-3).** (Cross-listed as MTH 341). Introduces the fundamentals of numerical algorithms and their application for scientific computing. Includes topics such as error analysis, root finding, interpolation and function approximations, optimization techniques and linear programming. Prerequisite/concurrent: MTH 221. Lab/Tech fee rate A applies.

**CMP 350 Introduction to Software Engineering (3-1-3).** (Equivalent to COE 420). Covers the software development life cycle; software project management; software requirements,

specifications and design techniques; graphical user interface design; software testing and maintenance; and software tools and environments. A substantial software project is required. Prerequisite: CMP 232 or CMP 233 or COE 311.

**CMP 352 Human Computer Interaction (3-0-3).** Examines human behavior in relation to user interface design. Analyzes the conceptual models formed by users and evaluates user interface design. Examines multimedia interfaces; usability engineering; user interface design; and project organization. Studies interface representation and user-centered prototyping tools. Examines a number of case studies. Requires a project. Prerequisite(s): CMP 232 or CMP 233 or COE 311

**CMP 394 Special Topics in Computer Science (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**CMP 397 Professional Training in Computer Science (0-0-0).** Requires normally six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Prerequisite: approval of training coordinator for the major. Registration fees apply.

**CMP 412 Introduction to Distributed Systems (3-0-3).** (Equivalent to COE 433). Covers the principles and practices underlying the design of distributed systems. Topics include concurrency, mutual exclusion, clock synchronization, logical time, election, consensus, global snapshot, resource allocation, consistency models and fault tolerance. Prerequisite: CMP 340, and CMP 310 or COE 381.

**CMP 415 Computer Networks (3-0-3).** Introduces computer networks and network architectures. Provides an overview of layered protocol hierarchies. Topics include OSI reference model, the physical, link and network layers, network protocols,

error control, flow control and routing algorithms, application layer protocols, multimedia networking and network security. Prerequisites: CMP 240, and CMP 310 or COE 381.

**CMP 416 Internet and Network Computing (3-1-3).** Studies the Internet, its protocols and architecture; TCP/IP and internet application protocols; designing Internet-based clients and servers; multi-tiered applications; network security and network management; distributed object computing; remote method invocation; emerging Internet technology standards (CORBA, XML); and building Internet-based applications. Prerequisites: CMP 310 or COE 381, and CMP 320 or COE 422.

**CMP 417 Parallel Computing Systems (3-0-3).** Covers models of parallel computation; shared memory parallel machines; interconnection networks; parallel architectures; parallel algorithms, complexity and performance measures; parallel searching and sorting; parallel evaluation of expressions; issues of non-determinism, synchronization and deadlock; survey of parallel applications; and selected topics in the latest field developments. Prerequisites: CMP 240 and CMP 340.

**CMP 430 Computer Graphics (3-0-3).** (Equivalent to COE 429). Studies of two- and three-dimensional graphics, graphics representation, algorithms for computing graphics and producing images, clipping, windowing, transformation, graphics hardware and applications. Prerequisites: MTH 221, and CMP 220 and or COE 211.

**CMP 432 Image Processing (3-0-3).** Introduces basic techniques of analysis and manipulation of pictorial data by computer, digital image acquisition and formats, software-based image manipulation and enhancements in the spatial domain, frequency domain transformations and manipulations, lossless and lossy image compression, digital video coding and compressed domain processing. Prerequisite: CMP 232, STA 201 or NGN 111, and MTH 221.

**CMP 433 Artificial Intelligence (3-0-3).** Introduces problems and techniques in artificial intelligence.

Includes problem-solving methods; major structures used in artificial intelligence programs; study of knowledge representation techniques such as probabilistic reasoning, predicate and nonmonotonic logic; examples of expert systems; introduction to natural language understanding and various syntactic and semantic structures; and learning as a form of problem solving through problem decomposition and subparts interaction. Prerequisite: CMP 232 or COE 311.

**CMP 435 Computer Security (3-0-3).** Studies security issues in computer systems. Covers basic encryption and decryption, secure encryption and encryption protocols; security in operating systems, databases, and communications; risk analysis and assessment; security planning and management; security platforms; and application to electronic commerce systems. Prerequisite/concurrent: CMP 350 or COE 420.

**CMP 437 Introduction to Neural Networks (3-0-3).** Presents different types of neural networks and describes the basic mechanisms that underlie each network. Discusses fundamental network properties necessary to achieve autonomous behavior. Analyzes how well each network satisfies these properties. Prerequisite: CMP 232.

**CMP 450 Object-Oriented Software Engineering (3-0-3).** Explores object-oriented analysis and design. Covers topics in object-oriented analysis and design: object-oriented requirements capturing, modeling and refinement. Includes object-oriented design, design patterns and object-oriented testing. A substantial object-oriented software project is required. Prerequisite: CMP 350 or COE 420.

**CMP 452 Compiler Construction (3-0-3).** Reviews program language structures, translation, loading, execution and storage allocation. Includes compilation of simple expressions and statements; organization of a compiler including compile-time and run-time symbol tables, lexical and syntax scan, object code generation, error diagnostics, object code optimization techniques

and overall design; and use of compiler writing languages and bootstrapping. Prerequisite: CMP 350 or COE420.

**CMP 454 Software Testing and Quality Engineering (3-0-3).** Provides an overview of software engineering. Covers software quality assurance; black-box and white-box testing; integration and regression testing; and selected topics from the following: object-oriented software testing, acceptance testing, conformance testing, diagnostic testing, test execution, distributed systems testing, test languages and test tools, GUI testing, interoperability testing, test metrics, and standards for software quality and testing. Prerequisite: CMP 232 or CMP 233 or COE 311. Prerequisite/concurrent: CMP 350 or COE 420.

**CMP 470 Formal Languages and Computability (3-0-3).** Introduces theoretical computer science. Topics include regular expression and finite state concepts, basic automata theory, formal grammars and languages, computability, Turing machines and elementary recursive function theory. Prerequisite: CMP 213 or MTH 213.

**CMP 472 Multimedia Computing (3-0-3).** Studies hardware and software components and processes involved in multimedia development. Covers digital representation and coding of multimedia building blocks (text, images, graphics, video and sound), hypertext and hypermedia concepts, compression and decompression techniques, multimedia authoring tools, and building Web applications. Includes selected multimedia applications. Prerequisite: CMP 310 or COE 381.

**CMP 490 Project in Computer Science I (1-6-3).** Includes faculty-supervised student projects on special topics of current interest. Both oral and written presentations on the topics are required. Prerequisites: senior standing, and CMP 350 or COE 420.

**CMP 491 Project in Computer Science II (0-9-3).** Continues the work of CMP 490. Prerequisite: CMP 490.

**CMP 494 Special Topics in Computer Science (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered

in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**CMP 496 Independent Study in Computer Science (1 to 4 credits).** Involves investigation under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: senior standing.

## COE Computer Engineering

**COE 210 Programming I (2-3-3).** Provides an overview of computer architecture and programming languages. Examines elements of a C++ program, statements and expressions, formatting and data types, design approach, modular programming, relational and logical operators, selection structures, repetition and loop statements, file I/O, declaration and initializations of arrays and strings, pointers and function arguments. Includes lab and programming assignments. Prerequisite: MTH 103. Not open to Computer Science students. Lab/Tech fee rate A applies.

**COE 211 Programming II (2-3-3).** Introduces students to object-based program development using C++, class design and implementation, template classes and functions, single and multiple inheritance and virtual functions, operator overloading, streams I/O and exception handling. Includes lab and programming assignments in C++. Prerequisite: COE 210. Lab/Tech fee rate A applies.

**COE 212 Program Development and Design in Java (2-1-2).** Covers structured programming in Java, object-oriented programming, inheritance, interfaces, polymorphism, overloading, Graphical User Interface (GUI), I/O streams, exceptions, multithreading, layout managers, and applications, including client-server. Prerequisite: COE 211.

**COE 221 Digital Systems (3-3-4).** (Equivalent to CMP 210). Covers number systems, representation of information, introduction to Boolean

algebra, and combinational and sequential circuits analysis and design. Prerequisite: PHY 102. Lab/Tech fee rate A applies.

**COE 311 Data Structures and Algorithms (3-1-3).** Examines the analysis, design and implementation of abstract data types/data structures and their algorithms. Topics include recursion, complexity analysis, linear data structures (stacks, queues, priority queues, lists and strings), non-linear data structures (hash tables, binary trees, search trees, balanced trees, heaps, searching and sorting algorithms and graph algorithms. Includes substantial programming assignments. Prerequisites: COE 211 and, MTH 213 or CMP 213.

**COE 312 Software Design for Engineers (1-3-2).** Covers basic software design patterns; implementation of communication interfaces including reading and writing, serial, parallel, synchronous and asynchronous streams and sockets; implementation of graphical user interfaces including menus, dialogs, windows, call-back functions and simple event-driven programming. Provides an overview of device drivers, persistence storage techniques and software component technologies. Prerequisite: COE 211.

**COE 331 Microprocessors (3-3-4).** Examines hardware and software model of microprocessors; programming of microprocessors; memory systems, memory interface and memory access (DMA); input/output programming and interface; and design of microprocessors-based systems. Prerequisites: COE 210, and COE 221 or CMP 210. Lab/Tech fee rate B applies.

**COE 341 Computer Architecture and Organization (3-0-3).** Covers CPU organization and microarchitectural level design; RISC design principles; memory, peripheral devices and input/output busses; and introduction to parallel computing. Prerequisite: COE 331.

**COE 360 Probability and Stochastic Processes (3-0-3).** (Cross-listed as ELE/STA/MTH 360). Covers set theory, preliminaries of probability theory and random variables, stochastic processes,

Markov chains, examples of continuous time Markov chains and applications to systems. Prerequisites: NGN 111 and MTH 221.

**COE 370 Communications Networks (3-0-3).** Examines open systems interconnection reference model, network topologies, transmission media, transmission, error detection, data encoding, modulation, data link protocols, Local Area Network (LAN) systems, ethernet, token ring, interconnection devices and the Internet. Prerequisites: MTH 104 and COE 221 or CMP 210.

**COE 371 Computer Networks I (2-3-3).** Covers high-speed LANs, wireless LANs, Transmission Control Protocol/ Internetworking Protocol, routing protocols, and WAN Networks [frame relay and Asynchronous Transfer Mode (ATM)]. Prerequisite: COE 370. Lab/Tech fee rate B applies.

**COE 381 Operating Systems (3-1-3).** (Equivalent to CMP 310). Covers introduction to operating systems, process management, process scheduling, interprocess communications, memory management techniques, virtual memory, I/O management, deadlock avoidance, file system design, socket programming, and security issues. Includes examples of commonly used operating systems (e.g., Windows and UNIX). Prerequisites: COE 311 or CMP 232, and COE 331 or CMP 240.

**COE 394 Special Topics in Computer Engineering (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**COE 397 Professional Training in Computer Engineering (0-0-0).** Requires normally six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Prerequisite: approval of training coordinator for the major. Registration fee applies.

**COE 412 Embedded Systems (2-3-3).**

Examines micro-controllers hardware architectures and software models; instruction sets and programming; EPROM; EEPROM; inputs/outputs; ADC/DAC Interface and Programming; timer systems and interrupts; embedded systems building blocks, design and testing; and introduction to DSP hardware architecture, software model and instruction set. Includes class projects. Prerequisites: COE 331 and ELE 241. Lab/Tech fee rate B applies.

**COE 420 Software Engineering I (3-1-3).** (Equivalent to CMP 350). Introduces the basic principles and practices of software engineering. Emphasis is placed on the different phases of the software development process and quality issues. Other topics include software life cycle models; general design, implementation, and testing issues; specification and design methodologies; model-based approaches to software design; and the use of various design and development tools. Prerequisites: COE 311 or CMP 232.

**COE 422 Database Systems (3-1-3).** (Equivalent to CMP 320). Introduces the basic principles of database management systems; data models; hierarchical, network and relational; query languages; and physical representation of data in secondary storage. Prerequisites: COE 311 or CMP 232.

**COE 423 Computer Networks II (3-0-3).** Examines the latest developments in computer networking and communications technologies. Topics include high-speed networks, optical networks, network security, and performance modeling and simulation in computer networks. Prerequisites: COE 371 (or CMP 415) and COE 360.

**COE 424 Advanced Digital System Design (3-1-3).** Covers advanced digital design techniques, structured design methods for advanced digital design, case studies of complex digital circuits, hardware description languages (HDL) and PLD implementations, reliable design and testing techniques. Prerequisite: COE 341.

**COE 425 Modern Computer Organizations (3-0-3).** Covers performance measures, RISC processors, datapath and control units

design, memory hierarchy, pipelining, I/O systems and multiprocessors. Prerequisite: COE 341.

**COE 427 Internet Computing (3-0-3).** Introduces students to the underlying infrastructure of the Internet and the World Wide Web. Topics include Internet protocols that support a variety of applications including file transfer, client-server computing, peer-to-peer computing, and Internet messaging and Web syndication. Covers front, middle and back-end technologies for non-trivial Internet applications. Introduction to service-oriented architectures and Web services and the semantic Internet. Includes and Internet programming project. Prerequisites: COE 312 and COE 371.

**COE 428 VLSI Design (3-0-3).** Covers CMOS technology; layout rules and techniques; CMOS logic and circuit design; circuit characterization and performance estimation; and design methodologies and tools. Prerequisites: COE 221 or CMP 210, and ELE 241.

**COE 431 Industrial Computer Systems (3-0-3).** Covers microprocessor-based data acquisition units and their industrial applications, programmable logic controllers and their industrial applications, Web-based monitoring and control of industrial plants. Includes a class project. Prerequisite: COE 412 or ELE 341.

**COE 434 Mobile Computing (3-0-3).** Introduces students to the challenging field of mobile computing. Topics include wireless communications and networks; location management, routing in ad hoc wireless network, file systems issues and caching strategies. Prerequisite: COE 371.

**COE 481 Real-time Industrial Networks (3-0-3).** Explores industrial computer network principles, commercial industrial networks, third-generation industrial networks, network layout and intrinsic safety considerations, software issues, real-time data processing and case studies. Prerequisite: COE 371.

**COE 482 Soft Computing (3-0-3).** Covers fuzzy logic, fuzzy control, artificial neural networks, neuro-fuzzy networks, and industrial applications of

soft computing. Prerequisite: COE 341.

**COE 490 Design Project I (0-3-1).** Introduces design methodology in computer engineering through lectures and an open-ended, in-depth design project of significance in computer engineering. The project includes the design of a system process or component to achieve the functional objectives representative of problems encountered by practicing computer engineers. Students work in teams to define, complete, validate and document their design project. They work in close accord with one or more faculty members. The course emphasizes engineering ethics and communication skills. Prerequisite: senior standing.

**COE 491 Design Project II (0-6-2).** Continues the work of COE 490. Prerequisite: COE 490.

**COE 494 Special Topics in Computer Engineering (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**COE 496 Independent Study in Computer Engineering (1 to 4 credits).** Explores a theoretical or practical topic project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## CVE Civil Engineering

**CVE 202 Construction Materials Lab (0-3-1).** Focuses on the application of basic measurement techniques and instrumentation to the experimental investigation of construction materials: aggregate, bitumen, pavement materials, asphalt mixes, cement, concrete materials, concrete mixes, mild and high tensile steel testing, non-destructive testing. Includes timber and metals tests. Requires written reports covering the planning, execution, results and conclusions of the investigation. Emphasizes teamwork. Co-requisite: CVE 221. Lab/Tech fee rate B applies.

**CVE 211 Fundamentals of Graphics and Computer Programming (2-3-3).** Covers graphical communication including lettering, drawing equipment and techniques. Topics include orthographic projections, sections, and technical sketching; isometric and oblique projections; communication and documentation of engineering design through engineering drawing; computer-aided design; and elements of computer programming and problem-solving techniques. Uses computer tools in data analysis, data display and visualization techniques. Prerequisite: NGN 111. Lab/Tech fee rate A applies.

**CVE 220 Statics (3-1-3).** Covers fundamental concepts and principles of mechanics, vectors and force systems; concepts of free-body-diagram; principle of equilibrium of particles and rigid bodies in two and three dimensions; analysis of structures (trusses, frames and machines); shear and bending moment in beams, center of gravity, centroids and area moment of inertia; and friction. Prerequisite: PHY 101.

**CVE 221 Construction Materials and Quality Control (3-0-3).** Examines properties of construction materials (aggregate, Portland cement, admixtures, concrete and bituminous materials used in construction and maintenance of structures, roads and pavements); design of concrete mixes including admixtures; concrete trial mixes on construction site; concrete curing methods; concrete strength and durability; design of paving mixtures; and production, specifications, tests and quality control of various construction materials. Prerequisite/concurrent: CVE 223; co-requisite: CVE 202.

**CVE 223 Mechanics of Materials (3-1-3).** Covers stress and strains; mechanical properties of materials; axial load, torsion, bending and transverse shear; combined loading; stress transformation; deflection of beams and shafts; and buckling of columns. Prerequisite: CVE 220 or MCE 220 or MCE 224.

**CVE 240 Fluid Mechanics (2-3-3).** Examines fundamental concepts including properties of fluids (specific gravity, viscosity and surface tension); fluid statics (pressure and

its measurement, hydrostatics forces on submerged surfaces, stability of floating bodies); basic equations of motion (continuity, momentum and energy equations, Bernoulli's equation); measurement of static and stagnation pressure, velocity and flow rate in closed conduits (internal flow), laminar and turbulent flow; flow over immersed bodies (external flow); lift and drag; and dimensional analysis and dynamic similitude. Prerequisites: MTH 104 and CVE 220. Lab/Tech fee rate B applies.

**CVE 241 Elementary Surveying (3-0-3).** Introduces geodetic positions, coordinate systems, datum, basic measurement procedures and use of surveying instruments. Covers principles and practice in measuring distance, elevation, and angles; and leveling, traverse, and earth work computations. Introduces GPS and GIS. Prerequisite: MTH 104; prerequisite/concurrent: CVE 242.

**CVE 242 Field Plane Surveying (0-3-1).** Covers fundamental principles of surveying; basic measuring procedures and use of surveying instruments; and use of surveying equipment for leveling, traverse and area/volume computations. Prerequisite/concurrent: CVE 241. Lab/Tech fee rate B applies.

**CVE 263 Urban Transportation Planning (3-0-3).** Examines urban transportation systems planning techniques: data collection, trip generation, trip distribution, factors underlying the choice of mode, traffic assignment, modeling and evaluation techniques, use of planning software packages, development of alternatives, and evaluation of civil engineering projects. Introduces Intelligent Transportation Systems (ITS). Prerequisites: CVE 241 and NGN 111.

**CVE 267 Civil Engineering Cost Analysis (3-0-3).** Covers economic analysis and evaluation of civil engineering proposals utilizing time-value and related factors; time value of money; worth of investments and economic evaluation of alternative choices; replacement and retention decisions; selection from independent projects; inflation; cost estimating fundamentals; parametric cost

estimating; depreciation methods; breakeven analysis; benefit cost analysis; sensitivity analysis and decision making under risk. Prerequisite: NGN 111.

**CVE 272 Statics and Mechanics of Materials for Architecture (3-1-3).** (Cross-listed as ARC 242). Covers static equilibrium of forces and free body diagrams. Analyzes simple beams, trusses and columns. Covers truss forms, configuration and performance; tributary loads, load path and load tracing in structural systems; simple funicular forms (arches and cables); geometric properties and forms of flexural elements (centroid and moment of inertia); internal forces (bending moment and shear force diagrams in beams); axial stress and strain; bending and shearing stresses; mechanical properties of common building materials; and tensile, compression, bending and torsion tests for different building materials (steel, concrete, wood). Prerequisite: PHY 104. Not for Civil Engineering majors. Lab/Tech fee rate A applies.

**CVE 301 Theory of Structures (3-0-3).** Covers stability and determinacy of structures; force calculation in trusses; axial load, shear and bending moment diagrams for beams and frames; approximate analysis of indeterminate frames; analysis of cables and arches; deflection calculations; influence lines for determinate structures; and analysis of statically indeterminate structures using classical methods. Uses commercial software for structural analysis. Prerequisite: CVE 223.

**CVE 303 Geotechnical Engineering Lab (0-3-1).** Includes experiments in soil mechanics. Laboratory experiments cover geotechnical test equipment and techniques. Includes the applications of testing principles to the measurement of fundamental aspects of soil behavior from classification to engineering properties. Emphasizes rigorous techniques to measure mechanical behavior under various boundary conditions. Provides exposure to error estimation. Laboratory studies utilize standard test methods and equipment to assess physical, mechanical, chemical

and hydraulic properties of soils for application in civil engineering design. Includes laboratory work on classification and engineering tests on intact and weathered rock. Co-requisite: CVE 331. Lab/Tech fee rate B applies.

**CVE 304 Environmental and Water Engineering Lab (0-3-1).** Includes experiments in environmental engineering, hydraulic engineering and surface and ground water hydrology. Laboratory work includes sampling, physical, chemical and bacteriological analysis of water and wastewater. Laboratory sessions utilize standard test methods and equipment for measurement of important environment parameters. Covers sampling methods and data presentation. Includes experiments in water surface run off and subsurface infiltration and flow, experiments in closed conduit, open channel tests and related hydraulic structures. Co-requisite: CVE 351. Lab/Tech fee rate B applies.

**CVE 310 Fundamentals of Structural Dynamics (3-0-3).** Examines fundamental concepts of kinematics and kinetics of rigid body motion. Introduces earthquake nature, causes and effects; types of dynamic forces and the basic concepts of structural dynamics; equations of motion of single degree of freedom systems, free and forced vibration; response to earthquake loading. Introduces multi-degree of freedom systems and applications to civil engineering disciplines. Uses relevant computer modeling and dynamic analysis programs. Prerequisites: CVE 301 and MTH 205.

**CVE 312 Structural Steel Design (3-0-3).** Covers loads on structures; design criteria and philosophies; and analysis and design of structural steel elements found in buildings and bridges including tension members, compression members, beams, columns, beam columns and connections. Requires a design project and use of computer software. Prerequisite: CVE 301.

**CVE 313 Reinforced Concrete Design (3-0-3).** Covers loads on structures; design criteria and factors of safety; analysis and design of reinforced concrete beams, short columns, one-

way slabs, and footings using ultimate strength method; and bond development of reinforcement. Requires a design project and use of computer software. Prerequisites: CVE 301 and CVE 221.

**CVE 325 Computational Methods (3-0-3).** Covers basic concepts of computational methods; errors, accuracy and precision; numerical solution of non-linear equations; direct and iterative methods for solving systems of linear algebraic equations; numerical differentiation and integration; and interpolation, approximation and curve fitting. Includes numerical solutions of ordinary and partial differential equations and applications of computational methods using computers. Prerequisite: MTH 205 and CVE 211; prerequisite/concurrent MTH 221. Lab/Tech fee rate A applies.

**CVE 331 Geotechnical Engineering Principles (3-0-3).** Studies physical properties of soils, classification systems, soil structure and soil water systems, effective stress principle and stresses in soil due to applied loads. Topics include compressibility, consolidation and swell; permeability and seepage analysis; soil compaction; stress-strain-shear strength relationships of soils; failure criteria; direct and triaxial shear testing; and soils used in construction. Introduces lateral earth pressures. Uses computer software for geotechnical analysis. Prerequisites: CVE 223; co-requisite: CVE 303.

**CVE 333 Geotechnical Engineering Design (3-0-3).** Covers subsurface exploration and site investigation and evaluation; bearing capacity of shallow foundations in different types of soils; settlement analysis (consolidation and immediate); design of shallow foundations including footings and rafts; design of deep foundations including driven piles, shafts and drilled piers; pile load tests; end bearing and friction of deep foundations under axial loading; settlement of piles; bearing capacity and settlement of pile groups; piles subjected to lateral loading and moments; and design of pile foundations. Introduces design of retaining walls. Requires extensive use of computer-aided design in team projects. Prerequisite: CVE 331.

**CVE 341 Water Resources Engineering (3-0-3).** Introduces flow of water through pipes and channels, over the ground surface, and through the subsurface. Covers Incompressible flow in pipes, methods of energy loss computations, pumps, steady flow In pipe networks, and design of pipe networks using computer applications. Includes open channel hydraulics, design of water supply canals, bridge and culvert hydraulics, and open channel flow modeling. Introduces surface hydrology Includeing runoff modeling. Covers subsurface flow and wells hydraulics. Includes team projects, and analysis and design using computer software. Prerequisite: CVE 240.

**CVE 351 Environmental Engineering (3-0-3).** Covers materials balance, reaction kinetics and reactor theory. Introduces water quality parameters, modeling, and source assessment; and planning and design of water and wastewater treatment methods and unit operations. Includes physical, chemical and biological phenomenon governing water and wastewater treatment steps; air quality standards and air quality treatment and control; solid waste planning and management; and hazardous waste treatment and management. Prerequisite: CHM 101; co-requisite: CVE 304; prerequisite/concurrent: CVE 341.

**CVE 363 Highway Design (3-0-3).** Explores driver and vehicle characteristics, stopping and passing sight distances, cross section elements, vertical and horizontal alignment, intersections and interchanges, surface drainage, types of pavements, and principles, theoretical concepts and design of flexible and rigid pavements. Prerequisite: CVE 263.

**CVE 367 Project Estimating, Planning and Control (3-0-3).** Covers the application of cost estimating and planning techniques for construction projects. Introduces construction project management; quantity surveying; labor, material and equipment costing; indirect and general overhead costs; preparation of approximate and definitive estimates; work breakdown structures; project scheduling; network modeling; critical path method; linear rescheduling;

resource leveling; time-cost tradeoff; earned value; and project controls. Prerequisite: CVE 267.

**CVE 372 Structural Design for Architecture (3-1-3).** (Cross-listed as ARC 344). Covers classification of structural elements and systems; analysis and behavior of structural elements and systems (simple beams, compression members, continuous beams, frames, plates, membranes and shells); the relationship between the behavior of structural elements used in architecture and their forms; the structural design process, codes and specifications; qualitative and preliminary selection of steel and concrete structural elements; types and behavior of structural connections; and types and behavior of foundation systems. Prerequisite: CVE 272 or ARC 242. Not open to civil engineering majors. Lab/Tech fee rate A applies.

**CVE 394 Special Topics in Civil Engineering (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**CVE 397 Professional Training (0-0-0).** Requires normally six weeks of approved professional experience. Work undertaken must be documented in a formal report to the program by the beginning of the following term. Prerequisite: approval of training coordinator for the major. Registration fee applies.

**CVE 410 Computer Methods in Structural Analysis and Design (3-0-3).** Explores structural systems; loading on structures (wind and earthquake loads); virtual work method, stiffness and flexibility methods; matrix formulation of the stiffness and flexibility methods; direct stiffness method; introduction to finite element method; computer analysis and design of 2D and 3D framed structures and high-rise buildings. Emphasizes team-based learning through specific design projects. Prerequisite: CVE 301.

**CVE 411 Structural Concrete Design (3-0-3).** Introduces flooring and structural systems. Covers design of

reinforced concrete members including beams subjected to torsion, two-way slabs, column under biaxial bending, slender columns, combined footings and shear walls. Introduces pre-stressed concrete, pre-stress materials and losses. Includes design of pre-stressed beams and computer analysis and design of structures. Emphasizes team-based learning through specific design projects. Prerequisite: CVE 313.

**CVE 413 Concrete Bridges Design (3-0-3).** Covers design of highway bridges; history, classification, and aesthetics of bridge structures; design philosophy; loading, girder distribution factors; and load combinations; design of concrete deck slab; design of reinforced concrete T-beam and box girders bridges; and design of piers, bearings and abutments. Introduces pre-stressed concrete bridges. Prerequisites: CVE 313.

**CVE 437 Advanced Concrete Technology (3-0-3).** Explores properties and applications of special concretes, curing methods, admixtures, fiber-reinforced concrete and high-performance concretes (HPC) and their use in innovative design solutions. Covers hot and cold weather concrete; concrete construction in hot weather with special reference to the Middle East; design of concrete mixes based on experience with local construction materials; properties of high-performance concrete; design of high-performance concrete materials and their use in innovative design solutions; concrete production, strength, durability, deterioration and quality control aspects; maintenance and repair materials and methods; and computer applications for the prediction of service life and cost analysis of the reinforced concrete structures. Prerequisites: CVE 221 and CVE202.

**CVE 442 Advanced Foundation Engineering (3-0-3).** Includes site investigation with emphasis on in-situ testing. Covers computer-aided profile data reduction and recording; interpretation of field and laboratory data; design of retaining structures, earth structures, braced cut excavations, sheet-pile walls and reinforced earth structures; offshoring; problematic

soil and ground improvement; and the design of staged construction embankments. Introduces seismic behavior of ground and geotechnical earthquake engineering, and design with geotextiles. Emphasizes design of locally used geotechnical structures. Requires extensive use of computer-aided design in team-projects. Prerequisite: CVE 333.

**CVE 446 Geotechnical Dam Engineering (3-0-3).** Examines regional geoscience and seismotectonic investigations; related subsurface exploration programs; in-situ permeability testing; and seepage in composite sections, anisotropic and multi-layered materials; flow through earth dams; methods of stability analysis of soils and rocks slopes; design of dam foundations; foundation treatment; and grouting in the ground. Introduces earthquake analysis and design of earth and rockfill dams. Special considerations include liquefaction problems, sinkholes, land subsidence, foundation defects and dispersive soils. Covers compaction methods, monitoring and staged construction. Includes case studies and computer-aided design projects. Prerequisite/concurrent: CVE 331.

**CVE 448 Port and Harbor Engineering (3-0-3).** Covers principles of port and harbor planning and design. Includes geotechnical engineering aspects of port and harbor engineering; design loads; construction materials; wave characteristics and transformation; wave forces and concepts and theories of wave structure interaction; water level fluctuations (tides); planning and layout of port facilities; coastal and ocean structures; underwater systems; design of seawalls, breakwaters, shore protection systems, fixed offshore installations, and sheet piling systems; dredging; design of selected coastal structures; and hydraulic considerations. Introduces selected coastal engineering problems. Includes team projects, case studies, site visits and computer-aided analysis and design using commercial software. Prerequisite: CVE 223; prerequisite/concurrent: CVE 341.

**CVE 450 Physical and Chemical Processes in Environmental Engineering (3-0-3).** Covers

fundamental physical and chemical processes as applied within environmental engineering, including water treatment, wastewater treatment, air pollution control, and water quality management. Topics include: reactor theory, mixing, gravity separation, centrifugation, adsorption, Ion exchange, disinfection kinetics, acid/base chemistry, neutralization, precipitation, and corrosion. Prerequisites: CVE 351 and CVE 304.

**CVE 455 Environmental Impact Assessment, Protection and Public Health (3-0-3).** Explores humanity and environment. Covers communicable and non-communicable diseases; technology-environment interactions, environmental concerns, environmental risk assessment; comprehensive environmental planning and management of impact studies; assessment of impacts of engineering projects on environment; small water and wastewater systems; solid waste and hazardous spills management; and environmental monitoring. Prerequisite: CVE 351 and CVE 304.

**CVE 456 Traffic Engineering (3-0-3).** Explores characteristics of road users and the characteristics of the traffic stream: speed-flow-density, traffic volume, traffic accidents, travel time and delay, parking, capacity and level of service of freeways, signalized intersections and at-grade intersection design. Also covers transportation models. Prerequisite: CVE 263.

**CVE 457 Airport Planning and Design (3-0-3).** Examines airport master planning, forecasting air travel demand and design of airports, including lighting, terminal facilities, noise-level control, aircraft control, airspace utilization and automobile parking. Prerequisite: CVE 263.

**CVE 463 Construction Management (3-0-3).** Examines management in the construction industry; construction delivery systems; management organizations; construction contracts; preconstruction planning and scheduling; bidding and award; contract administration and control; managing submittals, drawings, communications, progress payments, cash flow and site materials; and progress monitoring and

control. Introduces construction quality and safety management. Prerequisite: CVE 367.

**CVE 468 Systems Construction Management, Scheduling and Control (3-0-3).** Explores the basic elements of management of civil engineering projects: the roles of all participants in the process, coordination with various authorities, emphasis on contractual aspects and contract documents, construction law, variations, arbitration, claims, settlement of disputes, risk management, construction planning and scheduling, work breakdown structure, critical path method, procurement schedule, resources (labor, and equipment), cost-schedule integration, least cost schedules, progress monitoring and control. Prerequisite: CVE 267.

**CVE 490 Civil Engineering Design Project I (0-3-1).** Requires an open-ended, in-depth design project of civil and/or environmental engineering significance that includes the analysis and design of a civil engineering system meeting desired objectives within one, or more, of the civil engineering practice areas. Students apply creativity with their engineering knowledge in the solution of civil engineering problems. Students work in close accord with one or more faculty members in a team environment. Students apply civil engineering principles to analyze and design the civil/environmental engineering system. The project outcomes must demonstrate that students have attained the level of competency needed for entry into the civil engineering profession. Prerequisite: senior standing.

**CVE 491 Civil Engineering Design Project II (0-6-2).** Continues the work of CVE 490. Prerequisite: CVE 490.

**CVE 494 Special Topics in Civil Engineering (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**CVE 496 Independent Study in Civil Engineering (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted

under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

**CVE 561 Construction Management for Architecture (3-0-3).** (Cross-listed as ARC 561). Studies in-depth the interrelationships among the various professional disciplines in the building and construction industry as they pertain to issues of the management and planning of complex construction projects. Includes review of standard practices of tendering, contracting, quantity surveying, cost estimation, supervision, quality control and economy. Not open to civil engineering majors. Prerequisite: ARC 397 or IDE 397.

## EGM Engineering Management

**EGM 361 Management for Engineers (3-0-3).** Focuses on engineers as managers. Topics include nature and functions of organizations; the tools of engineering management; engineering organizational models, including cluster and matrix organization; leadership; teamwork and creativity; personnel management; finance; communication skills; and ethical and professional standards. Introduces total quality management. Includes case studies. Prerequisite: WRI 102 and NGN 110.

**EGM 362 Engineering Project Management (3-0-3).** Covers projects in engineering organizations. Topics include project initiation; effective project management; project life cycle, planning and scheduling; resourcing; cost estimating; and project monitoring and control. Introduces computer packages. Includes case studies. Prerequisite: ECO 201 and NGN 110.

**EGM 364 Engineering Economy (3-0-3).** Explores the economics concepts and theories of planning. Covers the bases and methods of economic analysis of engineering projects and the application of these principles in understanding economic activity of private and public engineering companies at various

micro- and macroeconomic levels. Prerequisite: ECO 201, and NGN 111 or STA 201. Formerly EGM 464.

**EGM 394 Special Topics in Engineering Management (1 to 3 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**EGM 463 Quantitative Engineering Management (3-0-3).** Explores models in operational management. Includes linear programming (formulation of linear programming models and standard forms); principles of the simplex method; dual simplex method; nonlinear programming problems; and the use of linear and nonlinear problem solvers with applications in various engineering fields including network analysis, resource allocation and transportation. Prerequisite: NGN 111 or STA 201.

**EGM 465 Quality Engineering (3-0-3).** Covers control charts and diagrams (types, construction, application and implementation), including control charts for variables and attributes. Includes acceptance sampling (lot by lot acceptance sampling by attributes, acceptance sampling plans and standards), quality costs, quality improvement and implementation of the quality control system. Prerequisite: NGN 111 or STA 201.

**EGM 494 Special Topics in Engineering Management (1 to 3 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

## ELE Electrical Engineering

**ELE 211 Electric Circuits I (2-3-3).** Examines physical concepts and mathematical analysis of electric circuits. Includes DC, transient and sinusoidal steady state analysis of circuits. Includes laboratory experiments and use of Spice and MATLAB.

Prerequisite: PHY 102. Lab/Tech fee rate B applies.

**ELE 212 Electric Circuits II (2-3-3).**

Covers magnetically coupled inductors and ideal transformers, frequency response analysis, Laplace transform, application of Laplace transform in circuit analysis, two port networks. Introduces three phase circuits. Includes laboratory experiments. Prerequisite: ELE 211 and MTH 205. Lab/Tech fee rate B applies.

**ELE 225 Electric Circuits and Devices (2-3-3).**

Covers electrical quantities and variables; circuit principles; signal processing circuits; DC and AC circuit analysis; and diodes, transistors, operational amplifiers and digital devices. Prerequisite: PHY 102. Not open to electrical engineering or computer engineering majors. Lab/Tech fee rate B applies.

**ELE 241 Electronics I (3-0-3).**

Reviews semiconductor physics. Covers PN junction; diode circuits; special diodes; bipolar junction transistor (BJT); biasing, small signal analysis and design of BJT amplifiers; MOSFET transistor; biasing, simple current mirror; small signal analysis and design of MOSFET amplifiers; optoelectronic devices; and digital electronics. Prerequisite: ELE 211; prerequisite/concurrent ELE 241L.

**ELE 241L Electronics I Lab (0-3-1).**

Laboratory to accompany ELE 241. Prerequisite/concurrent ELE 241. Lab/Tech fee rate B applies.

**ELE 251 Electrical Energy Conversion (3-0-3).**

Covers magnetic circuits, single phase transformer and equivalent circuit, three-phase transformers, basic concepts of electromechanical energy conversion, DC and AC machines. Prerequisite/concurrent: ELE 212. Prerequisite: ELE 225 for non-electrical engineering students only.

**ELE 311 Electromagnetics (3-0-3).**

Covers vector algebra, vector calculus, electrostatic boundary conditions, magnetostatic fields, magnetic materials, Maxwell's equations, electromagnetic wave propagation and transmission lines. Prerequisites: MTH 203, MTH 205 and PHY 102.

**ELE 321 Signals and Systems (3-0-3).**

Studies classification and manipulation

of continuous-time and discrete-time signals, linear time invariant system modeling, convolution of discrete-time and continuous signals, Fourier representation of signals (Fourier series, Fourier transform and discrete-time Fourier transform), applications of Fourier representations in signals and systems, and the Z-transform and analysis of discrete-time systems. Prerequisites: ELE 212.

**ELE 323 Signal Processing (3-0-3).**

Covers signal classification and system behavior, impulse response and convolution, signals and systems analysis and representation via the Fourier transform and the Z transform, sampling of band-limited signals, FIR and IIR Digital filters and their design, and random variables and stochastic processes for statistical signal processing. Prerequisites: MTH 205 and ELE 211 or ELE 225. Not open to electrical engineering majors.

**ELE 332L Measurements and Instrumentation Lab (0-3-1).**

Includes error analysis, linear displacement transducers, strain gauge, rotational speed measurement, capacitive and inductive transducers, temperature measurement, measurement of pressure and flow, and ultrasonic measurement systems. Prerequisite: ELE 341. Lab/Tech fee rate B applies.

**ELE 341 Electronics II (3-0-3).**

Covers differential pair, operational amplifiers, power amplifiers, review of Bode Plots, frequency response characteristics of amplifiers, feedback and stability, oscillators, active filters, timing circuits, digital to analog conversion (D/A), and analog to digital conversion (A/D). Prerequisite: ELE 241. Lab/Tech fee rate B applies.

**ELE 341L Electronics II Lab (0-3-1).**

Laboratory to accompany ELE 341. Prerequisite/concurrent: ELE 341.

**ELE 353 Control Systems I (3-0-3).**

Examines mathematical models of systems, feedback control system characteristics, transient response analysis, performance and stability of feedback control systems, root locus analysis, frequency response analysis and design of feedback control systems. Prerequisite: ELE 212; prerequisite/concurrent: MCE 224 or MCE 225.

Lab/Tech Fee Rate A applies.

**ELE 353L Control Systems I Lab (0-3-1).**

Laboratory to accompany ELE 353. Prerequisite: ELE 353. Lab/Tech fee rate B applies.

**ELE 360 Probability and Stochastic Processes (3-0-3).**

Covers set theory, preliminaries of probability theory and random variables, stochastic processes, Markov chains, examples of continuous time Markov chains and applications to systems. Prerequisites: NGN 111 and MTH 221.

**ELE 361 Communications (3-0-3).**

Reviews Fourier series and Fourier transform. Topics include communication systems, random variable and stochastic processes, continuous wave modulation (amplitude modulation and angle modulation), pulse modulation, multiplexing techniques and performance of various modulation schemes in the presence of noise. Introduces digital communications. Prerequisite: ELE 321.

**ELE 361L Communications Lab (0-3-1).**

Laboratory to accompany ELE 361. Prerequisite: ELE 361.

**ELE 371 Power Systems Analysis (3-0-3).**

Examines power system concepts and per unit quantities; transmission line, transformer and rotating machine modeling; steady-state analysis and power flow; fault analysis; theory of symmetrical components; and power system stability. Prerequisite: ELE 251; prerequisite/concurrent: MTH 221. Lab/Tech fee rate B applies.

**ELE 371L Electric Machines and Power Systems Lab (0-3-1).**

Laboratory to accompany ELE 371. Prerequisite/concurrent: ELE 371.

**ELE 394 Special Topics in Electrical Engineering (1 to 4 credits).**

Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**ELE 397 Professional Training in Electrical Engineering (0-0-0).**

Requires normally six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by

the beginning of the following term. Prerequisite: approval of the training coordinator for the major. Registration fee applies.

**ELE 424 Digital Signal Processing (3-0-3).** Covers treatment of sampling/reconstruction, quantization, discrete-time signals and systems, digital filtering, Z-transforms, transfer functions, digital filter realizations, discrete Fourier transform (DFT) and fast Fourier transform (FFT), finite impulse response (FIR) and infinite impulse response (IIR) filter design, and digital signal processing (DSP) applications. Prerequisite: ELE 321.

**ELE 426 Imaging Systems (3-0-3).** Covers imaging techniques, including ultrasound imaging, convention X-Ray imaging, computerized tomography, magnetic resonance imaging, microwave imaging, thermal imaging, nuclear imaging, and other imaging techniques. For each of the addressed imaging techniques, the following is covered: radiation propagation and interaction with materials, generation and detection, and image construction and reconstruction. Cover radiation protection. Prerequisite: ELE 311.

**ELE 432 Medical Instrumentation I (3-0-3).** Examines principles of medical instrumentation. Covers biomedical sensors and transducers; temperature, displacement, acoustical, chemical and radiation measurements; bio-potential amplifiers and signal processing; origin of bio-potentials; bio-potential electrodes; measurement of bio-potentials such as ECG, EEG and EMG; blood pressure measurements; and electrical safety. Prerequisite: ELE 341.

**ELE 433 Medical Instrumentation II (3-0-3).** Covers blood flow measurements, respiratory system measurements, chemical biosensors, clinical laboratory instrumentation and therapeutic devices. Prerequisite: ELE 432.

**ELE 439L Medical Electronics Systems Lab (0-3-1).** Explores data acquisition tools, medical signal processing, biopotential amplifiers, biopotentials, bioimpedance measurements, blood pressure measurements, respiratory measurements, ultrasonic measurements

and electrical safety. Prerequisite/concurrent: ELE 432. Lab/Tech fee rate B applies.

**ELE 441 Microelectronic Devices (3-0-3).** Covers conceptual and functional description of the physics, characteristics and fabrication of microelectronic devices as it applies to current and future integrated circuits (IC) and systems. Includes properties and dynamics of semiconductor carriers, P-N junctions, MOS capacitor and MOSFETs, BJTs and modern FETs. Uses state-of-the-art technology CAD/CAE simulation tools and analytical techniques for device design, layout, fabrication and testing. Prerequisite: ELE 241.

**ELE 444 Control Systems II (3-0-3).** Covers state-space modeling and analysis, controllability, observability, state feedback design and pole placement, dynamic observers, output feedback design and stability analysis. Prerequisite: ELE 353.

**ELE 451 Wireless Communications (3-0-3).** Provides an overview of wireless networks, design considerations of cellular systems, frequency reuse, multiple access interference, wireless channel characterization, Rayleigh fading, shadowing, modulation techniques for mobile radio, diversity schemes, multiple access techniques, wireless systems and standards. Prerequisite: ELE 361.

**ELE 452 Digital Communications (3-0-3).** Covers model of digital communication systems, base-band transmission and line coding techniques, geometric interpretation of signals, band-pass transmission and digital modulation techniques, optimum detection of known signals in AWGN channels, error correcting codes, modulation and coding trade-off, inter-symbol interference and synchronization. Prerequisite: ELE 361.

**ELE 453 Microwave Engineering (3-0-3).** Examines electromagnetic plane waves, microwave transmission lines, Smith charts and stubs, microwave waveguides and components, microwave measurements and applications, and microwave generators. Prerequisite: ELE 311.

**ELE 454 Antennas and Wave Propagation (3-0-3).** Covers radiation pattern, directivity and gain, half-power beam width and beam efficiency, antenna bandwidth, polarization, input impedance, radiation efficiency, wire antennas, loop antennas, array antennas, aperture antennas and reflector antennas. Prerequisite: ELE 311.

**ELE 455 Digital Image Processing (3-0-3).** Covers mathematical representation and fundamentals of digital images. Also includes image enhancement, image restoration, image compression, image segmentation and color representation. Prerequisite/concurrent: ELE 424.

**ELE 457 Satellite Communications (3-0-3).** Explores the technical and economical aspects of satellite communication. Topics include design considerations of low, medium and high power transponders; antenna types; and ground station design. Prerequisites: ELE 361 and ELE 311.

**ELE 458L Communications Systems Lab (0-3-1).** Examines practical aspects of digital communications, antennas and microwave engineering. Topics include pulse code modulation (PCM), modulation schemes, pulse shaping, noise effects, optical fiber link, time division multiplexing, antenna parameters measurements, microwave reflection and transmission parameter measurements, and real-time DSP programming and applications. Prerequisites: ELE 311 and ELE 361. Lab/Tech Fee Rate B applies.

**ELE 459 Introduction to Radar Systems (3-0-3).** Explores the nature of radars. Topics include radar antennas, the radar equation, range prediction, minimum detectable signal and receiver noise, radar cross section of targets, CW and FM-CW radars, moving target indicator and pulse Doppler radars, tracking radars, remote sensing, SLARs and SARs. Prerequisite: ELE 311.

**ELE 471 Digital Control Systems (3-0-3).** Covers discrete-time systems and the Z-transform, sampling and reconstruction, open-loop and closed discrete-time systems, system time-response characteristics, stability analysis techniques and digital controller design. Prerequisite: ELE 353.

**ELE 472 Nonlinear Control (3-0-3).** Analyzes nonlinear systems. Covers phase plane analysis, limit cycle, describing function and its applications; stability analysis of nonlinear systems using Liapunov, input/output and asymptotic methods; and design methods of nonlinear controllers (linearization, absolute stability theory, sliding modes and feedback linearization). Prerequisite: ELE 353.

**ELE 473 Industrial Instrumentation and Control (3-0-3).** Reviews measurement systems. Covers field instrumentation, input/output instruments characteristics, instruments grounding and cabling techniques, signal processing and transmission, smart sensors, data acquisition and display, general purpose control devices, programmable logic controllers and industrial controllers, and DCS, SCADA and Fieldbuses in industrial control. Prerequisites: ELE 332L and ELE 353.

**ELE 476L Instrumentations and Control Systems Lab (0-3-1).** Reviews measurement systems. Explores programmable logic controllers programming, PC-based data acquisition and control, Electro-Pneumatic System Control and Electro-Hydraulic System Control. Prerequisites: ELE 353L and ELE 332L. Lab/Tech fee rate B applies.

**ELE 481 Power System Protection (3-0-3).** Covers unsymmetrical fault analysis, fuses, voltage and current transducers, fundamental relay operating principles and characteristics, over current protection, comparators and static relay circuits, differential protection and its application to generators, transformers and bus bars, motor protection, pilot wire protection of feeders and standard protective schemes for system coordination of relays. Prerequisite: ELE 371.

**ELE 482 Electric Power Distribution Systems (3-0-3).** Examines concepts and techniques associated with the design and operation of electrical distribution systems. Topics include load characteristics, distribution substations, choice of voltage levels, loss minimization and voltage control, calculation of impedances of unbalanced three-phase systems, and

analysis techniques of radial systems. Prerequisite: ELE 371.

**ELE 483 Power System Operation (3-0-3).** Introduces economic operation, transmission system effects, unit commitment and fuel scheduling of power systems. Covers modeling of system components and control equipment, automatic control of generation and frequency regulation, and aspects of interconnected operation. Prerequisite: ELE 371.

**ELE 484 Control of AC Machines (3-0-3).** Covers dynamic models of three-phase AC machines, PWM inverters, scalar control of induction machines, the principle of field orientation, flux estimators and observers, vector control of induction and permanent magnet synchronous machines. Prerequisites: ELE 251 and ELE 353.

**ELE 485 Power Electronics (3-0-3).** Explores electric power conditioning and control; characteristics of solid-state power switches; and analysis and applications of AC power controllers, controlled rectifiers, DC choppers and DC-AC converters. Prerequisites: ELE 241 and MTH 205.

**ELE 486 Electric Drives (3-0-3).** Covers the application of semiconductor switching power converters to adjustable speed DC and AC motor drives. Also includes steady state theory and analysis of electric motion control in industrial, robotic and traction systems. Prerequisites: ELE 251, ELE 241 and MTH 205.

**ELE 488L Power Engineering Lab (0-3-1).** Explores various power systems and power electronics applications including issues related to power transmission and distribution and adjustable speed motor drives. Prerequisite: ELE 371 and ELE 371L. Lab/Tech fee rate B applies.

**ELE 490 Electrical Engineering Design Project I (0-6-2).** Introduces design methodology in electrical engineering through lectures and an open-ended, in-depth design project. The project includes the design of a system, process or component to achieve the functional objectives representative of problems encountered by practicing electrical engineers. Students work in teams to define,

complete, validate and document their design project. They work in close accord with one or more faculty members. The course emphasizes engineering ethics and communication skills. Prerequisite: senior standing and permission of department.

**ELE 491 Electrical Engineering Design Project II (0-6-2).** Continues the work of ELE 490. Prerequisite: ELE 490.

**ELE 494 Special Topics in Electrical Engineering (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**ELE 496 Independent Study in Electrical Engineering (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## MCE Mechanical Engineering

**MCE 215 Engineering Drawing and Workshop (1-6-3).** Covers orthographic projections of machine elements, auxiliary views, section views, dimensioning, introduction to fits and tolerances, basic detailed and assembly drawings, and computer-aided drafting using commercial computer-aided design software. Introduces the use of basic machines, the development of hand skills and safety in the workshop. Covers basic hand tools, basic machining operations, welding, casting, woodwork, sheet metal work and measuring instruments. Lab/Tech fee rate B applies.

**MCE 220 Statics (3-1-3).** Covers fundamental concepts and principles of mechanics, vectors and force systems. Topics include concepts of free-body-diagram; principles of equilibrium of particles and rigid bodies in two and three dimensions; analysis of structures: trusses, frames and machines; shear and bending moment in beams; center

of gravity; centroids; area moment of inertia; and friction. Prerequisite: PHY 101.

**MCE 222 Dynamics (3-1-3).** Examines fundamental concepts of kinematics and kinetics with application to motion of particles and plane motion of rigid bodies. Topics include rectilinear and curvilinear motion of particles; Newton's second law, impulse and momentum methods; impact, dynamics of systems of particles; kinematics of rigid bodies; plane motion of rigid bodies; forces and accelerations; and energy and momentum methods. Prerequisites: MCE 220 and MTH 205.

**MCE 223 Mechanics of Materials (3-1-3).** Covers stress and strain; mechanical properties of materials; axial load, torsion, bending and transverse shear; combined loadings; stress transformation; deflection of beams and shafts; and buckling of columns. Prerequisite: MCE 220 or MCE 224.

**MCE 224 Engineering Mechanics—Statics and Dynamics (3-1-3).** Covers particle statics and dynamics, vector mechanics, free body diagrams, two- and three-dimensional force equilibrium systems, internal forces, centroid and moment of inertia, rectilinear and curvilinear motion, Coriolis effects, considerations of work and energy, and periodic motion. Prerequisites: MTH 104 and PHY 101. Not open to mechanical engineering or civil engineering majors.

**MCE 225 Statics and Dynamics for Computer Engineers (2-1-2).** Covers particle statics and dynamics, vector mechanics, free body diagrams, two-dimensional force equilibrium systems, rectilinear and curvilinear motion, considerations of work and energy. Prerequisites: MTH 104 and PHY 101. Not open to mechanical engineering, civil engineering or electrical engineering majors.

**MCE 230 Materials Science (2-3-3).** Introduces students to material science; relationships between structure and properties of materials; atomic bonding, crystalline structures, crystal defects and imperfections; phase diagrams and equilibrium; microstructural development; and properties of engineering materials. Prerequisite:

CHM 101. Lab/Tech fee rate B applies.

**MCE 234 Computer Applications in Mechanical Engineering (2-3-3).** Introduces structured programming and software suite for mechanical engineering applications using MATLAB; Nastran and SimMechanics demonstrations. Introduces computer hardware; and use of software and hardware in the design and simulation of mechanical systems. Lab/Tech fee rate A applies.

**MCE 240 Fluid Mechanics (2-3-3).** Covers fundamental concepts and properties of fluids; fluid statics, forces on planar and curved surfaces, and buoyancy; kinematics of fluid motion; conservation equations with applications; continuity, momentum and energy equations, and Bernoulli's equation; velocity and flow rate measurements; dimensional analysis and modeling; frictional losses in pipes and introduction to fluid dynamic forces on immersed bodies. Prerequisites: MTH 104 and MCE 220. Lab/Tech fee rate B applies.

**MCE 241 Thermodynamics I (3-1-3).** Covers basic concepts of thermodynamics, properties of matter, processes and cycles, energy transfer, first law of thermodynamics for closed systems and control volumes, second law of thermodynamics, entropy and availability analyses, applications on engineering devices, basics of vapor power and gas power cycles. Prerequisite: PHY 101.

**MCE 311 Engineering Measurements (2-3-3).** Examines basic concepts of measuring methods; static and dynamic characteristics of signals; types of errors; assessing and presenting experimental data; uncertainty analysis; measurement system behavior; sampling; analog devices and measurements; digital devices and data acquisition; and selection and use of temperature, pressure, fluid flow, force, stress, strain, torque and power instrumentation. Includes lab experiments and demonstrations. Prerequisites: ELE 225, MCE 222 and MCE 240. Lab/Tech fee rate B applies.

**MCE 321 Mechanical Design I (3-0-3).** Explores stresses and deflection of engineering members; statistical

considerations in design; steady and variable loading; design of screws, fasteners and nonpermanent joints; and welded joints. Prerequisites: MCE 215, MCE 223 and NGN 111.

**MCE 322 Mechanical Design II (3-0-3).** Covers mechanical springs; design of clutches, brakes and couplings; power transmission equipment (shafts, axles and spindles); flexible mechanical elements (flat and V-belts, wire ropes and chains); rolling and journal bearings; spur, helical, bevel and worm gears; and utilization of commercial computer-aided design software. A design project is required. Prerequisite: MCE 321. Prerequisite/concurrent: MCE 331

**MCE 325 Computational Methods (2-3-3).** Covers basic concepts of computational methods; errors, accuracy and precision; numerical solutions of non-linear equations; direct and iterative methods for solving systems of linear algebraic equations; numerical differentiation and integration; interpolation, approximation and curve fitting; numerical solutions of ordinary and partial differential equations; and applications of computational methods using computers. Prerequisite: MTH 205; prerequisite/concurrent: MTH 221. Lab/Tech fee rate A applies.

**MCE 328 Dynamic Systems (3-0-3).** Covers modeling, analysis and measurement of mechanical damped and undamped, forced and free vibrations in single and multiple degree-of-freedom dynamic systems. The processes of energy storage and dissipation are emphasized and analogous elements are addressed when modeling different dynamic systems. Introduces basic concepts in system theory such as system state and stability. Includes elements of frequency response, Fourier and Laplace transform techniques, and total response from partial fraction expansion. Prerequisites: MTH 205, MCE 222, MCE 234 and ELE 225.

**MCE 331 Manufacturing Processes (2-3-3).** Introduces fundamentals of manufacturing processes including casting, forming, welding and machining operations. Students are grouped in teams to conduct hands-on experiments in the manufacturing laboratory. Prerequisites: MCE 215,

MCE 223 and MCE 230. Lab/Tech fee rate B applies.

**MCE 341 Thermodynamics II (2-3-3).** Covers energy system analysis including modified power cycles, refrigeration cycles and air conditioning processes; thermodynamic relations and development of thermodynamic properties; thermodynamics of non-reacting and reacting mixtures, chemical reaction and phase equilibrium. Includes lab experiments and demonstrations. Prerequisite: MCE 241. Lab/Tech fee rate B applies.

**MCE 344 Heat Transfer (2-3-3).** Covers mechanisms of heat transfer, steady-state conduction solution in various geometries, electric network analogy, fins, numerical methods in heat transfer, transient conduction, internal and external forced and natural convection with applications to heat exchangers, and fundamentals of thermal radiation. Prerequisites: MCE 240 and MCE 241. Lab/Tech fee rate B applies.

**MCE 394 Special Topics in Mechanical Engineering (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**MCE 397 Professional Training in Mechanical Engineering (0-0-0).** Requires normally six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Prerequisite: approval of training coordinator for the major. Registration fee applies.

**MCE 410 Control Systems (2-3-3).** Covers state variable models, feedback control system characteristics, performance and stability of feedback control systems, root-locus method, stability in the frequency domain and design of feedback control systems. Introduces control system design in the state space domain and digital control. Includes lab experiments and demonstrations. Prerequisites: MCE 311 and MCE 328. Lab/Tech fee rate B applies.

**MCE 416 Kinematics and Dynamics of Machinery (3-0-3).** Explores kinematics and dynamic analysis and synthesis of linkages (displacement, velocity, acceleration and force analysis), cam-follower, gear train systems, balancing of rotating systems, dynamics of reciprocating engines and vibration signatures in machinery. Prerequisite: MCE 328.

**MCE 423 Mechanical Vibrations (3-0-3).** Provides a review of systems with single degree of freedom damped and undamped free vibrations and forced vibrations. Includes modeling of multi-degree-of-freedom systems via Lagrange's equations; modal summation method for response predictions; vibration isolation and vibration measuring instruments; tuned mass vibration absorber; viscous, Coulomb and hysteresis damping; and vibration of continuous systems. Introduces experimental modal analysis. Prerequisite: MCE 328.

**MCE 434 Fundamentals of Computer-Aided Design and Manufacturing (2-3-3).** Introduces computer-aided design (CAD) and computer-aided manufacturing (CAM) technologies. Topics include the role of CAD/geometric modeling, parametric representation of curves and surfaces, viewing transformations, finite element analysis and optimization techniques, computer numerical control (CNC), part programming, and introduction to rapid prototyping. Prerequisites: MCE 234 and MCE 331. Lab/Tech fee rate B applies.

**MCE 439 Computer Integrated Manufacturing (3-0-3).** Covers fundamentals and principles associated with computer integrated manufacturing (CIM). Topics include: computer-aided process planning (CAPP), production planning and control, programming principles of numerical controlled and computer numerical controlled systems, manufacturing systems design, manufacturing cells and flexible manufacturing systems. Prerequisite: MCE 234 and MCE 331

**MCE 445 Energy Systems (3-0-3).** Covers types of power plants, thermodynamics of power plants, combined power plants, systems

components, design parameters, plant evaluation, efficiency calculations methods, modifications to improve system performance, cogeneration plants, thermodynamics and economics of cogeneration plants, system equipment, practical schemes of cogeneration plants, power plant economics, power plant planning, design concepts, power plant control, burner management and environmental impact of power plants. Prerequisites: MCE 341 and MCE 344.

**MCE 446 Refrigeration and Air Conditioning (2-3-3).** Introduces ventilation, air conditioning and refrigeration; classification of air conditioning systems; applied psychometrics, design conditions, design of conventional and non-conventional systems; human thermal comfort and indoor air quality; load estimating fundamentals; heating and cooling loads calculations; vapor compression refrigeration cycles; refrigeration equipment and systems; energy estimation methods; air distribution systems and duct design; and system selection and design. Includes lab experiments and demonstrations. Prerequisites: MCE 341 and MCE 344. Lab/Tech fee rate B applies.

**MCE 447 Internal Combustion Engines (2-3-3).** Covers fundamental principles of engine operation and applications, engine classifications, engine design and operating parameters, engine cycles, thermo-chemistry and fuels, air and fuel induction systems, fluid motion within combustion chambers, combustion in spark ignition engines, combustion in compression ignition engines, exhaust system, engine emission and air pollution, methods of emission control, engine friction and lubrication, and engine operating characteristics. Introduces modeling of real engine flow and combustion processes, as well as new trends in internal combustion engines. Includes lab experiments and demonstrations. Prerequisite: MCE 341. Lab/Tech fee rate B applies.

**MCE 450 Energy Conservation and Management (3-0-3).** Analyzes energy systems, including fossil fuels, steam,

cogeneration, waste heat recovery, refrigeration and air conditioning systems; total energy management; energy management organization and approach; energy conservation in electrical load; lighting, building envelop, and insulation; economic energy analysis; energy auditing; monitoring and targeting; technical approaches and analyses; control; and energy management systems. Prerequisite: MCE 341.

**MCE 464 Introduction to Robotics (3-0-3).** Gives an overview of robotics, robot coordinate systems, and direct and inverse kinematics. Introduces manipulator dynamics and force control and compliance. Includes robot sensors and control strategies, and requirement of digital control of robots. Prerequisites: MCE 311 and MCE 328.

**MCE 466 Introduction to Mechatronics (2-3-3).** Introduces the application of microprocessors and digital electronics to the design and application of control systems embedded in smart products. Covers sensors, actuators, software, system hardware and interfacing for mechanical engineering applications, as well as smart product design. Prerequisites: MCE 311 and MCE 328. Lab/Tech fee rate B applies.

**MCE 473 Applied Finite Element Analysis (2-3-3).** Introduces Finite Element Method (FEM) and its application in different mechanical engineering problems. Includes theoretical and computational basics of finite element method, element formulation and assembly of global matrices. Uses commercial software to solve various engineering problems. Applications include solid mechanics, 2-D steady state heat conduction and fluid problems. Prerequisite: MCE 321; prerequisite/concurrent: MCE 328 and MCE 344. Lab/Tech fee rate B applies.

**MCE 477 Composite Materials (3-0-3).** Examines advanced composite materials and applications. Covers stress-strain relationship for an orthotropic lamina, laminate analysis, static strength of laminates, analysis of laminated beams, introduction to micro-

mechanical analysis of laminae, design applications and computer program applications. Prerequisites: MCE 230, MCE 321 and MTH 221.

**MCE 482 Intermediate Fluid Mechanics (3-0-3).** Covers basic equations of fluid mechanics; differential relations of fluid flow, Navier-Stokes equations and solution of simple flows; viscous flow, Von Karman integral method, boundary layer equations with applications; potential flow, stream function, velocity potential, plane flow past closed-body shapes, fundamentals of compressible fluid flow, isentropic flow, normal shock waves and supersonic nozzles; and friction and heat interaction (Fanno and Rayleigh flows). Introduces computational fluid dynamics and use of commercial CFD software. Prerequisites: MCE 240, MCE 241. Prerequisites/Concurrent: MCE 325 and MTH 203.

**MCE 487 Turbomachines (2-3-3).** Explores classification of turbomachines, dimensional analysis and model testing; basic equations of fluid mechanics and Euler's theory; incompressible flow turbomachines (centrifugal and axial flow pumps), system matching, performance characteristics and cavitation; hydraulic turbines; compressible flow turbomachines (centrifugal and axial flow compressors), reaction ratio, stage loading, stage efficiency, surge and choking limits; and axial flow gas turbines. Prerequisites: MCE 240 and MCE 241. Lab/Tech fee rate B applies.

**MCE 490 Design Project I (1-3-2).** Includes an open-ended, in-depth design project of mechanical engineering significance that includes the design, manufacturing and testing of a complete system of current interest to mechanical engineering. Students work under close supervision of one or more faculty members in a team environment. Students are required to present their findings at the end of the project in the form of a seminar and in a formal written report. The project outcomes must demonstrate that students have attained the level of competency needed for entry in the mechanical engineering

profession. The course emphasizes engineering ethics and communication skills. Prerequisite: senior standing.

**MCE 491 Design Project II (0-6-2).** Continues the work of MCE 490. Prerequisite: MCE 490.

**MCE 494 Special Topics in Mechanical Engineering (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

**MCE 496 Independent Study in Mechanical Engineering (1 to 4 credits).** Explores a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisites: junior standing and approval of instructor.

## NGN Engineering

**NGN 110 Introduction to Engineering and Computing (1-2-2).** Examines common concepts in the engineering and computer science disciplines at AUS. Introduces word processing and spreadsheet software, team concepts, the roles and responsibilities of engineers and computer scientists, problem solving, principles of the design process, written and oral communication, professional ethics and sketching. Includes selected laboratories in different disciplines. Requires a design project meeting desired objectives in a team environment. Prerequisite: admission to the School of Engineering.

**NGN 111 Introduction to Statistical Analysis (2-0-2).** Covers descriptive statistics, graphical and numerical representation of information, measures of location and variation, elementary probability theory, and discrete and continuous probability models. Introduces statistical inference (estimation and hypothesis testing). Includes simple regression and

correlation, designing experiments and use of statistical software. Examples from the engineering and related disciplines are presented. Prerequisite/concurrent: MTH 103.

**NGN 394 Special Topics in**

**Engineering (1 to 4 credits).** Explores selected topics in interdisciplinary engineering fields. Prerequisites: sophomore standing and topic specific. Lab/Tech fee may apply.

**NGN 494 Special Topics in**

**Engineering (1 to 4 credits).** Explores selected topics in interdisciplinary engineering fields. Prerequisites: junior standing and topic specific. Lab/Tech fee may apply.

# AUS



# Graduate Studies and Research

## GRADUATE PROGRAMS

### Dean

Robert Cook

The American University of Sharjah is a center for high-quality graduate education and research as well as a resource for sustainable development and advancement for the Gulf region and internationally.

Students in AUS graduate programs find career advancement opportunities and personal enrichment. These programs foster a stimulating intellectual environment of collaborative research and intellectual exchange.

The university's cross-disciplinary graduate courses and specialized degree programs attract excellent students who pursue creative and original work under the guidance of highly qualified, dedicated faculty members recruited from the most prestigious universities in the United States, Canada and around the world.

## Programs of Graduate Studies

The Office of Graduate Programs oversees the development and implementation of graduate academic policies and of graduate-related activities on campus. AUS currently offers six programs of graduate studies leading to the master's degree. These are:

### College of Arts and Sciences

- Master of Arts in Teaching English to Speakers of Other Languages (TESOL)
- Master of Arts in English/Arabic/English Translation and Interpreting

### School of Architecture and Design

- Master of Urban Planning

### School of Business and Management

- Master of Business Administration

### School of Engineering

- Master of Science in Engineering Systems Management
- Master of Science in Mechatronics Engineering

## Graduate Calendar

Graduate Calendar	
<b>Fall 2006</b>	<b>Important Dates and Deadlines</b>
July 15	Application deadline for admission
August 19–31	Registration period
August 24	Graduate students' orientation
August 26	First week of classes, first day to add and/or drop courses
September 9	Late payment fee applies
September 14	Last day to add and/or drop courses
November 16	Last day to withdraw from a course without penalty
	Deadline for Application for Graduation
	Last day to move from thesis to project and vice versa
December 21	Deadline for thesis submission to Office of Graduate Programs for certification
<b>Spring 2007</b>	<b>Important Dates and Deadlines</b>
December 16	Application deadline for admission
January 21–February 1	Registration period
January 25	Graduate students' orientation
January 27	First week of classes, first day to add and/or drop courses
February 10	Late payment fee applies
February 15	Last day to add and/or drop courses
April 18	Last day to withdraw from classes without penalty
	Deadline for Application for Graduation
	Last day to move from thesis to project and vice versa
May 3	Deadline for thesis submission to Office of Graduate Programs for certification
June 7	Commencement

## Graduate Admission Policies and Procedures

Admission to all AUS graduate programs is processed through the Office of Admissions. Applicants should address all inquiries, requests for application forms and correspondence to:

American University of Sharjah  
Office of Admissions  
P.O. Box 26666, Sharjah, UAE  
E-mail: [graduateadmission@aus.edu](mailto:graduateadmission@aus.edu)  
[www.aus.edu/programs/graduate](http://www.aus.edu/programs/graduate)

To apply to a graduate program at AUS, applicants must:

- complete the official graduate application form available from the Office of Admissions or through the AUS website
- pay application fees (UAE Dirhams 200)
- submit official transcripts to the Office of Admissions
- submit official TOEFL scores to the Office of Admissions
- submit to the Office of Admissions an equivalency of your degree from the UAE Ministry of Higher Education, +(971) 2 695 1284 (This applies only for applicants with a bachelor's degree obtained outside the UAE.)

- meet all program-specific requirements as listed on the application form

Incomplete applications are not processed.

Upon receiving a complete application, the Office of Admissions determines if the applicant meets the minimum university requirements. If the applicant meets such requirements, graduate admission committees within each program will review applications and make recommendations for admission. Applicants must satisfy both general university requirements and program-specific admission criteria for graduate study.

The Office of Admissions will notify the applicant of the university's final decision.

## Application Deadlines

Applicants must submit completed application forms and all supporting documents to the Office of Admissions by the following dates:

**Fall Semester 2006** July 15, 2006

**Spring Semester 2007** December 16, 2006

**Summer Session 2007** May 15, 2007

Applications received after these deadlines will be considered based on seat availability.

Admission is only valid for the semester a candidate has applied. If applicants do not enroll in the semester for which they have been accepted, applicants may request that their admission be deferred to the following semester. This request should be in writing and submitted to the Office of Admissions.

## University Requirements for Graduate Admission

### Eligibility

To be considered for admission, all applicants must meet general university requirements for graduate admission. Some graduate programs have additional requirements. For program-specific requirements, consult the pertinent degree program listing in this catalog.

### Full Admission

For full admission to a graduate degree program at AUS, an applicant must:

- hold a four-year bachelor's degree from an accredited university recognized by AUS
- have maintained a minimum cumulative grade point average (CGPA) of 2.75 (on a scale of 4.00) or its equivalent, and 3.00 or its equivalent in 300- and 400-level courses in discipline(s) relevant to the graduate program
- have attained a score of at least 197 on the Computer-Based TOEFL (CBT) or 530 on Paper-Based TOEFL (PBT). The translation and TOEFL program require 213 (CBT) or 550 (PBT). The TOEFL program also requires a TWE (Test of Written English) score of 5.

Some programs may require satisfactory performance on specific entry examinations. Please refer to the program descriptions in this catalog for particular requirements.

### Special Admission

Special admission to a graduate program is granted to applicants who meet the following minimum requirements:

- four-year bachelor's degree from an independently accredited university recognized by AUS
- minimum cumulative GPA of 2.50 (on

a scale of 4.00) or its equivalent and a 2.75 or its equivalent in 300- and 400-level courses in discipline(s) relevant to the graduate program

- 190 (CBT)/520 (PBT) or 197 (CBT)/530 (PBT) depending on degree program

To be accorded full admission into a graduate program, a special admission student must:

- achieve before the beginning of the second semester a minimum 197 (CBT)/530 (PBT) or 213 (CBT)/550 (PBT) depending on degree program
- have a cumulative GPA of at least 3.0 in their first five graduate courses.

Special admission may also be granted to applicants for the TESOL and translation graduate degrees. Refer to the program descriptions in this catalog for particular requirements.

**Note:** Each graduate program may assign undergraduate prerequisite courses and/or specially tailored courses for special admission students. Credits from these courses do not satisfy credit requirements for completing the graduate degree and are not used to calculate the graduate cumulative GPA.

### Visiting Students Admission

Students may enroll as visiting graduate students at AUS for credit transfer to their home universities. To be admitted as a visiting graduate student, a student must be enrolled in a graduate program at an accredited institution, be in good academic standing in his/her current institution and meet the admission requirements of the program she/he intends to join. Requests for visiting student admission are submitted to the Office of the Registrar.

Students are admitted as visiting students for a maximum of one academic year, and are responsible for determining that AUS credits are transferable to their home institutions. Standard graduate tuition rates apply.

### Non-degree Admissions

Non-degree graduate students are those who wish to take AUS courses for academic credit but who do not seek a master's degree. Students are admitted to AUS with non-degree

status if they meet requirements for full or special graduate admission. Complete applications should be submitted to the Office of Admissions. Standard graduate tuition rates apply.

### Change of Status

Students may request a change of status (from non-degree to degree status, or from visiting to degree status) by submitting a complete application to the Office of Admissions. Credits taken while under non-degree status may be accepted with the approval of the graduate program director. All academic regulations applicable to degree students apply retroactively, and standard graduate tuition rates apply.

### Transfer Credit Policy

A graduate student may transfer up to nine graduate credits from a recognized graduate school at an accredited university to his/her program of study at AUS, depending upon program specific rules and regulations. Such transfer credits should meet all of the following criteria:

1. The course work must:
  - be offered by a recognized accredited institution
  - be applied toward a graduate degree at the host institution and taken for graduate credit
  - be approved by the graduate program director and in consultation with appropriate faculty
  - not have been used to earn another degree
  - not have been taken more than five years prior to entering a graduate program at AUS. (Some programs have more stringent time limitations on transfer credits. Consult individual program descriptions and the graduate program director for regulations.)
2. The student must have earned a grade of B or higher for 400-level or 500-level courses or other courses restricted to graduate students.

Transfer credit will not be accepted for research and thesis/dissertation hours, travel experience or work/life experience. Applicants must request that credit transfers be reviewed at the time of application.

## Course Auditing

Students wishing to attend a graduate course without receiving academic credit may apply to audit a course. Audit students do not sit for final examinations and do not receive credit nor any university certificate of completion. Permission to audit a course is granted as seats are available. Audit students do not register for courses until degree students have been enrolled. To audit a graduate course, students must meet the requirements for full admission. Registration for audits is done through the Office of the Registrar, given the approval of the course instructor and graduate program director. Regular graduate tuition rates apply.

Graduate Tuition and Fees	
Graduate Program	Tuition per credit hour
TESOL	Dhs. 1,850
Translation and Interpreting	Dhs. 1,850
Urban Planning	Dhs. 2,240
Business Administration	Dhs. 2,240
Engineering Systems Management	Dhs. 2,240
Mechatronics Engineering	Dhs. 2,240
Type of Fees	Fees
Application Fee	Dhs. 200
Deposit Payment	Dhs. 500
Activity Fee	Dhs. 100
Late Registration Fee	Dhs. 400
Reinstatement Fee	Dhs. 1,000
Thesis Binding Fee	Dhs. 500
Thesis/Project Extension Fee	Dhs. 500
Internship Fee	Dhs. 400
<i>Dhs. = UAE Dirhams</i>	

## Financial Aid

AUS offers graduate students two types of on-campus employment: graduate assistantship and graduate work-study positions. Assistantships are available to qualified graduate students and are competitively awarded and merit based. Information

about eligibility and application guidelines is found at [www.aus.edu/gsr/graduate/](http://www.aus.edu/gsr/graduate/). AUS also offers graduate students a variety of student work opportunities through specific departments, graduate programs and AUS internal research grants to faculty members. Details about work-study opportunities and applications are available online at [www.aus.edu/gsr/graduate/](http://www.aus.edu/gsr/graduate/).

## Graduate Academic Regulations and Policies

### Student Responsibility

All official university communications are distributed to the student's AUS-issued e-mail address. These are considered official notifications. Students are responsible for checking their AUS e-mail accounts and for responding to or acting upon messages accordingly. Students should keep their own records of all transactions with the university (e.g., registration schedules and forms, grade reports, payment records, etc.). It is also advisable to keep copies of all tests, digital files, papers and so forth submitted in fulfillment of course work.

### Academic Integrity

Academic integrity lies at the heart of intellectual life. The academic integrity code for the American University of Sharjah describes standards for academic conduct, students' rights and responsibilities as members of an academic community, and procedures for handling allegations of academic dishonesty. As an institution of higher education, the American University of Sharjah views academic integrity as an educational and judicial issue. The full text of the AUS Student Academic Integrity Code is included in the Graduate Student Handbook available from the Office of Graduate Programs.

### Academic Load

The normal academic load for a full-time graduate student is nine credit hours per semester. The graduate

program director may register a student for up to 12 hours per semester. See descriptions of individual degrees for program-specific restrictions.

### Grading System

Final grades are recorded on each student's permanent record in the Office of the Registrar. Grades may not be removed from the record. A minimum passing grade of C is required for each course. Normally, graduate students who receive an F in a graduate course will not be allowed to continue in the program.

AUS uses the following grading system for all graduate courses:

Excellent	
A	equals 4.00 grade points
Meets Expectation	
A-	equals 3.70 grade points
B+	equals 3.30 grade points
B	equals 3.00 grade points
Below Expectation	
B-	equals 2.70 grade points
C+	equals 2.30 grade points
C	equals 2.00 grade points
Fail	
F	equals 0.00 grade points
Withdrawal Fail	
WF	equals 0.00 grade points

Grades not calculated in the grade point average are:

I	Incomplete
IP	In Progress
AUD	Audit
WV	Waive; no credit
TR	Transfer; credit counted
W	Withdrawal
N	No Grade
P	Pass; credit counted
AW	Non-Academic Administrative Withdrawal

## Incomplete Work

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In emergency circumstances, a student may request permission from the course instructor and graduate program director to complete a course in the following semester. A grade of I (incomplete) is assigned for the course. Students must complete the course before the end of the following semester. Otherwise, a tentative grade estimated on the basis of work already completed may be recorded. Failure to complete the course within the following semester may result in the grade being recorded as F unless a tentative grade has been reported previously.

## Graduate Probation Policy

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Graduate students must maintain a 3.0 (B) grade point average in all course work taken for graduate credit at AUS and must meet any additional academic requirements imposed by their specific graduate program of study. Normally, graduate students who receive an F in a graduate course will not be allowed to continue in the program. If a graduate student's cumulative GPA is below 3.0, the student is placed on academic probation. During probation status, the following conditions apply:

- A graduate student on probation who is not restored to good academic standing by the end of the regular semester following the term in which the cumulative GPA fell below 3.0 will be dismissed from the university.
- A graduate student on probation may not register for more than six credit hours.
- A graduate student on probation may not register for thesis or final project credit hours until a cumulative GPA of 3.0 is achieved.

In the case of ineligibility to continue in the graduate program as a result of academic probation, a graduate student may petition for re-enrollment in the program to the director of the graduate program. Petitions will be reviewed by the director, who will make a written recommendation first to the appropriate dean and then to the Dean of Graduate Programs. The final decision will be made in consultation

with the Dean of Graduate Programs.

## Repeating Courses

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With the recommendation of the program director and the approval of the appropriate dean, a graduate student may be allowed to repeat any course in which a grade of B-, C+ or C is received. The original grade and the new grade will appear in the transcript, but only the new grade will be calculated into the GPA.

No course may be repeated more than once.

## Time Limits on Duration of Study and Degree Credit

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Students must complete their program requirements within five years from first enrollment in their graduate programs at AUS. Students must register for at least three semesters to obtain a master's degree from AUS. In addition, credit more than five years old at the time of graduation may not be counted toward the fulfillment of a graduate degree program.

## Registration

The Office of the Registrar is responsible for overseeing the registration process and maintaining students' records. Students must register in a course prior to attending classes. It is the responsibility of the individual student to monitor his/her registration status. This is possible by accessing his/her records through the AUS website. Registering after the designated date will require a late registration fee of Dhs. 400.

## Add/Drop Procedures and Withdrawal Policies

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The add/drop period for each term is announced by the Office of the Registrar and posted on the academic calendar. Students wishing to add or drop courses should first obtain the appropriate form from their graduate programs and have it approved by their advisors.

Students must add and/or drop courses through the Office of the Registrar during the add/drop period. These changes in courses are not recorded in the student's transcript.

Students may withdraw from courses without academic penalty by a date established by the Office of the Registrar. A grade of W will be assigned to these courses. Students who withdraw from courses after this deadline receive a grade of WF for those courses.

Students may choose to withdraw from the university. Students unable to complete a semester should acquire a withdrawal form from the Office of the Registrar, obtain signatures as indicated on the form and return the completed form to the Office of the Registrar. Courses will be assigned the grade of W or WF. No academic credit is given for these courses.

## Permanent Record

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A permanent record reflecting each student's academic achievement and history at AUS is maintained in the Office of the Registrar. All students have the right to:

- inspect and review information contained in their permanent educational records
- request changes or updates to their personal data
- consent to disclosure of, within the extent of UAE federal and local laws, personally identifiable information from education records

All student transcripts and other documents submitted to AUS by and on behalf of other institutions remain the property of AUS, and are maintained in the Office of the Registrar. Students may obtain transcripts of their AUS academic records by submitting a written request to the Office of the Registrar. AUS issues complete transcripts only.

## Continuous Enrollment

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Students are expected to maintain a continuous enrollment (fall and spring semesters) until they complete their program. A student who leaves AUS in good academic standing for

one semester must submit a written request for reinstatement to the Office of Registrar. If a student cannot attend the following semester, he/she may enroll in the matriculation course (XXX 693) to maintain an active status in the program. Tuition charged is equivalent to one graduate credit.

### Readmission to the University

Students who withdraw from AUS may apply for readmission. A student who has withdrawn in good standing and after an absence of no more than two semesters may apply for readmission through the Office of the Registrar. A re-instatement fee of Dhs. 1,000 applies. Students who were not in good standing upon withdrawing from the university should re-apply for admission through the Office of Admissions before the announced deadlines. The applicant must meet all current admission requirements. Readmission is not granted automatically.

### Graduation

Candidates for degrees file an Application for Graduation form in the Office of the Registrar during the registration period of the last expected term of study. Only after an application for graduation has been filed can the Office of the Registrar begin processing the necessary information for final certification for graduation.

Only students who have successfully completed degree requirements and have no holds by the end of the term for which they have applied to graduate are certified for conferral of a degree.

Degrees are conferred at the end of the semester in which requirements have been met. Conferral of the degree is noted on the permanent record of the graduate with the date of graduation.

Students who fail to complete all degree requirements by the end of the term for which they apply to graduate need not reapply for graduation. Their previous application will be forwarded automatically to the following semester.

### Participation in Commencement Exercises

Normally, the university holds commencement exercises at the end of the spring semester.

Students who have been certified for conferral of a degree in a previous semester may participate in commencement. Students registered at the 11th week for courses necessary to complete their degrees may participate in commencement at the end of that semester if they have successfully defended their thesis/final project (if required).

### Attestation of Diplomas and Degrees

The Office of Alumni Affairs is responsible for processing all diplomas and transcripts for attestation by the UAE Ministry of Higher Education and Scientific Research. Students receive their diplomas after this process is completed.

### Graduate Certificates

Graduate programs at AUS may award graduate certificates after students have achieved 15 graduate hours. Directors of the specific graduate programs can provide more information on graduate certificates.

### Degree Requirements

Students are governed by the following minimum requirements for the master's degree. Each specific degree program has further requirements that are detailed in the graduate program descriptions of this catalog.

**Caution:** *The course offerings and requirements of the American University of Sharjah are under continual examination and revision for improvement. This catalog is not a contract; it merely presents the offerings and requirements in effect at the time of publication and in no way guarantees that the offerings and requirements will not change. The university specifically reserves*

*the right to change requirements for any graduate degree during any particular year. The student assumes full responsibility for compliance with all academic requirements.*

The graduation requirements for any individual student are determined either by the catalog that was effective when the student began graduate studies or the catalog effective for the academic year when the student graduates. In case of substantial changes in course offerings, equivalent graduation requirements are determined by the dean of graduate programs.

### Thesis or Final Project

Some master's degree programs have a thesis requirement, and some have a thesis or final project option. Master's theses or final master's project reports are the final reports on research conducted by AUS graduate students under the guidance and supervision of AUS faculty members. They are the culmination of the students' program of study and are expected to reflect appropriate scholarly depth and rigor—in many cases resulting in new publications. Theses and final projects are defended publicly.

The Office of Graduate Programs, in collaboration with the Graduate Program Council, establishes and oversees the regulations and requirements for theses and final projects at AUS. Degree candidates are responsible for familiarizing themselves with and adhering to the standards and regulations of the latest edition of the AUS Guide to Formatting Graduate Theses. This manual is available from the Office of Graduate Programs and online at [www.aus.edu/gsr/graduate/thesesguide/index.php](http://www.aus.edu/gsr/graduate/thesesguide/index.php). AUS also has a stringent policy regarding research involving humans as subjects. Detailed information on such research activities may be found at [www.aus.edu/gsr/research/policies\\_research/sec2.php](http://www.aus.edu/gsr/research/policies_research/sec2.php).

It is AUS policy to preserve master's theses in the AUS Archives and also to make theses available to other students and scholars. The AUS Library is responsible for the archiving

and binding of the master's thesis. Detailed procedures and requirements for submitting master's theses to the AUS Library and Archives for binding are outlined in the *AUS Guide to Formatting Graduate Theses*.

### Advising

Each graduate student is assigned an academic advisor. Students are required to consult with their advisor on issues regarding degree requirements, policies and procedures. Some programs require that students have a graduate advisory committee, which has specific responsibilities identified by each graduate program in accordance with university policy.

### Academic Petitions, Appeals and Grievances

Graduate students may petition the Dean of Graduate Programs for exceptions to academic policies of the university or in cases of academic grievances. Petitions are received by the Office of Graduate Programs through the appropriate channels, which include an initial discussion with the involved faculty member. If the issue or grievance is not resolved, the student should contact the graduate program director and then the dean of graduate programs or dean's designee. Students who wish to petition the Office of Graduate Programs should first consult with the graduate director of their program of study to determine if a petition is actually required. A full description of the procedures is listed in the *Graduate Student Handbook*.

## Graduate Degree Programs

### COLLEGE OF ARTS AND SCIENCES

William Heidcamp, Dean

### Teaching English to Speakers of Other Languages

Fatima Badry, Director

### Master of Arts in Teaching English to Speakers of Other Languages (MA TESOL)

The Master of Arts in Teaching English to Speakers of Other Languages (MA TESOL) program provides comprehensive study and practical opportunities at an advanced level to both experienced and novice English language teachers. The program is founded on highly qualified and experienced faculty, research-based methodology, practical teaching experience and computer-assisted learning.

It provides students with advanced practical, theoretical and critical knowledge of language-learning models and teaching methodologies for English instruction at different levels, primarily throughout the schools of the Gulf region. The core of the program leads to a comprehensive understanding of the forms and functions of English and relates pedagogical theories to English language teaching. This goal is reinforced by supervised teaching practice in real-world classrooms.

The MA TESOL program prepares its graduates to evaluate the effectiveness and validity of different teaching methodologies and testing procedures, to develop or adapt materials for special teaching/learning situations, to supervise classroom teachers, and to assist in the administration of English as Second Language (ESL) programs. More details on the program are available at [www.aus.edu/cas/matesol](http://www.aus.edu/cas/matesol).

### Admission Requirements

In addition to fulfilling the university's general admission requirements for graduate studies, the applicant must have a TOEFL score of 213 (CBT)/550 (PBT) or higher with a minimum of 5 on the TWE (Test of Written English). Only official ETS scores are accepted.

Applicants with a bachelor's degree or equivalent in English/linguistics, with a minimum grade point average of 3.0 (B average) from an accredited institution, are granted full admission. Holders of bachelor's degrees in

other fields who satisfy all admission requirements are granted conditional acceptance pending completion of ENG 223 Introduction to Language Study and ENG 501 Advanced English Grammar with a GPA of 3.0 or higher. These courses, however, may be waived with a minimum of two years of full-time English language teaching in an accredited institution.

### Transfer Policy

The transfer policy is described in the Graduate Admission Policies and Procedures section of this catalog.

### Academic Standing

Enrolled students must maintain a cumulative GPA of at least 3.0 (B average) to remain in good standing. Students who fall below that level will be placed on probation and must raise their overall GPA to at least 3.0 within one semester to be returned to good standing.

### Degree Requirements

The MA TESOL degree is awarded after successful completion of 36 credits at the graduate level. This consists of 10 graduate-level courses and a six-credit thesis supervised by a faculty advisor and committee. Students must complete the degree requirements within five years from the time of initial enrollment in the program. A minimum cumulative grade point average of 3.0 is required for graduation. Courses are offered in the evenings and on weekends.

### Required Courses (27 credits)

- ELT 510 Research Methods and Academic Writing
- ELT 511 Linguistics for ESL Teachers
- ELT 513 Language Acquisition and Development
- ELT 515 Methods and Materials Development
- ELT 551 Language Testing and Evaluation
- ELT 553 Technology in the ESL Classroom
- ELT 619 Practicum in TESOL
- ELT 699 Thesis

**Elective Courses (9 credits)**

Students must complete three courses (9 credits) from the following list, in consultation with their advisor.

- ELT 504 Discourse, Semantics and Pragmatics
- ELT 505 Culture and the Language Teacher
- ELT 517 Curriculum Design
- ELT 521 Reading and Writing in ESL
- ELT 523 Bilingual Education
- ELT 531 Sociolinguistics
- ENG 501 Advanced English Grammar
- ENG 503 Contrastive Linguistics
- ELT 611 Classroom Research
- ELT 694 Special Topics in Applied Linguistics

**The Master's Thesis**

The thesis must be prepared under close supervision of a faculty supervisor on a topic related to some aspect of TESOL. It must be defended to the satisfaction of the thesis committee, which is composed of three faculty members from TESOL program faculty. One committee member may be selected from outside the TESOL graduate faculty upon approval of the director of the program. The *AUS Guide to Formatting Graduate Theses* is available from the Office of Graduate Programs and online at [www.aus.edu/gsr/graduate/thesesguide/index.php](http://www.aus.edu/gsr/graduate/thesesguide/index.php).

**Academic Advising**

Students work closely with their advisor in selecting elective courses that address their individual needs. The advisor also encourages students to develop professional portfolios that include samples of selected work such as research papers, teaching reports, projects and lesson plans.

**Graduate Certificate**

The Graduate Certificate in Teaching English to Speakers of Other Languages is awarded upon completion of at least five courses with a cumulative GPA of at least 2.75. A minimum of four courses must be taken from the TESOL program

and four of the courses must be at the 500 level or above. A student must complete the certificate requirements within two years from the time of the initial enrollment into the program.

**Translation and Interpreting**

Said Faiq, Director

**Master of Arts in English/Arabic/English Translation and Interpreting (MATI)**

Translation and interpreting services are in demand now more than ever as the world market expands and the trend toward globalization gathers momentum. The vital role that English continues to play in international communication and the growing impact of the Arab region on world affairs combine to create a demand for highly trained English/Arabic translators and interpreters.

The Master of Arts in English/Arabic/English Translation and Interpreting (MATI) degree at AUS is designed to respond to these demands. The program aims to equip graduates from a variety of disciplines with highly specialized translation and interpreting skills in English and Arabic. The program also addresses the need for upgrading the skills of professionals who are already working as translators and interpreters. Courses are intended to produce graduates conversant with the various forms of translation and interpreting required in the complex web of communication. This diverse range of skills is placed within a general theoretical framework, which provides the student with the conceptual tools to identify, analyze and resolve problems and develop a reflective approach to translation.

The MATI program enables students to achieve a high level of competence in English/Arabic/English translation and interpreting, provides them with advanced training in translation and interpreting techniques, and helps them develop a thorough understanding of translation theory and its relevance to the practical concerns of translators. In addition, students can further develop their knowledge of academic writing

conventions and research methods. More details on the program are available at [www.aus.edu/cas/mati](http://www.aus.edu/cas/mati).

**Admission Requirements**

Applicants are required to fulfill the university's general admission requirements for graduate studies. Full admission to the program is granted to applicants who hold a recognized BA degree or equivalent bachelor's degree with an overall GPA of at least 2.75 (or equivalent) and 3.0 or its equivalent in 300- and 400-level courses in discipline(s) relevant to the program. In addition to the general admission requirements, non-native speakers of Arabic must hold a BA in Arabic. A TOEFL score of 213 (CBT)/550 (PBT) is required. Only official ETS scores will be accepted.

Special admission status may be granted to applicants with a minimum overall GPA of 2.50 (or equivalent) and a 2.75 or its equivalent in 300- and 400-level courses in discipline(s) relevant to the program, and at least three years of relevant practical experience in translation and/or interpreting. In such cases, the student must take Principles and Strategies of Translation (TRA 500) and another course as specified by the program director, and must attain a GPA of 3.00 (B) or above for that semester to achieve full admission and to be allowed to proceed.

Furthermore, applicants with a TOEFL score between 530 (197 computer based) and 550 (213 computer based) may be granted conditional admission for one semester but must meet the program's required TOEFL score by the end of that semester. Only students who meet the TOEFL requirements will be allowed to continue in the program.

A maximum of six credits completed (with a minimum grade of B) at the graduate level at an accredited institution may be transferable toward the master's degree requirements. Applicants must request that their credit transfers be reviewed at the time of application.

### Transfer Policy

The transfer policy is described in the Graduate Admission Policies and Procedures section of this catalog.

### Academic Standing

Enrolled students must maintain a cumulative GPA of at least 3.0 (B average) to remain in good standing. Students who fall below that level will be placed on probation and must raise their overall GPA to at least 3.0 within one semester to be returned to good standing.

### Degree Requirements

To graduate with the MA in English/Arabic/English Translation and Interpreting, students must complete all the requirements of the program, which consist of 36 credits inclusive of a research thesis (eight required courses and three advised electives). Students must complete the degree requirements within five years from the time of initial enrollment in the program. A minimum cumulative grade point average of 3.0 is required for graduation. Courses are offered during the weekday evenings.

#### Required Courses (27 credits)

- TRA 500 Principles and Strategies of Translation
- TRA 501 Terminology and the Translator
- TRA 503 Theoretical Models of Translation
- TRA 505 Interpreting and the Profession I
- TRA 509 Interpreting and the Profession II
- TRA 558 Contrastive Linguistics and Translation
- TRA 695 Translation Research Seminar
- TRA 699 Thesis

#### Elective Courses (9 credits)

Students must complete three courses (nine credits) from the TRA course list below in consultation with their advisor.

- ELT 501 Advanced English Grammar
- TRA 502 Arabization and Translation
- TRA 504 Discourse Semantics and Pragmatics in Translation
- TRA 506 Perspectives on Translation

#### Quality Assessment

- TRA 508 Research and Academic Writing
- TRA 556 Rhetoric for Translators
- TRA 610 Intercultural Communication and Translation

The *AUS Guide to Formatting Graduate Theses* is available from the Office of Graduate Programs and online at [www.aus.edu/gsr/graduate/thesesguide/index.php](http://www.aus.edu/gsr/graduate/thesesguide/index.php).

### Graduate Certificate

The Graduate Certificate in English/Arabic/English Translation and Interpreting is awarded upon completion of at least five courses with a cumulative GPA of at least 2.75. A minimum of four courses must be taken from the Translation and Interpreting program and four of the courses must be at the 500 level or above. A student must complete the certificate requirements within two years from the time of the initial enrollment into the program.

### SCHOOL OF ARCHITECTURE AND DESIGN

Fatih Rifki, Dean

#### Urban Planning

Amer Moustafa, Director

#### Faculty

Erik Ferguson  
Varkki Pallathucheril (Spring 2007)  
Rula Sadik (on leave 2006–2007)

#### Master of Urban Planning (MUP)

Urban planning is concerned with creating better environments in which present and future generations live, work, entertain and engage in their customary community, social, religious and cultural activities.

Urban planning has roots in architecture, engineering, public health, law and the social sciences. Planners today combine design and analytical and communication skills to help communities manage change.

Urban planning involves government, private enterprise and local communities taking concerted action toward achieving a common goal.

The Master of Urban Planning (MUP) program provides professionals with outstanding, specialized graduate education that enables them to undertake leadership roles in managing urban growth, developing urbanization policies and advancing social development. The program empowers students with the highest ethical standards compatible with the values of local cultural settings, principles of social justice and concerns for environmental protection and sustainability. More details on the program are available at [www.aus.edu/programs/mup](http://www.aus.edu/programs/mup).

### Admission Requirements

Applicants are required to fulfill the university's general admission requirements for graduate studies. The program admits students from all fields of study including, but not limited to, architecture, engineering, business, the humanities and the social sciences. The admissions committee consists of the Director of the Urban Planning Program and two faculty members who teach in the program, one from the School of Architecture and Design and one from the School of Engineering. An updated curriculum vitae (CV) must be submitted with the application package.

#### Transfer Policy

The transfer policy is described in the Graduate Admission Policies and Procedures section of this catalog.

### Academic Standing

Enrolled students must maintain a cumulative GPA of at least 3.0 (B average) to remain in good standing. Students who fall below that level will be placed on probation and must raise their overall GPA to at least 3.0 within one semester to be returned to good standing.

## Academic Load

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Students may register for two courses per semester (part-time) or three to four courses per semester (full-time). Classes are held on weekday evenings and/or Thursdays to meet the scheduling needs of working professionals.

## Degree Requirements

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The MUP degree is awarded after the successful completion of 48 credits, which include an internship and research thesis or final project. In addition to core course requirements, students must choose between two areas of concentration: design of the built environment or transportation planning. Students must also complete two elective courses at the 500 or 600 level. Students must complete the degree requirements within five years from the time of initial enrollment in the program. A minimum cumulative grade point average of 3.0 is required for graduation.

### Required Courses (36 credits)

#### Core Courses (27 credits)

- UPL 501 Fundamentals of Urban Planning
- UPL 541 Planning Theory and Methods
- UPL 547 Research Methods and Analysis
- UPL 548 Environmental Planning
- UPL 550 Urban Economics and Analysis
- UPL 556 Advanced Planning Tools: GIS Applications
- UPL 565 Land Use Planning Principles and Practice
- UPL 597 Planning Internship
- UPL 667 Urban Planning Lab

#### Concentration: Design of the Built Environment (9 credits)

- UPL 582 Theory and Principles of Urban Design
- UPL 584 Urban Form Analysis
- UPL 686 Space, Society and the Public Realm

#### Concentration: Transportation Planning (9 credits)

- UPL 572 Urban Transportation Planning

- UPL 574 Urban Transportation Systems Analysis
- UPL 676 Transportation Systems Operations and Control

### Elective Courses (6 credits)

Students must complete two elective courses selected in consultation with their advisor from any university graduate-level course or UPL course not counted as a core or concentration course. UPL 698 and UPL 699 cannot be counted as electives.

### Other Degree Requirements (6 credits)

In addition to the courses above, students must pursue either a final project (UPL 698) or a research thesis (UPL 699) option. The *AUS Guide to Formatting Graduate Theses* is available from the Office of Graduate Programs and online at [www.aus.edu/gsr/graduate/thesesguide/index.php](http://www.aus.edu/gsr/graduate/thesesguide/index.php).

## Academic Advising

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Academic advisors are responsible for orienting, guiding and following the student's progress. The advisor works closely with the student in selecting elective courses that address the student's individual needs. Upon completing 30 credits in the program and once a research topic has been identified for the final project or thesis, the program director will encourage the student to select a research advisor whose background and interests suit the research interest of the student. The role of the academic advisor will then be transferred to the research advisor.

## Graduate Certificate

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The Graduate Certificate in Urban Planning is awarded upon completion of at least five courses with a cumulative GPA of at least 2.75. All courses must be at the 500 level or above and must include UPL 501 Fundamentals of Urban Planning. A student must complete the certificate requirements within two years from the time of the initial enrollment into the Urban Planning program.

## SCHOOL OF BUSINESS AND MANAGEMENT

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R. Malcolm Richards, Dean

### Business Administration

Peter Mitias, Director

### Master of Business Administration (MBA)

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The AUS Master of Business Administration program (MBA) is committed to the idea of helping individuals in the Gulf region to think and act globally and integrate knowledge into problem solving. The program provides advanced management education in an environment that encourages students to extend their leadership capabilities. It is built on the premise that up-to-date expertise is what gives workers a value-added capacity in a knowledge-based economy.

Through this program, students are prepared for careers in management and leadership positions in both the private and public sectors. Students will acquire a comprehensive foundation in the fundamentals of business in the global environment in which they function. They will also learn the skills and analytical tools for effective communicating and decision making.

AUS faculty worked in close cooperation with American University, Washington, DC, to design the program. Individual participation is emphasized through class discussions, case study methodology, and interaction and cooperation with other students in the class. Graduates of the MBA program are prepared to identify, analyze and understand the interrelationships among business organizations and international and domestic institutions in the UAE and throughout the world. Students also develop an awareness of societal and environmental needs and concerns as they relate to ethical, professional and socially responsible business practices. More details on the program are available at [www.aus.edu/sbm/graduate/mba/index.php](http://www.aus.edu/sbm/graduate/mba/index.php).

## Program Educational Objectives

The curriculum of the MBA program is designed to:

- Prepare individuals to identify, analyze and understand the interrelations among business organizations and international and domestic institutions in the UAE and throughout the world
- Develop individuals who can lead organizations toward economic success and social responsibility in the global marketplace of the 21st century
- Prepare individuals to integrate information resources and technology to enable them to anticipate and manage change
- Advance students' knowledge of issues and practices affecting business organizations, international and domestic institutions, and government
- Develop an awareness of social and environmental needs and concerns as they relate to ethical, professional and socially responsible business practices
- Provide students with a solid core business education that emphasizes the following teaching methodologies: case analyses and presentations, seminars and lectures

## Admission Requirements

In addition to meeting the university's general graduate admission requirements, applicants must meet the specific requirements of the MBA program. Admission to the MBA program is highly competitive. Applicants to the program are required to submit an acceptable score on the Graduate Management Admission Test (GMAT). This score is then combined with the student's undergraduate grade point average for the last two years of study. The resulting index is used to assist the admissions committee in determining the admission status of an applicant. GMAT scores more than five years old will not be accepted. The test may be administered locally. Students admitted into the program normally have at least two years of work experience.

### Special Admission

Special admission is limited and difficult to receive. During the

semester in which they have special admission status, applicants must satisfy all admission requirements for the MBA program. Failure to do so will result in the student being unable to take any further courses in the MBA program and possible termination from the program. Students admitted to the MBA program with special admission status may only register for two graduate courses.

### Transfer Policy

The credit transfer policy is described in the Graduate Admission Policies and Procedures section of this catalog.

### Waiver Policy

Students may qualify to waive up to 21 credits (seven courses) from the foundation courses (see Degree Requirements). In general, a course may be waived if the student has completed comparable course work at the undergraduate level. Students may be required to submit course documentation. Waivers are only granted after an official, sealed transcript is received by the AUS Office of Admissions. A petition for waiving a foundation course must be submitted to the School of Business and Management's Office of Graduate Programs before the first semester of enrollment in the program. Listed below are the waiver rules:

- Students may waive foundation courses if two similar undergraduate courses have been taken at an accredited university towards a degree completed within five years prior to admission to the AUS program. Only courses with a minimum grade of B will be considered.
- Students with professional experience and/or holders of commonly recognized certificates (e.g., CPA or CFA) that indicate mastery of a given foundation course content may be granted a waiver.
- Students may be required to take a placement exam in order to waive a foundation course.

## Academic Load

An MBA student can register for up to nine credits per semester. Upon a student's request, the program director can approve three additional credits if the student has completed the first

semester in the MBA program with a cumulative GPA of 3.5 or above.

## Academic Standing and Grading Policy

The MBA program follows the university graduate program guidelines for grading. Enrolled students must maintain a cumulative GPA of at least 3.0 (B average) to remain in good standing. The policies regarding probation, dismissal, repeats, readmission and all other retention requirements are described in the Graduate Academic Regulations and Policies section of this catalog. In addition to university guidelines, the following rules apply:

- A student is allowed to receive two Cs (C or C+) in courses in the MBA program. If the student receives a third C or C+, he/she is automatically dismissed from the program.
- A student who receives an F in any course in the MBA program is automatically dismissed from the program.

## Degree Requirements

The MBA degree is composed of 51 credits (17 courses). Twenty-one credits (7 courses) comprise the foundation courses and 30 credits (10 courses) comprise the core courses and electives. Students are required to take 24 credits (8 courses) of required core courses and six credits (2 courses) from the elective courses. Courses are offered in the evenings. The MBA program can be completed in 24 months, including summers, if all the foundation courses are required and 16 months if all the foundation courses are waived. With permission from the SBM Director of Graduate Programs, students may replace up to two core courses with elective courses.

### Foundation Courses (21 credits)

- MBA 501 Foundations of Economics
- MBA 502 Organizational Behavior
- MBA 503 Accounting Concepts
- MBA 504 Managerial Statistics
- MBA 505 Financial Management
- MBA 506 IT Essentials for Managers

- MBA 507 Marketing Concepts

### Core Courses (24 credits)

- MBA 601 Managerial Economics
- MBA 606 Management Information Systems
- MBA 609 Operations Management
- MBA 611 Advanced Financial Management
- MBA 612 Leadership and Change Management
- MBA 613 Accounting Analysis for Managers
- MBA 614 Marketing Management
- MBA 618 Strategic Management

### Elective Courses (6 credits)

Students must complete two courses (6 credits) from the following list, in consultation with their advisor.

- MBA 607 Business Communication
- MBA 610 Business Research Applications
- MBA 615 Innovation and Entrepreneurship
- MBA 616 E-Commerce Business Models and Technology
- MBA 617 Ethical and Legal Issues
- MBA 632 Investment Analysis
- MBA 633 Financial Derivatives
- MBA 634 Commercial Banking
- MBA 635 Islamic Economics
- MBA 636 Islamic Banking and Finance
- MBA 651 Supply Chain Management and Strategy
- MBA 652 Modeling and Analysis of Supply Chain Processes
- MBA 653 Supply Chain Management Technology and Applications
- MBA 654 Transportation and Logistics
- MBA 655 Information Systems Design
- MBA 661 Strategic Human Resources Management
- MBA 662 International Human Resource Management
- MBA 663 Staffing
- MBA 664 Training and Development
- MBA 672 Managing Family Businesses
- MBA 696 Special Topics in Business

### Concentrations

Students enrolled in the program

have the option to choose an area of concentration in one of the following fields: finance, human resource management, or supply chain management. Students who elect to choose an area of concentration will increase their degree requirements from 51 to 54 credit hours.

#### Finance Concentration Requirements

The finance concentration requires a total of 12 credits. These include one required course (MBA 611 Advanced Financial Management) and three finance electives. Students can choose from the following:

- MBA 632 Investment Analysis
- MBA 633 Financial Derivatives
- MBA 634 Commercial Banking
- MBA 635 Islamic Economics
- MBA 636 Islamic Banking and Finance

#### Human Resource Management Concentration Requirements

The human resource management concentration requires a total of 12 credits. These include two required courses (MBA 612 Leadership and Change Management and MBA 661 Strategic Human Resource Management) and two elective courses. Students can choose from the following:

- MBA 661 Strategic Human resource Management
- MBA 662 International Human Resource Management
- MBA 663 Staffing
- MBA 664 Training and Development

#### Supply Chain Management Concentration Requirements

The supply chain management concentration requires a total of 12 credits. These include one required course (MBA 609 Operations Management) and three electives. Students can choose from the following:

- MBA 651 Supply Chain Management and Strategy
- MBA 652 Modeling and Analysis of Supply Chain Processes
- MBA 653 Supply Chain Management Technology and Applications

- MBA 654 Transportation and Logistics

### Academic Advising

The SBM Office of Graduate Programs provides academic and career advising to students through the director, coordinator and graduate faculty in the School of Business and Management. Additionally, the graduate committee provides assistance in advising as required. The graduate committee consists of faculty members who teach in the MBA program and are appointed on a yearly basis. Additionally, after the completion of the initial orientation session and initial meeting with the director and the coordinator, each student is assigned a faculty member who will serve as their advisor and assist in curricular and career guidance. The assignment of the advisor will be based on the student's individual goals and field of study.

### SCHOOL OF ENGINEERING

Yousef Al-Assaf, Dean

#### Engineering Systems Management

Ibrahim Al Kattan, Director

#### Faculty

Hazim El-Baz  
Moncer Hariga

#### Master of Science in Engineering Systems Management (MSESM)

The mission of the Engineering Systems Management (ESM) Graduate Program is to significantly increase the opportunities for practicing, degreed engineers working in engineering management and in systems engineering positions to be successful in their efforts to build effective teams, lead and manage major engineering projects, and expand economic development for the private and public sectors of the UAE and the Gulf region countries.

The curriculum of the master of science (MS) program currently provides core courses followed by courses in the theme areas of engineering

management (EM) and construction and materials management (CMM). The MSEM degree program is designed to educate engineers of all disciplines in techniques to manage and lead industrial and public projects in a systematic and effective manner. The ESM program, with quality standards similar to those established in the United States, offers a multidisciplinary curriculum designed to integrate management skills with technical knowledge from different engineering disciplines to accomplish work activities and entire projects more economically and productively. ESM encompasses the integration of system elements—people, information, hardware, software, facilities, equipment, energy and processes—to manage work activities and projects in the public and private sectors. Skills are enhanced to assist graduates in the:

- Making of decisions that meet quality and funding goals while adhering to technical specifications and timeline requirements
- Development of realistic alternatives, use of practical decision criteria and the implementation of the selected alternative
- Identification, collection and analysis of engineering and other information to make technically correct and financially sound decisions

### Program Educational Objectives

Graduates of the Engineering Systems Management Graduate Program are expected to be able to:

- Organize and lead project teams engaged in narrowly defined and broadly scoped studies of commercial and public systems for domestic and international operations
- Lead and perform quantitatively based studies of systems and processes in a selected technical area or multidisciplinary engineering area
- Perform the ongoing management of technical activities and personnel of a core unit of industrial corporations, domestic institutions and governments
- Lead and manage technological development through the application of systems engineering techniques in order to add value to a product or service

- Understand and apply principles and techniques of systems analysis and modeling applicable to most engineering-based processes and systems
- Demonstrate broadened skills and technical knowledge in the application of engineering principles and methods needed for project coordination and management positions
- Communicate to industry and government management in concise written and spoken forms the results of studies that involve the elements of design, analysis and synthesis

More details on the program are available at [www.aus.edu/engr/esm/index.php](http://www.aus.edu/engr/esm/index.php).

### Admission Requirements

In addition to meeting the university's general graduate admission requirements, applicants must meet the specific requirements of the ESM program. Applicants must hold a bachelor of science degree in engineering from an independently accredited institution. Degreed individuals in fields closely related to engineering or a quantitative science may be considered on a case-by-case basis. An applicant with a bachelor's degree in technology (or less than four years of university-level work) is not normally admissible to the program. Also required is a one year of professional experience in an engineering or closely related field that has provided good professional experience in design, analysis, management, research, technical sales or another relevant dimension of engineering practice.

### Transfer Policy

The transfer policy is described in the Graduate Admission Policies and Procedures section of this catalog.

### Academic Standing

Enrolled students must maintain a cumulative GPA of at least 3.0 (B average) to remain in good standing. Students who fall below that level will be placed on probation and must raise their overall GPA to at least 3.0 within

one semester to be returned to good standing.

### Degree Requirements

Applicants must complete a minimum of 36 credit hours including the core courses as follows:

- At least 15 credit hours of foundation courses (500 level) plus the seminar course ESM 595
- At least 15 credit hours in one of the theme areas: engineering management or construction and materials management. These courses are at the 600 level and may include no more than one 500-level course approved by the advisor.
- A minimum of six credit hours for either research reported in a thesis or a professional project presented in a report
- A minimum cumulative grade point average of 3.0
- A student must complete the degree requirements within five years from the time of initial enrollment in the program.

### Foundation Courses

#### **Prerequisite Courses (4 credits)**

- ESM 500 Statistical Methods for Engineers
- ESM 505 Introduction to Information Technology

#### **Required Courses (11 credits)**

- ESM 510 Economic Decision Analysis
- ESM 520 Management for Engineers
- ESM 540 Modeling and Simulation
- ESM 550 Information Technology for Engineering managers

#### **Elective Courses (3 credits)**

Students must complete one of the following courses:

- ESM 530 Strategic Technology Management
- ESM 560 Quality Engineering and Management
- ESM 570 Project Management

Only those students who have finished the foundations courses with a CGPA of 3.0 (B) or above can pursue the MSEM degree. Students completing the foundation courses with a CGPA less than 3.0 (B) may receive the Graduate Certificate in ESM (described below).

**Theme Courses****Engineering Management (EM) Theme (15 credits)**

Students are required to take at least 15 credits of 600-level courses, with no more than one 500-level course approved by the advisor.

- ESM 600 Research Methodology
- ESM 630 Advanced Economic Decision Analysis
- ESM 632 Applied Operations Research
- ESM 636 Human Resources Management for Engineers
- ESM 638 System Optimization and Decision Analysis
- ESM 640 Logistics Management
- ESM 644 Financial Management for Engineers
- ESM 664 Infrastructure Systems Maintenance and Management
- ESM 668 Engineering Safety and Environment
- ESM 694 Special Topics in Engineering Systems Management

**Construction and Materials Management (CMM) Theme (15 credits)**

Students are required to take at least 15 credits of any 600-level courses in either construction management or materials management and no more than one of the 500-level courses as approved by the advisor.

- ESM 600 Research Methodology
- ESM 644 Financial Management for Engineers
- ESM 650 Construction Management
- ESM 652 Construction Planning and Scheduling
- ESM 654 Materials Management
- ESM 660 Application of Construction Law
- ESM 662 Construction Business Operations
- ESM 664 Infrastructure Systems Maintenance and Management
- ESM 666 Advanced Construction Materials Management
- ESM 667 Construction Contracting and Cost Estimating
- ESM 668 Engineering Safety and the Environment
- ESM 694 Special Topics Engineering Systems Management

**Other Degree Requirements**

In order to complete the requirements for the degree, either a professional project and report (ESM 698 Professional Project) or research and a thesis (ESM 699 Research) must be completed for a total of six credit hours. The *AUS Guide to Formatting Graduate Theses* is available from the Office of Graduate Programs and online at [www.aus.edu/gsr/graduate/thesesguide/index.php](http://www.aus.edu/gsr/graduate/thesesguide/index.php).

**Thesis or Project Advising**

A student must complete his/her research thesis or professional project under the direct supervision and guidance of the principal advisor. This faculty member is usually the chair of the student's advisory committee. The thesis advisor and one of the other two members must be from the program faculty. The third member may be selected from outside AUS with the approval of the program director.

**Graduate Certificate**

The Graduate Certificate in ESM is awarded upon completion of at least five courses with a cumulative GPA of at least 2.75. A minimum of four courses must be taken from the ESM program and four of the courses must be at the 500 level or above. A student must complete the certificate requirements within two years from the time of the initial enrollment into the ESM program.

**Mechatronics Engineering**

Mohammad-Ameen Jarrah, Director

**Master of Science in Mechatronics Engineering (MSMTR)**

The Master of Science in Mechatronics Engineering (MSMTR) program is committed to being an international, multidisciplinary center of excellence in synergistic applications of the latest techniques in embedded systems, precision mechanical engineering, control theory, computer science and electronics through education, research and outreach. The technological gap between developing and industrialized nations continues to widen at an

alarming rate, largely due to the lack of skilled engineers capable of integrating new technologies into existing systems and networks. The mandate of the Mechatronics Engineering (MTR) Graduate Program is to improve this situation by equipping engineers with the design, analysis and synthesis abilities to plan, implement and manage the latest technologies. The curriculum of the Mechatronics Engineering Graduate Program meets the region's needs—both present and future—through the education of engineers and scientists.

Professional jobs considered to be in the mechatronics engineering field are grounded in the multidisciplinary aspects of electrical, mechanical, control, computer and software engineering. The unique skills of the mechatronics graduate are becoming increasingly valuable to employers in a variety of areas, including modern industrial installations and systems, computer integrated manufacturing systems, maintenance diagnosis and troubleshooting, defense systems, vehicle design and manufacturing, robotics and many more.

This graduate program provides students with state-of-the-art knowledge in their areas of specialization and with practical strategies for adapting that knowledge to serve the specific needs of the region. Multidisciplinary engineers are needed now more than ever to meet the demands for a flexible engineering workforce to deal with highly integrated engineering systems.

**Program Educational Objectives**

Graduates of the Master of Science in Mechatronics Engineering degree program are expected to be able to:

- Apply the latest techniques in precision mechanical engineering, control theory, computer engineering and science, and electronics to the design process to create more functional, adaptable and cost-effective products
- Provide an employer with interdisciplinary skills necessary to utilize cutting edge technology tools in the design, development and implementation of modern engineering systems

- Understand and develop technologies such as information technology, embedded systems, modeling and simulation, and precision engineering systems in the design and development of smart products
- Apply mechatronics principles in the broad context of engineering system design
- Address open-ended problems and maintain an attitude of self-learning

More details on the program are available at [www.aus.edu/engr/mechatronics/index.php](http://www.aus.edu/engr/mechatronics/index.php).

### Admission Requirements

In addition to meeting the university's general graduate admission requirements, applicants must meet the specific requirements of the Mechatronics Engineering Graduate Program. Applicants must hold a bachelor of science degree in engineering from an accredited institution. Degreed individuals in fields closely related to engineering or a quantitative science may be considered on a case-by-case basis. An applicant with a bachelor's degree in technology (or less than four years of university-level work) is not normally admissible to the program.

### Transfer Policy

The transfer policy is described in the Graduate Admission Policies and Procedures section of this catalog.

### Waiver Policy

Students may qualify to waive up to nine credits (3 courses) from prerequisite discipline-bridging courses (see Degree Requirements). In general, a course may be waived if the student has completed comparable course work at the undergraduate level. Students may be required to submit course documentation. Waivers are only granted after an official, sealed transcript is received by the AUS Office of Admissions. A petition for waiving a discipline-bridging course

must be submitted to the Mechatronics Engineering Graduate Program before the first semester of enrollment in the program. Listed below are the waiver rules:

- Students may waive prerequisite discipline-bridging courses if two similar undergraduate courses have been taken at an accredited university toward a degree completed within five years prior to admission to the AUS program. Only courses with a minimum grade of B (3.0) will be considered.
- Students with professional experience that indicate mastery of a given discipline-bridging course content may be granted a waiver.
- Students may be required to take a placement exam in order to waive a discipline-bridging course.

### Academic Standing

Enrolled students must maintain a cumulative GPA of at least 3.0 (B average) to remain in good standing. A student who falls below that level will be placed on probation and must raise his/her overall GPA to at least 3.0 within one semester to be returned to good standing.

### Degree Requirements

Students must complete prerequisite discipline-bridging courses as required by the Mechatronics Engineering Admission Committee. These courses do not generate credits toward the completion of the MS degree. Students must file formal study plans upon the completion of 12 credits of approved graduate courses. The formal program of study must include a minimum of 30 credits including the completion of either a research thesis or design project. Both options require students to take a minimum of five core courses (15 credits) with a minimum cumulative GPA of B (3.0). Both options also require students to complete additional credits at the 500 and 600 levels with a minimum cumulative GPA of B. Students opting

for the thesis option need to complete six credits of course work at the 600 level. Students opting for the design project option need to complete an additional nine credits of course work with six credits at the 600 level. Up to nine credits of prerequisite discipline-bridging courses may also be required depending on the student's background. Students must complete the degree requirements within five years from the time of initial enrollment in the program. A minimum cumulative grade point average of 3.0 is required for graduation.

### Prerequisite Discipline-Bridging Courses

- MTR 505 Applied Electrical and Electronics Systems (Students with a BS in Electrical Engineering are exempted.)
- MTR 510 Applied Mechanical Systems (Students with a BS in Mechanical Engineering are exempted.)
- MTR 515 Information Technology for Mechatronics (Students with a BS in Computer Engineering are exempted.)

### Core Courses (15 to 18 credits)

Students must complete the following courses:

- MTR 500 Advanced Engineering Mathematics
- MTR 520 Embedded Systems for Mechatronics
- MTR 540 Advanced Control Systems
- MTR 590 Mechatronics Design
- MTR 600 Modeling and Simulation of Dynamic Systems
- MTR 605 Advanced Digital Signal Processing (only for students opting the thesis option)
- MTR 695 Mechatronics Seminar

### Elective Courses (6 to 9 credits)

Students in the thesis option must complete a minimum of six credit hours with at least three courses at the 600 level. Students in the design project option must complete nine credit hours at the 600 level.

- MTR 530 Power Electronics and Electrical Drives

- MTR 535 Electro-Pneumatic and Hydraulic Systems
- MTR 540 Advanced Industrial Instrumentation and Control
- MTR 610 Automated Manufacturing Systems
- MTR 615 Artificial Intelligent Systems
- MTR 620 Machinery Dynamics and Vibration
- MTR 625 Distributed Control Systems
- MTR 630 Real-Time Robotics Systems
- MTR 635 Smart Structures and Sensor Fusion
- MTR 694 Special Topics in Mechatronics Engineering

Only those students who have finished five graduate courses (15 credits) in the program with a cumulative GPA of 3.0 or above can pursue the master of science degree. Students completing the five courses with less than a 3.00 cumulative GPA may receive the Graduate Certificate in Mechatronics Engineering (described below).

### Other Degree Requirements

#### *Thesis Option*

Students must complete a program of research culminating in a thesis for at least six credits (MTR 699 Master's Thesis) that contributes to a selected area of knowledge. Students will be supervised by a faculty member with a main advisor to supervise the research topic. The faculty advisor is appointed no later than the end of the second semester of study in the program. Students must pass a final oral thesis defense and exam. The *AUS Guide to Formatting Graduate Theses* is available from the Office of Graduate Programs and online at [www.aus.edu/gsr/graduate/thesesguide/index.php](http://www.aus.edu/gsr/graduate/thesesguide/index.php).

#### *Design Project Option*

Students must complete a comprehensive design project for three credit hours. (MTR 691 Mechatronics Design Project) during the final semester of the master of science degree program. Projects are normally industry related and developed through

an industrial partner. Students must pass a final oral project presentation and exam. The *AUS Guide to Formatting Graduate Theses* is available from the Office of Graduate Programs and online at [www.aus.edu/gsr/graduate/thesesguide/index.php](http://www.aus.edu/gsr/graduate/thesesguide/index.php).

### Thesis or Project Advising

A student will complete his/her thesis or project under the direct supervision and guidance of the major advisor. This faculty member is usually the chair of the student's master of science degree advisory committee.

### Graduate Certificate

The Graduate Certificate in Mechatronics Engineering is awarded upon completion of at least five courses with a cumulative GPA of at least 2.75. A minimum of four courses must be taken from the Mechatronics Engineering program and four of the courses must be at the 500 level or above. A student must complete the certificate requirements within two years from the time of the initial enrollment into the Mechatronics Engineering Graduate Program.

## RESEARCH

### Director

Judith Killen

The mission of the Office of Research is fourfold:

- To support and promote research, scholarship and creative activity of faculty, staff and students
- To establish and maintain policies for the advancement of research integrity and the ethical conduct of research
- To ensure university compliance with sponsored programs regulations
- To promote technology transfer

The Office of Research also serves as AUS's office of sponsored programs, and as such, provides pre-award services comparable to those provided at US-based academic institutions.

### Responsible Conduct of Research

The American University of Sharjah has an ethical and legal responsibility to review all proposed research projects and activities involving humans as subjects to ensure compliance with internationally recognized principles and regulations governing the protection of humans participating in research.

To this end, AUS's Institutional Review Board for Human Subjects Protection (IRB) has the institutional responsibility for review and annual monitoring of all research involving humans carried out at AUS to assure the protection of the rights and welfare of all research participants, including volunteers. Further detailed information can be found at [http://www.aus.edu/gsr/research/polices\\_research/sec2.php](http://www.aus.edu/gsr/research/polices_research/sec2.php).

# College of Arts and Sciences

## ELT

**ELT 501 Advanced English Grammar (3-0-3).** Examines the structure, function and meaning of contemporary English. Discusses issues relative to descriptive/prescriptive approaches to language and ESL instruction.

**ELT 503 Contrastive Linguistics (3-0-3).** Compares and contrasts English and Arabic phonology, morphology, syntax and semantics. Promotes a functional approach to language to demonstrate the applications of contrastive linguistics to ESL teaching.

**ELT 505 Culture and the Language Teacher (3-0-3).** Investigates how identities, values, assumptions, behaviors and communication styles affect teaching and learning a second language. Analyzes methods and approaches for cross-cultural research.

**ELT 510 Research Methods and Academic Writing (3-0-3).** Develops students' academic writing competencies and research skills. Introduces students to quantitative and qualitative research methods and teaches them how to conduct and report research.

**ELT 511 Linguistics for ESL Teachers (3-0-3).** (Formerly ENG 511). Focuses on areas in linguistics relevant to ESL teachers. Explores ways of utilizing research and generalizations derived from linguistics to inform ESL teaching practice.

**ELT 513 Language Acquisition and Development (3-0-3).** Surveys theories of first and second language acquisition. Analyzes the strategies and factors involved in acquiring language. Studies the relationship between linguistic and cognitive development and explores how research in this area can be used effectively in the ESL classroom.

**ELT 515 Methods and Materials Development (3-0-3).** Examines traditional and contemporary approaches to English language teaching. Various aspects of classroom practice are analyzed, including teacher and learner roles, classroom management, and integrated versus separate teaching of the language skills.

**ELT 517 Curriculum Design (3-0-3).**

## TESOL

Introduces students to the principles of ESL course design. Examines the stages of developing and evaluating learning centered curricula and materials. Prerequisite/corequisite: ELT 515.

**ELT 521 Reading and Writing in ESL (3-0-3).** Discusses various theoretical models dealing with teaching literacy skills in a second language to children and adults. Explores ways to adapt and apply these models for effective ESL instruction. Prerequisite: ELT 510.

**ELT 523 Bilingual Education (3-0-3).** Reviews different models of bilingual education and issues in bilingualism. Discusses how to achieve a balanced bilingual education system by examining the challenges posed by cultural and linguistic diversity in a bilingual education setting.

**ELT 531 Sociolinguistics (3-0-3).** Studies the relationship between language, society and culture. Investigates the implications of sociolinguistic research for ESL teachers. Prerequisite: ELT 510.

**ELT 551 Language Testing and Evaluation (3-0-3).** Covers the fundamental goals, principles, standards and uses of language assessment and language assessment research. Reviews the factors involved in assessing proficiency in second language skills and in selecting appropriate testing instruments and evaluation tools. Prerequisite/Concurrent: ELT 515.

**ELT 553 Technology in the ESL Classroom (3-0-3).** Introduces a wide range of current applications of technology in the ESL classroom. Focuses on creating innovative and effective ESL learning and teaching environments using computers and other educational technologies. Prerequisite/Concurrent: ELT 515.

**ELT 611 Classroom Research (3-0-3).** Reviews ESL classroom-based research as a means of understanding how ESL instruction and learning take place. Discusses research topics such as teacher talk, wait time, conversational repair, error correction, learning strategies and feedback. Prerequisite: ELT 510.

**ELT 619 Practicum In TESOL (1 to 3 credits).** Provides the opportunity to observe, explore and implement

effective ESL teaching strategies. Involves weekly seminars in which the students discuss their classroom experiences and reflect on their personal growth as ESL teachers. Prerequisite: ELT 551.

**ELT 693 Matriculation Continuation (0-0-0).** Registers matriculating students in the graduate program who are not registering for two consecutive semesters (excluding summer session). Such students are required to register for this course in their second semester out in order to hold their seat in the program. Failure to do so will result in the loss of their admission and will require them to reapply to the program. Cannot be repeated more than two times. This course does not generate credits for graduation. Tuition charged is equivalent to one graduate credit.

**ELT 694 Special Topics in Applied Linguistics (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Prerequisites: topic specific.

**ELT 696 Independent Study in ESL (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: permission of program director.

**ELT 699 Master's Thesis (2 to 6 credits).** Requires students to complete individual and original research work on a topic related to some aspect of TESOL that addresses both theoretical and practical aspects of ELT. The thesis is supervised by the thesis faculty supervisor and is defended to the satisfaction of the committee of three faculty members. Graded as Pass/Fail.

## TRA English/Arabic English Translation and Interpreting

**TRA 500 Principles and Strategies of Translation (3-0-3).** Provides advanced training in principles and methods of

translation from English to Arabic and vice versa. A variety of text types are covered, ranging from legal to journalistic genres.

**TRA 501 Terminology and the Translator (3-0-3).** Reviews the field of terminology in the work of the translator. Covers term formation, standardization and banks, among others. Uses samples from humanities and technical-scientific texts to apply terminology theories and models.

**TRA 502 Arabicization and Translation (3-0-3).** Reviews the process of Arabicization and its impact on translating into Arabic. Covers term formation, standardization, coordination and banks, among others. Uses samples from humanities and technical-scientific texts to demonstrate theories of Arabicization.

**TRA 503 Theoretical Models of Translation (3-0-3).** Provides the students with a conceptual map of translation studies and outlines the various theoretical approaches to translation equivalence. Students are introduced to the range of factors, which govern the process of translation and to the theoretical underpinnings that have motivated different attitudes to translating and translations. Prerequisite: TRA 500.

**TRA 504 Discourse Semantics and Pragmatics in Translation (3-0-3).** Addresses the needs of the practicing translator and interpreter within a discourse framework. Advanced training in semantics and pragmatics is provided, and linguistic analysis in these domains is re-considered from the vantage point of cross-cultural communication.

**TRA 505 Interpreting and the Profession I (3-0-3).** Provides the students with high-level training in those interpreting skills most relevant to the translator at work. Advanced training in liaison and consecutive training is provided with a focus on professional standards and community needs. Theoretical insights into the process of interpreting are presented and placed within an overall, practice-driven model of the process.

**TRA 506 Perspectives on Translation Quality Assessment (3-0-3).** Enables students both to achieve competent standards of translation and to reflect on the process of deriving texts from English or Arabic. Emphasis is placed

on texts with a persuasive function in professional settings such as journalism, advertising and translation for the media.

**TRA 508 Research and Academic Writing (3-0-3).** Introduces students to the conventions of academic writing in both English and Arabic, and of promoting an “action research” stance. These research skills are applied to the work of the translator and interpreter both as practitioners and as analysts.

**TRA 509 Interpreting and the Profession II: Simultaneous Interpreting (3-0-3).** Builds on TRA 505 and provides high-level training in those skills most relevant to Simultaneous Interpreting (SI), including professional standards and international conventions as well as equipment simultaneous interpreters use. Theoretical insights into the process of interpreting are presented and placed within an overall, practice-driven model of the process. Prerequisite: TRA 505.

**TRA 556 Rhetoric for Translators (3-0-3).** Surveys the various traditions within both English and Arabic grammar and rhetoric. This is related to the concerns of the translator in dealing with modern standard Arabic and English composition. A text-linguistic model rooted in rhetorical thinking is developed and applied particularly to the translation of sacred and sensitive texts.

**TRA 558 Contrastive Linguistics and Translation (3-0-3).** Deals with how English and Arabic compare and contrast at various levels of linguistic organization: phonology, morphology, syntax and semantics. A discourse pragmatic perspective is promoted throughout to enable students look at the way texts are organized functionally. Prerequisite: TRA 500.

**TRA 610 Intercultural Communication (3-0-3).** Provides an in-depth view of the way in which cultures influence communication and representations. Topics covered include perception differences, worldview, identity, verbal and non-verbal communication styles in both high and low context cultures, and the effect of bias and conflicting value systems on cross-cultural communication through translation.

**TRA 693 Matriculation Continuation (0-0-0).** Registers matriculating students in the graduate program who are not registering for two consecutive semesters (excluding summer session). Such

students are required to register for this course in their second semester out in order to hold their seat in the program. Failure to do so will result in the loss of their admission and will require them to reapply to the program. Cannot be repeated more than two times. This course does not generate credits for graduation. Tuition charged is equivalent to one graduate credit.

**TRA 694 Special Topics in Translation and Interpreting (1 to 4 credits).**

Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: permission of program director.

**TRA 695 Translation Research Seminar (3-0-3).** Allows students to share what they have learned throughout the course as they develop their thesis proposal. Students further refine their research skills, learn appropriate presentation formats, and enhance their professionalism in a supportive environment. Prerequisite: permission of program director.

**TRA 696 Independent Study in Translation and Interpreting (1 to 4 credits).**

Requires a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: permission of program director.

**TRA 699 Master’s Thesis (2 to 6 credits).**

Requires students to complete an extended piece of individual research (10,000-12,000 words) on a topic within translation/interpreting studies, including an extended translation (c. 5000 words) and a commentary, chosen in consultation with the thesis faculty supervisor. Emphasis is placed on the theoretical and practical aspects of translating or interpreting. The thesis must be completed within two consecutive academic semesters. An extension may be allowed if a candidate presents acceptable mitigating circumstances. The thesis is defended to the satisfaction of a committee composed of three faculty members. Graded as Pass/Fail. Prerequisite: permission of program director.

# School of Architecture and Design

## UPL Urban Planning

**UPL 501 Fundamentals of Urban Planning (3-0-3).** (Cross-listed as ARC 571). Introduces the discipline of urban planning. Surveys the history of the field as well as its links with other fields of environmental studies, such as architecture, urban design, geography, engineering and others. Overviews what planners do and the tools they use in their practice.

**UPL 541 Planning Theory and Methods (3-0-3).** Explores the theoretical foundations of planning and its associated methods. Examines the basic theoretical framework that fosters good planning practice. Reviews the classical theoretical paradigms of planning, examines the major roles played by practicing planners, and looks at the application of theory in dealing with such issues as community development, environmental protection, economic policies, political and administrative structure, and social equity.

**UPL 547 Research Methods and Analysis (3-0-3).** Introduces the quantitative and qualitative methods and techniques used in urban planning research and practice. Analytic approaches include research design, multivariate regression, survey research, case study research, evaluation and graphic data presentation. The emphasis is on methods in the context of planning and urban policy research. Prerequisite: UPL 501.

**UPL 548 Environmental Planning (3-0-3).** (Cross-listed as ARC 578). Provides a comprehensive overview of the field of environmental planning and how it relates to efforts intended to manage, organize and protect environmental resources. Reviews the political and administrative context of environmental planning. Addresses principles of sustainability, ethics and the law in relation to land, air, water and other natural resources. Prerequisite: UPL 501.

**UPL 550 Urban Economics and Analysis (3-0-3).** Examines the economics of cities and urban problems. Undertakes economic analysis of the

location and growth of urban and regional areas with emphasis on public policy issues. Discusses land-use patterns, measurement and change in regional economic activity, and urban problems such as transportation, housing, poverty and crime. Special attention is placed on local fiscal behavior, overlapping jurisdictions and the provision of local public goods, and intergovernmental fiscal relations. Prerequisite: UPL 501.

**UPL 556 Advance Planning Tools: GIS Applications (4-0-3).** Introduces the Geographic Information Systems (GIS) concepts, capabilities and applications. The course focuses on developing the skills required to use GIS tools to analyze geographic data. Issues of data input, data models, spatial analysis and data output are discussed. By the end of the course, students have a good understanding of GIS development, capabilities, and potentials for socioeconomic and urban planning studies. Prerequisite: UPL 501.

**UPL 565 Land Use Planning Principles and Practice (3-0-3).** Examines various theoretical and practice-based approaches to land use planning. Gives an overview of the various social, economic, political and legal influences on land use and the planning process and application appropriate to balance such influences. Prerequisite/concurrent: UPL 501.

**UPL 572 Urban Transportation Systems Planning Techniques (3-0-3).** Covers data collection, trip generation, trip distribution, factors underlying the choice of mode, traffic assignment, modeling and evaluation techniques, use of planning software packages, development and evaluation of alternatives. Prerequisite/concurrent: UPL 501.

**UPL 574 Urban Transportation Systems Analysis (3-0-3).** Covers the use of quantitative techniques for modeling urban transportation systems' performance. Topics include the application of graph theory and network analysis to transportation problems, and analytical approaches to formulate network equilibrium assignment problems and solution algorithms. Introduces dynamic traffic assignment. Prerequisite: UPL 572.

**UPL 582 Theory and Principles of Urban Design (3-0-3).** (Cross-listed as ARC 573). Examines major concepts, principles and theories of urban design. Reviews the historic development of urban design as a professional field and surveys current urban design issues, trends and practices in both the Western and non-Western/Islamic contexts. Prerequisite/concurrent: UPL 501.

**UPL 584 Urbanism and Urban Form Analysis (3-0-3).** Examines urban form elements, patterns and evolution. Focuses on the forces that have shaped cities in history and analyzes contemporary trends that impact urban formation and regeneration. Explores methods of urban morphological analysis as related to urban design. Special attention is placed on the study of cities of the Middle East and Islamic societies. Prerequisite: UPL 501.

**UPL 594 Special Topics in Urban Planning (2 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Prerequisites: topic specific.

**UPL 597 Urban Planning Internship (0-0-0).** Consists of eight weeks (320 hours) of approved internship. At the end of the internship, the student must submit a report of the internship work experience. Course is offered on a pass/fail basis. Prerequisite: UPL 501. Registration fees apply.

**UPL 667 Urban Planning Lab (12-0-6).** Covers the application of substantive skills in urban planning. Focuses on comprehensive planning exercises for an urban area in the UAE/Gulf region, involving fieldwork and hands-on analysis and application. Emphasizes the methods and tools of preparing plans. Addresses development of baseline data; analysis of existing conditions; identification of strategic planning and development issues; forecasting of future conditions; review of development goals, objectives and policies; development and synthesis of alternative plans; evaluation of alternatives; and development of implementation strategies and programs that support policymaking. Prerequisites: UPL 501 and UPL 556.

**UPL 676 Transportation Systems Operations and Control (3-0-3).**

Studies the operation and control of transportation systems with emphasis on traffic characteristics, capacity analysis, traffic improvements, signalization, signs and marking, channelization, intersection capacity, and principles and techniques used to improve the efficiency and safety of transportation systems. Prerequisite: UPL 572.

**UPL 686 Space, Society and the Public Realm (3-0-3).** Explores the nature of urban space and its role in the social being. Focuses on the potentials of space as a tool in shaping the public realm and nurturing citizenship. Examines critical issues of globalization and the transforming role of space in the post-industrial, informational city. Prerequisite: UPL 582.

**UPL 693 Matriculation Continuation (0-0-0).** Registers matriculating students in the graduate program who are not

registering for two consecutive semesters (excluding summer session). Such students are required to register for this course in their second semester out in order to hold their seat in the program. Failure to do so will result in the loss of their admission and will require them to reapply to the program. Cannot be repeated more than two times. This course does not generate credits for graduation. Tuition charged is equivalent to one graduate credit.

**UPL 694 Special Topics in Urban Planning (2 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Prerequisites: topic specific.

**UPL 696 Independent Study in Urban Planning (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted

under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: permission of program director.

**UPL 698 Final Project (1 to 6 credits).** Requires an independent, original research project conceived and developed by the student and guided by an advisor and a reader. Students must integrate, synthesize and apply concepts, ideas and/or theories from course work. Graded as Pass/Fail. Prerequisite: permission of program director.

**UPL 699 Master's Thesis (1 to 6 credits).** Requires independent original research conceived and developed by the student and guided by an advisor and a reader. Students must integrate, synthesize and apply concepts, ideas and/or theories from course work. Graded as Pass/Fail. Prerequisite: permission of program director.

## School of Business and Management

### MBA Business Management

**MBA 501 Foundations of Economics (3-0-3).** Provides an introductory survey of microeconomics and macroeconomics, designed primarily for MBA students unfamiliar economics principles. The microeconomics side of the course includes elements of demand and supply, consumer behavior, costs, market structures, and income distribution. The macroeconomic side of the course analyzes movements in prices and national output, inflation, unemployment, and monetary and fiscal policy.

**MBA 502 Organizational Behavior (3-0-3).** (Formerly MBA 602). Looks into the factors that influence individual and group performance while incorporating current management theory and research. Topics discussed range from individual attitudes and motivation to leadership, change, culture and organizational structure.

**MBA 503 Accounting Concepts (3-0-3).** (Formerly MBA 603). Addresses the use of accounting as

a management tool, including the strengths and limitations of accounting as an information system. Also explores the financial and managerial aspects of accounting, with focuses on the underlying concepts of accounting; the role of accounting in management planning and control; and the usefulness of accounting data for evaluating the results of operations and decision making.

**MBA 504 Managerial Statistics (3-0-3).** (Formerly MBA 604). Examines the decision-aiding tools that can be applied by managers to gain insight into decision problems, ranging from simple graphic displays of data to sophisticated statistical tests. Students use real-world data sets and PC-based software to describe sets of measurements, construct probability distributions, estimate numerical descriptive measures and build multiple regression models. Prerequisite: a college-level finite mathematics course is highly recommended.

**MBA 505 Financial Management (3-0-3).** (Formerly MBA 605). Covers financial theory and techniques of analysis, including valuation theory, theories of risk measurement, managing

a firm's investment decisions and capital structure, sources of financing for a firm, and financial planning and analysis.

**MBA 506 IT Essentials for Managers (3-0-3).** Overview of the essentials of information systems management, computer hardware and software; database management systems, telecommunications and data networks, Internet technologies and security. The second part of the course covers effective methods of designing, building, and testing models, and performing model-based analyses; non-technical, craft skills that expert modelers commonly employ, such as abstracting a situation, debugging a model, and translating models results into managerial insights; introduction to statistical and management science techniques used in business today such as data analysis, simulation, and optimization; Hands on Labs emphasizing advance excel skills; using Premium Solver; crystal Ball and sensitivity tools.

**MBA 507 Marketing Concepts (3-0-3).** Covers the fundamental aspects of marketing including the marketing mix (product strategy, pricing, advertising and promotion, and distribution), by focusing

on problem-solving and decision-making abilities in these. This is done through both lectures, case studies, projects, and experiential learning activities as students learn to research consumer needs, segment markets, and other basic marketing functions. Particular attention is given to localizing content to provide a stronger regional understanding.

**MBA 601 Managerial Economics (3-0-3).** Covers the application of economic theory to management problems, using basic economic tools and techniques of economic analysis to analyze decision-making problems faced in private businesses, government agencies and non-profit organizations. Prerequisite: MBA 501.

**MBA 606 Management Information Systems (3-0-3).** Provides the theoretical, technological, practical and managerial foundations of management information systems. Topics include information technologies, systems development, the impact of information systems on business organizations, information technology as a competitive tool and the management of information systems within domestic and multinational corporations. Introduces students to current systems and software. Prerequisite: MBA 506.

**MBA 607 Business Communication (3-0-3).** Focuses on the written and oral communication aspects of the participants. Emphasis is placed on the use of technology in business communication. Topics include effective business writing and presentation, listening and negotiation skills. Stresses the study and practice of advanced techniques of argumentative writing.

**MBA 609 Operations Management (3-0-3).** Takes an analytical approach to solving problems in production and operations management. Basic principles, functions, and concepts involved in the design, operation, and control of operations in contemporary organizations to real operations management decisions will be covered. Topics include development of operations strategy, decision analysis, mathematical (linear and integer) programming, quality management and control, project management, inventory control, forecasting, and process analysis. Prerequisite: MBA 504.

**MBA 610 Business Research Applications (3-0-3).** Introduces the

student to the basic tools of business research by explaining various research methodologies and techniques. Numerous illustrations, portraying actual research in management, marketing, finance, accounting and other areas of business, show how to perform the research function. Prerequisite: MBA 504.

**MBA 611 Advanced Financial Management (3-0-3).** Examines, at an intermediate level, the problems of managing short-term assets including cash, marketable securities, accounts receivable and inventory, managing the acquisition and disposal of long-term assets, and financing decisions including leverage, leasing, mergers and international issues. Students become familiar with both the basic theories in each of these areas and various strategies for integrating the theory with practice. Prerequisite: MBA 505.

**MBA 612 Leadership and Change Management (3-0-3).** Investigates the role of leadership in the context of global change. Particular attention is given to leadership issues as they pertain to organizational development, culture and the dynamics of change. Prerequisite: MBA 502.

**MBA 613 Accounting Analysis for Managers (3-0-3).** Explains the role of accounting information in facilitating the functions of management. Topics covered are decision making, planning, performance evaluation, budgeting, cost control and international transfer prices. Prerequisite MBA 503.

**MBA 614 Marketing Management (3-0-3).** Introduces current marketing management techniques and the tools necessary for effective marketing decision-making. Provides global perspectives on marketing management and international marketing issues. Interactive learning techniques include the case method and active class participation. Issues including ethics, minorities and the ecological environment are incorporated. Course content requires familiarity with microeconomics theory, basic concepts of accounting and Quattro-Pro (or a similar spreadsheet program). Prerequisite: MBA 507.

**MBA 615 Innovation and Entrepreneurship (3-0-3).** Considers the practices and techniques used to stimulate and sustain innovation and the entrepreneurial spirit. The process

of new venture formation and the issues involved are examined in both the contexts of existing firms and freestanding new ventures. Prerequisite: MBA 609.

**MBA 616 E-Commerce Business Models and Technology (3-0-3).** Presents a survey of consumer and business-to-business electronic commerce models, systems and technical solutions. Includes hands-on projects and assignments. Prerequisite: MBA 606.

**MBA 617 Ethics and Legal Issues (3-0-3).** Intensively introduces the legal and ethical issues confronting the global business manager. Addresses the legal system, legal processes and several areas of substantive commercial law relevant to the business manager. Discusses the developing recognition of legal and ethical issues and their managerial implications. Examines product liability, the administrative legal process of regulation, antitrust and the contract as the fundamental legal instrument of global commercial relations.

**MBA 618 Strategic Management in a Global Environment (3-0-3).** Focuses on developing and applying strategic management to successfully position organizations in a competitive global environment. Integrates previous course experiences to hone decision-making, analysis, and oral and written communication skills. Students work in small teams to analyze a real company's external environment, perform an internal corporate audit and build detailed action plans including implementation issues and financial forecasting. Prerequisites: all core courses. However, up to two core courses may be taken concurrently.

**MBA 632 Investment Analysis (3-0-3).** Covers the purpose and operations of security markets; investment instruments and their characteristics; introduction to portfolio and capital market theory; theory of valuation, bonds and the term structure of interest rates; options, commodity and financial futures, investment companies; and international investments. Prerequisites: MBA 611.

**MBA 633 Financial Futures and Derivatives (3-0-3).** Comprehensively studies equity and debt-based futures and other derivative instruments. Discusses the functioning of options and futures markets and the role the market participants. Derivative instruments will be analyzed with a focus on pricing,

hedging techniques and arbitrage applications. Prerequisites: MBA 632.

**MBA 634 Commercial Banking (3-0-3).** Focuses on decision making based on an integrated approach that exposes students to the understanding of bank management. Discusses factors that influence credit, investment, funding and pricing decisions. Introduces topics that help develop an appreciation of the trade-offs between risk and return. Discusses a wide range of cases related to bank performance evaluation, making new loans, managing the investment portfolio, asset and liquidity management as well as the macro and international environment in which commercial banks operate. Prerequisite: MBA 501.

**MBA 635 Islamic Economics (3-0-3).** Provides the theoretical foundation for advanced studies in Islamic economics. Addresses questions concerning the need for an Islamic economic system, the viability of an economic system that is built on religious paradigm, how that system should be, and how it relates to contemporary economic systems. Investigates the socioeconomic dynamics of classical Islamic economics and its views on wealth creation and distribution, optimum growth and employment, economic stability, public finance and the role of the state in economic activity. Prerequisite: MBA 501.

**MBA 636 Islamic Banking and Finance (3-0-3).** Provides students with a formal and intuitive understanding of the essentials of Islamic finance including the foundation of traditional Islamic financial tools and practices and the development of modern Islamic banking and financial instruments and institutions. Relates the theory of Islamic finance to current development in Islamic banking and finance industry. Prerequisite: MBA 501.

**MBA 651 Supply Chain Management and Strategy (3-0-3).** Introduces basic concepts of logistics and supply chain management. Examines supply chain management topics, tools and issues from a general management point of view. Covers supplier selection and collaboration, performance measurement along the supply chain, strategic outsourcing, just-in-time partnership and distribution, customer relationship management, logistics, procurement, inventory and warehousing strategies,

and service supply chains. Includes case assignments and discussions, and mini-projects. Prerequisite: MBA 506

**MBA 652 Modeling and Analysis of Supply Chain Processes (3-0-3).** Enables students to learn and apply analysis and modeling techniques to typical supply chain problems using a spreadsheet-based and example-driven approach. Covers the basics of supply chain modeling for the optimization and monitoring of a supply chain, or a segment thereof, using statistical, simulation and optimization tools and models. Examines process modeling, transportation models, facility location models, logistics cost analysis, multi-echelon inventory, linear programming, routing and scheduling, network optimization, simulation and optimum service levels. Prerequisite: MBA 506.

**MBA 653 Supply Chain Management Technology and Applications (3-0-3).** Provides students with the knowledge, tools and hands-on experience necessary to develop, implement and sustain IT-enabled strategies for managing supply chains. Familiarizes students with supply chain information technology trends and explores procurement and order fulfillment strategies and the impact of the Internet on distribution and back-end supply chain processes. Uses a combination of concepts, analytical models and commercial software to give students a theoretical foundation and practical experience in applying their supply chain management knowledge. Prerequisite: MBA 506.

**MBA 654 Transportation and Logistics Management (3-0-3).** Introduces the transport system and related logistics activities in the context of their role in an economy. Applies public management principles to domestic and international transportation and shipping facilities, considering operations management, material handling, warehousing and storage, environmental impact, information technology and other variables as they apply to a variety of transport modes and intermodel activities. Prerequisite: MBA 506.

**MBA 655 Information Systems Design (3-0-3).** Introduces students to basic elements of IS infrastructures, such as networks, intranets and XML, databases, and data warehouses and data centers. Teaches students how to plan and develop IT architectures and business applications based on business

requirements. Emphasizes building shared databases and planning integrated applications such as CRM, SCM and ERP and other knowledge management and business intelligence platforms. Covers alternative paradigms for designing business solutions including outsourcing, utility computing, open source software and grid computing. Requires a course-long project within a real-world context. Prerequisite: MBA 506.

**MBA 661 Strategic Human Resource Management (3-0-3).** Focuses on the strategic role of HRM. Examines the role of HRM in strategy formulation and implementation, and measuring and improving HRM effectiveness. Discusses how to align HRM practices with organizational business goals. Focuses on strategic recruitment and retention practices, high-performance management practices, strategies for developing employees, and the role of HR in supporting change and in managing mergers and alliances. Prerequisite: MBA 502.

**MBA 662 International Human Resource Management (3-0-3).** Explores the roles of HR managers in multinational corporations, identifies and analyzes efficient management strategies and practices in the field of international HR, and effective HRM policies and practices in international contexts. Focuses on the internationalization of the organizations, and on the cultural dimensions that have an impact on HRM activities. Studies recruitment and selection, training, development, and evaluation and compensation practices in an international context. Covers ethics and social responsibility issues in MNE as well as the challenges of designing and implementing an iHRM policy. Prerequisite: MBA 502.

**MBA 663 Staffing (3-0-3).** Allows students to develop critical, analytical and integrative thinking about the staffing process in today's organizations. Examines in detail the six steps in the staffing process: job design and analysis, HR planning, recruitment, selection, orientation and retention. Explores selection interviews, interviewing skills and selection tests. Covers how to manage diversity in the staffing context, as well as evaluation and improvement of the important steps in the staffing process. Includes concrete exercises and case studies. Prerequisite: MBA 502.

**MBA 664 Training and Development (3-0-3).** Adopts a systematic approach to training and development systems, focusing on the blend between theory and practice. Covers training in organizations, the training process, identifying learning needs and appropriate learning opportunities, designing and delivering training, the transfer of learning, reviewing and evaluating training activities, the management of transfers and promotions, the strategic development of leaders and managers, numerous developmental techniques, the learning organization and knowledge management. Studies the strategic management of training and development activities. Prerequisite: MBA 502.

**MBA 672 Managing a Family Business (3-0-3).** Addresses issues

facing family enterprise, a unique subset of entrepreneurial, small and growing businesses. Family business issues, family business systems, family members as employees, boundaries and succession issues are considered. Cases and empirical studies engage students in family business experiences. Prerequisite: MBA 612.

**MBA 693 Matriculation Continuation (0-0-0).** Registers matriculating students in the graduate program who are not registering for two consecutive semesters (excluding summer session). Such students are required to register for this course in their second semester out in order to hold their seat in the program. Failure to do so will result in the loss of their admission and will require them to reapply to the program. Cannot be repeated more than two times. This

course does not generate credits for graduation. Tuition charged is equivalent to one graduate credit.

**MBA 694 Special Topics in Business (1 to 4 credits).** Explores special research topics proposed by students and accepted by faculty for oversight. Topics must be approved by the director of graduate programs and the dean. Prerequisite: topic specific.

**MBA 696 Independent Study in Business Administration (1 to 4 credits).** Requires a theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: permission of program director.

## School of Engineering

### ESM Engineering Systems Management

**ESM 500 Statistical Methods for Engineers (3-0-3).** Covers the principles and methods of statistics as applied to engineering systems and management. Topics include probability, sample statistics, confidence intervals, and introduction to quality control for product acceptance and process control.

**ESM 505 Introduction to Information Technology (1-1-1).** Introduces computer hardware and computer software. Covers desktop publishing, word processing, presentations graphics and spreadsheets. Introduces databases and database management system tools, webpage design and Web authoring tools.

**ESM 510 Economic Decision Analysis (3-0-3).** Covers economic decision analysis and accounting/finance fundamentals for engineering projects and management. Also covers time value of money and the effects of interest, project cost estimation, alternative evaluation methods, make/buy decisions, replacement studies and project selection under limited budget. In addition, fundamental principles of accounting,

indirect cost distribution and financial analysis are covered. Includes extensive use of spreadsheets and case studies.

**ESM 520 Management for Engineers (3-0-3).** Treats a range of integrated topics for individuals in both public and private sector organizations who coordinate and manage engineering projects, personnel, resources and systems. Professional practice topics include human resources, communication skills, leadership styles, team building, total quality management, principles of project management, and the fundamentals of organizational development and performance evaluation. Management needs in multicultural and multinational environments are also considered. Integrates core management principles with engineering experiences using case studies and applications.

**ESM 530 Strategic Technology Management (3-0-3).** Gives students a broad overview of the main topics encompassed by management of technology. Includes technical managerial challenges that are presented by new technologies in the context of engineering systems, and development and implementation of technological strategies to create competitive

advantages. Presents innovative activities beginning with research and development and extending through production and marketing. Focuses on the emergence of the knowledge economy and technology as a key knowledge asset. Also covers technological innovation, technological forecasting, technological impact identification, technology assessment and evaluation, and case studies. Prerequisite/concurrent: ESM 510 or ESM 520, or MBA 502 and MBA 601.

**ESM 540 Modeling and Simulation (3-0-3).** Covers the concepts and principles associated with systems modeling and simulation using contemporary software such as simulation with ARENA. Topics include probability and statistics review; modeling techniques, including problem formulation and queuing theory; and discrete event simulation modeling. Students become experienced with the state-of-the-art simulation and modeling software, reflecting the joint nature of these activities in good simulation studies, and continuous simulation of industrial and manufacturing systems using ARENA. Team project included. Prerequisite: ESM 500.

**ESM 550 Information Technology for Engineering Managers (2-0-2).**

Covers Information technology (IT) in the modern business environment. Topics include IT infrastructure components including computer hardware, software, databases, telecommunications and networking; IT Infrastructure management, process and human resource considerations; IT strategy development and alignment; IT planning; and emerging IT procurement, evaluation and management. Lab/Tech fee rate A applies.

**ESM 560 Quality Engineering and Management (3-0-3).** Covers the techniques and applications of quality control, total quality management and reliability engineering. Topics include sampling procedures, data patterns, product quality and control of engineering materials, statistical process control (charts and troubleshooting), product acceptance sampling plans, process capability analysis, an introduction to total quality management, reliability principles and analysis, time-to-failure, failure rate, reliability determination, and component and system reliability. Prerequisite: ESM 500.

**ESM 570 Project Management (3-0-3).** Covers the application of management techniques related to the unique nature of projects. Examines the elements of project management critical to the success of projects: project management framework, project life cycle, scope management, time management, cost management, project controls and earned value, and use of project management software. The principles and tools are integrated and clarified through case studies from a variety of disciplines and through creation of project management plans developed by students working in teams.

**ESM 595 Seminar in Engineering Systems Management (1-0-1).** Presentations conducted in a seminar setting by practicing systems and management engineers that include projects and industrial case studies. Used to bring about understanding and integration of managerial and engineering tools for enhancement of the UAE's technology environment.

**ESM 600 Research Methodology (3-0-3).** Introduces the methodology of scientific research. Topics include internal, external, construct validity and reliability issues in research; normative, prescriptive and descriptive theories;

process and variance approaches to theory formulation; introduction to quasi-experimental design and case study methodologies; practical strategies for literature review; Chicago Style guidelines; presenting research results and conclusions. Includes invited speakers from industry and business. Students are required to present a research paper.

**ESM 630 Advanced Economic Decision Analysis (3-0-3).** Covers advanced topics in engineering economy, including the effects of inflation and taxes, treatment of depreciation, risk and uncertainty, cost estimation, indirect cost allocation, and life cycle cost analysis. Also covers value engineering and its application. Case studies and a project are included.

**ESM 632 Applied Operations Research (3-0-3).** Covers formulation of mathematical model, solution using linear programming, sensitivity and cost analysis of developing alternative optimum solutions, inventory control, production planning and control, management resource planning, forecasting and stochastic modeling. Includes a team-based design project.

**ESM 636 Human Resources Management for Engineers (3-0-3).** Introduces current trends, practices and methodology of Human Resources Management (HRM) and planning as related to the engineering profession and conduct of business. Topics include the human resources planning process; tools and techniques; job specification; methods of job analysis; legal requirements and ethical context of HRM; methods of recruitment, evaluation, career training and development programs; salary systems and employee benefits; HR information systems; and international HR issues. HR management practices and methodologies are integrated with engineering experiences. Prerequisite: ESM 520.

**ESM 638 System Optimization and Decision Analysis (3-0-3).** Covers theory and practice of analyzing decisions in the public and private sectors. Multiple objectives, influence diagrams, decision trees, sensitivity analysis, probability assessment, multi-attribute utility and human biases are covered. Practical applications through real-world systems model building are described and conducted. Uses case studies to examine

the use of decision analysis software and spreadsheets to solve real-life problems.

**ESM 640 Logistics Management (3-0-3).** Offers an overview of supply chain management (SCM), an integration of purchasing, operations, logistics, management of physical warehouse, documentation and information flows within the supply chain cycle. Topics include supply chain management purposes and processes; supply chain design, evaluation and measurement models; and trends in strategic operations, procurement, and logistics within the supply chain. Includes case studies in logistic modeling for diverse distributors.

**ESM 644 Financial Management for Engineers (3-0-3).** Helps students in understanding, recording and analyzing financial information, cost concepts, cost behavior and cost accounting. Covers cost-volume-profit analysis and leverage, capital budgeting for profit planning, financial planning and forecasting, risk and return, portfolio theory and asset pricing models, and multinational and international finance.

**ESM 650 Construction Management (3-0-3).** Covers the application of construction management techniques related to the unique nature of construction projects. Looks at elements of construction management, construction delivery systems, partnering and subcontracting, cost estimating and scheduling, contract administration and control techniques. Also covers construction quality control, construction safety, use of construction contract control software. Includes case studies from the construction industry.

**ESM 652 Construction Planning and Scheduling (3-0-3).** Covers the application of planning and scheduling techniques related to the unique nature of construction projects. Looks at elements of project planning and scheduling critical to the success of construction projects, work breakdown structures (WBS), network modeling, activity on arrow techniques, Critical Path Method, program evaluation and review techniques, project monitoring and control, earned value, and use of construction planning and scheduling software. Includes case studies from the construction industry.

**ESM 654 Materials Management (3-0-3).** Covers applications of

management skills on construction materials, site, personnel, planning process, information systems, expediting and quality assurance, purchasing, logistics, materials control, electronic data management, bar coding, and materials selection and specifications.

**ESM 660 Application of Construction Law (3-0-3).** Introduces construction contracts and their administration with special emphasis for engineering. Covers construction claims, matters of time, delays and litigation. Professional topics include analysis of specific issues concerning contracts, subcontracting, tort claims, insurance and bonds. Also covers strategies for avoiding or terminating litigation, methods of dispute resolution, key aspects of prosecuting and defending claims, the role of dispute review boards and their use, procedures of claims presentation, conducting cost evaluation of claims, and methods of international construction contracts. Actual legal cases involving construction and law are covered. Prerequisite/concurrent: ESM 650.

**ESM 662 Construction Business Operations (3-0-3).** Examines the elements of construction contracting critical to the success of construction businesses. Covers business ownership, company organization, insurance, labor law, business methods, accounting and cost keeping systems, budgeting and financial management. Includes case studies from the construction industry.

**ESM 664 Infrastructure Systems Maintenance and Management (3-0-3).** Explores civil infrastructure facility and asset management as comprehensive systems with emphasis on transportation and building structures. Includes needs assessment, information management, in-service monitoring and condition evaluation, performance modeling, life cycle cost and benefits analysis, prioritization and optimization. Also covers planning, scheduling and coordination of maintenance activities.

**ESM 666 Advanced Construction Materials Management (3-0-3).** Covers an inventory management for construction materials, operational plan and forecasting supply and demand for the construction materials, construction facilities and handling of materials on site. Also covers applications of research and development (R&D) and IT in construction materials management,

handling of construction materials waste and planning for codes and specifications. Prerequisite: ESM 654.

**ESM 667 Construction Contracting and Cost Estimating (3-0-3).** Examines the cost elements of construction contracting crucial to the success of construction businesses. Provides an overview of basic cost estimating and bidding procedures, including the role of the estimator, various levels and details of an estimate and the bidding process. Topics include accounting and cost keeping systems, budgeting, quantity takeoff, pricing labor, material and equipment, bonding, private and public bidding formats, minority requirements, markups and bidding strategies.

**ESM 668 Engineering Safety and the Environment (3-0-3).** Provides an overview of safety, health and environmental concerns in the engineering worksite. Topics include physical, chemical and radiological hazards; regulatory responsibilities; safety audits; creating a safe workplace; environmental audits; and pollution prevention.

**ESM 693 Matriculation Continuation (0-0-0).** Registers matriculating students in the graduate program who are not registering for two consecutive semesters (excluding summer session). Such students are required to register for this course in their second semester out in order to hold their seat in the program. Failure to do so will result in the loss of their admission and will require them to reapply to the program. Cannot be repeated more than two times. This course does not generate credits for graduation. Tuition charged is equivalent to one graduate credit.

**ESM 694 Special Topics in Engineering Systems Management (1 to 3 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Prerequisite: topic specific.

**ESM 696 Independent Study in Engineering Systems Management (1 to 4 credits).** Requires investigation under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: approval of advisor.

**ESM 698 Professional Project (1 to 6 credits).** Requires an approved professional project for completion of the MS degree. A selected area of

engineering management and systems engineering is chosen for the project. Requires a report and final presentation to the advisory committee. Graded as Pass/Fail.

**ESM 699 Research (1 to 6 credits).** Comprises research in the disciplinary areas that encompass systems engineering and engineering management. Taken during the planning and completion of the thesis for the MS degree. Completed under the supervision of the faculty member serving as the thesis advisor. A thesis and final defense to the advisory committee are required. Graded as Pass/Fail.

## MTR Mechatronics Engineering

**MTR 500 Advanced Engineering Mathematics (3-0-3).** Covers analysis of linear and nonlinear physical systems equations of motion (ODEs and PDEs), partial differential equations of mathematical physics (wave, diffusion, Laplace, Poisson Equations), transform and integral methods for solving boundary and initial value problems, and numerical methods for ordinary and partial differential equations. Prerequisite: admission to program.

**MTR 505 Applied Electrical and Electronics Systems (3-1-3).** Covers operational amplifiers and their applications, power amplifiers and switches, DC and AC motors, digital systems and electronic CAD tools. Prerequisite: admission to program.

**MTR 510 Applied Mechanical Systems (3-0-3).** Covers modeling of thermal and fluid systems. Includes kinematics and dynamics of machinery, and CAD tools for mechanical systems. Prerequisite: admission to program.

**MTR 515 Information Technology for Mechatronics (3-1-3).** Covers computer organization, operating systems, computer networking (LAN and WAN), Internet programming and application, and Web-based monitoring. Prerequisite: admission to program.

**MTR 520 Embedded Systems for Mechatronics (2-3-3).** Explores microprocessor hardware and software modules. Covers microcontrollers hardware and software architectures, microcontrollers programming and

interface with real-time mechatronics systems, data acquisition unit and designing stand-alone embedded systems for mechatronics products. Includes case studies and course projects. Prerequisite: admission to program.

**MTR 530 Power Electronics and Electrical Drives (3-0-3).** Gives an overview of power electronic systems, energy conversion and electric power conditioning. Covers analysis and applications of various energy conversion processes: AC power controllers, controlled rectifiers, DC choppers, DC-AC converters, operation of DC machines and AC Drives. Prerequisite: MTR 505.

**MTR 535 Electro-pneumatic and Hydraulic Systems (2-3-3).** Explores fluids and fluid flows in high-performance actuators and controllers, power flow and fluid power elements, valve and pump control, linear and rotary motion and state space descriptions. Covers design of electrohydraulic position and velocity control servomechanisms for high performance with stability. Prerequisites: MTR 505 or MTR 510.

**MTR 540 Advanced Control Systems (3-0-3).** Covers state variable models, design of control systems in state space, full state observers, reduced order observers, digital compensator design LQ regulator and LQG theory, servomechanism design, and design of continuous and digital control systems using modern analytic and computer design tools. Prerequisite: admission to program.

**MTR 590 Mechatronics Design (2-3-3).** (Formerly MTR 525). Requires individual and team projects involving the development and integration of hardware and software into a “smart” system, which includes the sensing, processing and controlling functions. Prerequisite: MTR 520.

**MTR 600 Modeling and Simulation of Dynamic Systems (3-0-3).** Introduces multi-domain systems. Topics include mechanical, thermal, fluid, electrical, electronic and electromechanical system dynamics. Emphasizes modeling and simulation of hybrid systems using computer-aided tools. Prerequisite: MTR 500.

**MTR 605 Digital Signal Processing (3-0-3).** Covers signal representation and system response, signal sampling

and reconstruction, convolution, transfer function and system characteristics, digital filter design and realization, adaptive filters, spectral analysis, multirate signal processing, and time-frequency analysis and wavelets. Prerequisites: MTR 500.

**MTR 610 Automated Manufacturing Systems (3-0-3).** Describes and demonstrates automated machine tools and machining cells. Covers machining center configuration and operation, machine tool controller, machining code generation, in-process sensing and control, cell controllers and system simulation. Prerequisites: MTR 520.

**MTR 615 Artificial Intelligent Systems (3-0-3).** Covers biological and cognitive paradigms, concepts of machine intelligence, intelligent agents, vision and image analysis, principles of decision making, fuzzy logic, decision trees, case-based reasoning, genetic algorithms, neural networks and expert systems. Prerequisites: MTR 515 and MTR 520.

**MTR 620 Machinery Dynamics and Vibration (3-0-3).** Covers machinery vibration analysis (signature analysis in time and frequency domains, fault detection, diagnosis, and correction), instrumentation, case studies and machine monitoring programs. Prerequisite: MTR 500.

**MTR 625 Distributed Control Systems (3-0-3).** Studies distributed computer systems architecture, system elements, data communications links, software algorithms, reliability and applications. Prerequisite: MTR 500.

**MTR 630 Real-Time Robotics Systems (2-3-3).** Covers components of robot systems, analysis and design of modern robotic and industrial control systems, hardware and software, computational methods and techniques used in vision-based robotics, real-time embedded control, optimization techniques, matrix analysis and analytic 2D/3D geometry. Prerequisites: MTR 500 and MTR 520.

**MTR 635 Smart Structures and Sensor Fusion (3-0-3).** Covers basic material properties, models, and active and sensory material systems. Topics include health monitoring approaches to detect damage in a structure; applications of smart materials primarily for vibration and pointing control; finite element models with piezoelectric elements use in sensor selection and actuator; the design of feedback and adaptive feed-forward

control algorithms; and implementation of sensor, actuator and control electronics. Prerequisite: MTR 520.

**MTR 691 Mechatronics Design Project (0-6-3).** Requires an extended project of interdisciplinary nature. Elements of computing, mechanics, and electronics should be involved. Graded as Pass/Fail. Prerequisite: MTR 600.

**MTR 693 Matriculation Continuation (0-0-0).** Registers matriculating students in the graduate program who are not registering for two consecutive semesters (excluding summer session). Such students are required to register for this course in their second semester out in order to hold their seat in the program. Failure to do so will result in the loss of their admission and will require them to reapply to the program. Cannot be repeated more than two times. This course does not generate credits for graduation. Tuition charged is equivalent to one graduate credit.

**MTR 694 Special Topics in Mechatronics Engineering (1 to 4 credits).** Explores a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Prerequisite: topic specific.

**MTR 695 Mechatronics Seminar (1-0-0).** Explores project planning development and realization, case studies of engineering systems design and realization and current research topics in mechatronics engineering, including areas such signal processing, image processing, control, robotics, intelligent systems, computer vision and MEMS. Prerequisite: approval of advisor.

**MTR 696 Independent Study in Mechatronics Engineering (1 to 4 credits).** Requires investigation under faculty supervision beyond what is offered in existing courses. Cannot be repeated more than once. Prerequisite: approval of advisor.

**MTR 699 Master's Thesis (1 to 6 credits).** Requires an extended investigation having original contribution to the field of study. Elements of computing, mechanics, electronics and intelligence should be involved. Graded as Pass/Fail. Prerequisite: approval of advisor.

# Full-Time Faculty

- A**
- Abdalla, Jamaeldin**, PhD, University of California at Berkeley, 1989; Associate Professor in Civil Engineering
- Abdallah, Abed Al-Nasser**, PhD, University of Lancaster, 2004; Assistant Professor in Accounting and Finance
- Abdel-Fatah, Akmal**, PhD, University of Texas at Austin, 1999; Assistant Professor in Civil Engineering
- Abdel-Hafez, Mamoun**, PhD, University of California at Los Angeles, 2003; Assistant Professor in Mechanical Engineering
- Abdel-Jabbar, Nabil**, PhD, University of Michigan, 1996; Associate Professor in Chemical Engineering
- Abdel-Malek, Kamal**, PhD, McGill University, 1992; Associate Professor in Language and Literature
- Abdelsalam, Omneya**, PhD, Heriot-Watt University, 1999; Associate Professor in Accounting and Finance
- AbdulHadi, Zayid**, PhD, Université Laval, 1987; Associate Professor in Mathematics and Statistics
- Abu Al-Foul, Bassam**, PhD, University of Utah, 1994; Associate Professor in Economics
- Abualrub, Taher**, PhD, University of Iowa, 1998; Associate Professor in Mathematics and Statistics
- Abu-Hassan, Jenifah**, MS, Drake University, 1989; Instructor in Intensive English
- Abukhaled, Marwan**, PhD, Texas Tech University, 1995; Associate Professor in Mathematics and Statistics
- Abu-Muhanna, Yusuf**, PhD, State University of New York at Albany, 1979; Professor in Mathematics and Statistics and Chair, Department of Mathematics and Statistics
- Abu-Yousef, Imad**, PhD, McGill University, 1996; Associate Professor in Biology and Chemistry
- Ahmad, Saiyad**, PhD, Princeton University, 2000; Assistant Professor in International Studies
- Ahmad, Shoaib Nabi**, MID, Rhode Island School of Design, 1991; Associate Professor in Design
- Ahmed, Aftab**, MA, University of London, 1997; Instructor in Intensive English
- Ahmed, Rana**, PhD, Duke University, 1991; Associate Professor in Computer Engineering and Chair, Department of Computer Engineering
- Ahmed, Saad**, PhD, Georgia Institute of Technology, 1981; Professor in Mechanical Engineering
- Al-Ali, Abdul Rahman**, PhD, Vanderbilt University, 1990; Professor in Computer Engineering
- Al-Assadi, Wesam**, MA, American University of Sharjah, 2004; Instructor in Language and Literature
- Al-Assaf, Yousef**, PhD, Oxford University, 1988; Professor in Electrical Engineering and Dean, School of Engineering.
- Al-Ghoussein, Tarek**, MA, University of New Mexico, 1989; Associate Professor in Design
- Alhasani, Nadia**, PhD, University of Pennsylvania, 1990; Professor in Architecture (on sabbatical AY 2006–2007)
- Ali, Naghmana**, PhD, University of Toronto, 2004; Assistant Professor in Language and Literature
- Alibrandi, Thomas**, DEd, University of San Francisco, 1999; Assistant Professor in Writing Studies
- Al-Issa, Ahmad**, PhD, Indiana University of Pennsylvania, 1998; Assistant Professor in Language and Literature
- Alkafaji, Yass**, DBA, Mississippi State University, 1983; Associate Professor in Accounting and Finance
- Al-Kattan, Ibrahim**, PhD, Tennessee Technical University, 1994; Associate Professor in Engineering Systems Management and Director, Graduate Program in Engineering Systems Management
- Al-Khazali, Osamah**, PhD, University of Memphis, 1997; Associate Professor in Accounting and Finance
- Allagui, Ilhem**, PhD, University of Montreal, 2001; Assistant Professor in Mass Communication
- Al-Musawi, Muhsin**, PhD, Dalhousie University, 1978; Professor in Language and Literature (on leave Fall 2006)
- Alnaser, Ali Sami**, PhD, Western Michigan University, 2002; Assistant Professor in Physics
- Al-Nashash, Hasan**, PhD, Kent University, 1988; Professor in Electrical Engineering
- Alobaidi, Ghada**, PhD, University of Western Ontario, 2000; Assistant Professor in Mathematics and Statistics
- Aloul, Fadi**, PhD, University of Michigan, 2003; Assistant Professor in Computer Engineering
- Al-Sayah, Mohamed**, PhD, University of Alberta, 2002; Assistant Professor in Biology and Chemistry
- Al-Tamimi, Adil**, PhD, Strathclyde University, 1990; Associate Professor in Civil Engineering
- Anabtawi, Mahmoud**, PhD, University of Texas, 1998; Associate Professor in Mathematics and Statistics
- Anderson, Pia-Kristina**, PhD, University of California at Berkeley, 2001; Assistant Professor in International Studies and Associate Dean, Undergraduate Programs and Alumni Affairs
- Arzaghi, Mohammad**, PhD, Brown University, 2005; Assistant Professor in Economics
- Assaleh, Khaled**, PhD, Rutgers University, 1993; Associate Professor in Electrical Engineering
- Awwad, Diala**, GDip, La Trobe University, 2004; Instructor in Intensive English
- B**
- Badawi, Ayman**, PhD, University of North Texas, 1993; Professor in Mathematics and Statistics
- Badry, Fatima**, PhD, University of California at Berkeley, 1983; Professor in Language and Literature and Director, Graduate Program in TESOL
- Baghestani, Hamid**, PhD, University of Colorado, 1982; Professor in Economics
- Bahloul, Maher**, PhD, Cornell University, 1994; Assistant Professor in Language and Literature
- Bahloul, Raja**, MA, Cornell University, 1994; Senior Instructor in Intensive English
- Bantey, Paul**, MFA, Whitecliffe College of Arts and Design, 2005; Assistant Professor in Design
- Barkat, Mourad**, PhD, Syracuse University, 1987; Professor in Electrical Engineering
- Barkhi, Reza**, PhD, Ohio State University, 1995; Associate Professor in Management Information Systems and Interim Chair, Department of Management Information Systems
- Barlas, Gerassimos**, PhD, National Technical University, Athens, 1996; Associate Professor in Computer Science
- Bartholomew, Aaron**, PhD, College of William and Mary, 2001; Assistant Professor in Biology
- Bateman II, Robert**, PhD, University of Utah, 2004; Assistant Professor in Management, Marketing and Public Administration
- Beheiry, Salwa**, PhD, University of Texas at Austin, 2005; Assistant Professor in Civil Engineering
- Bendik-Keymer, Jeremy**, PhD, University of Chicago, 2003; Assistant Professor in International Studies
- Berbić, Amir**, MFA, The School of the Art Institute of Chicago, 2004; Assistant Professor in Design

**Bigelow, Kim**, MFA, Northwestern University, 1983; Assistant Professor in Mass Communication

**Blake, B. Leslie**, MA, University of Wales, 1998; Instructor in Writing Studies

**Bley, Jörg**, PhD, Florida Atlantic University, 2000; Associate Professor in Accounting and Finance

**Boisvert, Jean**, MS, École des Hautes Études Commerciales, 1989; Instructor in Management, Marketing and Public Administration

**Botthoff, John**, MID, Pratt Institute, 1980; Assistant Professor in Design

**Brodtkorb, Tor**, LLB, McGill University, 2000; Assistant Professor in Management, Marketing and Public Administration

## C

**Caesar, Judith**, PhD, Case Western Reserve University, 1976; Associate Professor in Language and Literature

**Campa, Frank**, MBA, Baylor University, 1997; Instructor in Management Information Systems

**Campa, Halina**, MAT, University of Washington, 2004; Instructor in Intensive English

**Capar, Nejat**, PhD, Florida State University, 2003; Assistant Professor in Management, Marketing and Public Administration

**Carlstedt, Edward**, MA, University of Leicester, 2000; Instructor in Intensive English

**Chazi, Abdelaziz**, PhD, University of North Texas, 2004; Assistant Professor in Accounting and Finance

**Chebbi, Rachid**, PhD, Colorado School of Mines 1991; Professor in Chemical Engineering

**Chen, Kim Heng**, PhD, Washington State University, 2002; Assistant Professor in Management Information Systems

**Chilton, John**, PhD, Brown University, 1989; Assistant Professor in Economics and Chair, Department of Economics

**Chinta, Ravi**, PhD, University of Pittsburg, 1985; Assistant Professor in Management, Marketing and Public Administration

**Chiravuri, Ananth**, MBA, Banaras Hindu University, 1995; Instructor in Management Information Systems

**Colbert, David**, MA, New Mexico State University, 1997; Senior Instructor in Intensive English

**Connell, John**, MA, Southern Illinois University, 1988; Instructor in Intensive English

**Cook, Robert**, PhD, University of California at Los Angeles, 1967; Professor in Chemistry and Dean, Graduate Studies and Continuing Education

**Crompton, Peter**, PhD, Lancaster University, 2003; Assistant Professor in Language and Literature

**Cruickshank, Donald**, PhD, University of Illinois at Urbana-Champaign, 1984; Senior Lecturer in Writing Studies and Chair, Department of Writing Studies

**Cumbus, Jerald**, MA, University of North Florida, 1992; Instructor in Writing Studies

## D

**Daghfous, Abdelkader**, PhD, Pennsylvania State University, 1997; Assistant Professor in Management Information Systems

**Dahan, Laila**, MA, American University of Sharjah, 2005; Instructor in Writing Studies

**Daraysch, Musa**, PhD, University of Nebraska-Lincoln, 1990; Professor in Accounting and Finance

**Deiab, Ibrahim**, PhD, McMaster University, 2003; Assistant Professor in Mechanical Engineering

**Dezhbakhsh, Hashem**, PhD, Ohio State University, 1989; Professor in Economics

**Dhaouadi, Rached**, PhD, University of Minnesota, 1990; Associate Professor in Electrical Engineering

**Diederich, Joachim**, PhD, Bielefeld University, 1985; Professor in Computer Science and Chair, Department of Computer Science

**Djeredjian, Daron**, PhD, Syracuse University, 2004; Assistant Professor in Economics

**Dodigovic, Marina**, PhD, University of Bremen, 1995; Assistant Professor in Language and Literature

**Dougan, Brian**, MArch, Texas A&M University, 1989; Associate Professor in Foundations

**Driscoll, Tina Joyce**, MA, University of Warwick, 1998; Senior Instructor in Intensive English

## E

**Eberlein, Armin**, PhD, University of Wales, 1998; Associate Professor in Computer Engineering

**El-Baz, Hazim**, PhD, University of Missouri, Rolla, 1991; Associate Professor in Engineering Systems Management and Coordinator, Engineering Management Program

**Eleftheriou, Maria**, MA, McGill University, 2002; Instructor in Writing Studies

**El-Emam, Magdi**, PhD, Queen's University, 2003; Assistant Professor in Civil Engineering

**El-Fakih, Khaled**, PhD, University of Ottawa, 2002; Assistant Professor in Computer Science

**El-Hag, Ayman**, PhD, University of Waterloo, 2004; Assistant Professor in Electrical Engineering

**El-Jarkass, Zouheir**, CFA, Association of Investment Management and Research, 1995; Senior Instructor in Accounting and Finance

**El-Kadi, Hany**, PhD, University of Alberta, 1993; Associate Professor in Mechanical Engineering, Associate Dean, School of Engineering and Interim Chair, Department of Mechanical Engineering

**El-Mousfy, Mona**, MArch, Georgia Institute of Technology, 1983; Assistant Professor in Architecture

**El-Sadek, Ibrahim**, PhD, University of California at Santa Barbara, 1983; Professor in Mathematics and Statistics and Associate Dean, College of Arts and Sciences

**El-Sinawi, Ameen**, PhD, University of Dayton, 1999; Assistant Professor in Mechanical Engineering

**El-Sayegh, Sameh**, PhD, Texas A&M University, 1998; Assistant Professor in Civil Engineering

**El-Tarhuni, Mohamed**, PhD, Carleton University, 1997; Associate Professor in Electrical Engineering and Chair, Department of Electrical Engineering

**Emira, Ahmed**, PhD, Texas A&M University, 2003; Assistant Professor in Electrical Engineering

## F

**Faiq, Said**, PhD, Salford University, 1991; Associate Professor in Language and Literature and Chair, Department of Language and Literature and Director, Graduate Program in Translation and Interpreting

**Ferguson, Erik**, PhD, University of Southern California 1988; Assistant Professor in Urban Planning

**Filipović, Zlatan**, MFA, Alfred University, 2001; Assistant Professor of Design (Spring 2007)

**Fiocco, Marcello**, PhD, University of California at Santa Barbara, 2002; Assistant Professor in International Studies

**Forster, John**, PhD, McMaster University, 2001; Associate Professor in Management, Marketing and Public Administration

## G

**Gadalla, Mohamed**, PhD, University of Alabama, 1988; Associate Professor in Mechanical Engineering

**Gassan, Richard**, PhD, University of Massachusetts, 2002; Assistant Professor in International Studies

**Gandhi, Neena**, PhD, University of Delhi, 2006; Assistant Professor in Writing Studies

**Gatenby, Bruce**, PhD, University of

Arizona, 1992; Assistant Professor in Language and Literature

**Genc, Ismail**, PhD, Texas A&M University, 1999; Associate Professor in Economics

**Gibbs, Joseph**, PhD, Boston University, 1994; Assistant Professor in Mass Communication

**Giesen, Leslie**, MA, School for International Training, 2001; Instructor in Intensive English

**Giesen, Martin**, PhD, Heidelberg University, 1973; Professor in Foundations

**Gilbertson, Milton**, MEd, McGill University, 1991; Senior Instructor in Intensive English (on leave Spring 2007)

**Gilbertson, Sharon**, MEd, McGill University, 1993; Senior Instructor in Intensive English (on leave Spring 2007)

**Goldfinch, Shaun**, PhD, University of Melbourne, 1999; Assistant Professor in Management, Marketing and Public Administration

**Golley, Nawar**, PhD, Nottingham University, 1994; Assistant Professor in Language and Literature

**gorla, Narasimhaiah**, PhD, University of Iowa, 1986; Associate Professor in Management Information Systems

**Grant, James**, DBA, Mississippi State University, 1978; Professor in Management, Marketing and Public Administration

**Grant, Michelle**, MArch, Cranbrook Academy of Art, 2005; Assistant Professor in Architecture

**Grant, Roderick**, MFA, Rhode Island School of Design, 2005; Assistant Professor in Design

**Gressel, Justin**, MBA, Brigham Young University, 2002; Instructor in Management, Marketing and Public Administration

**Griffin, James**, PhD, University of London, 2004; Assistant Professor in Mathematics and Statistics

**Guessoum, Nidhal**, PhD, University of California at San Diego, 1988; Associate Professor in Physics

**Gumus, Mehmet**, MS, University of Waterloo, 2001; Instructor in Management Information Systems

**Gunatillake, Gajath**, PhD, Purdue University, 2005; Assistant Professor in Mathematics and Statistics

**Gunn, Cindy**, PhD, University of Bath, 2001; Assistant Professor in Language and Literature

## H

**Hamdan, Nasser**, PhD, Middle East Technical University, 1993; Professor in Physics and Chair, Department of Physics

**Haney II, William**, PhD, University of California at Davis, 1984; Professor in

Language and Literature

**Hariga, Moncer**, PhD, Cornell University, 1989; Professor in Engineering Systems Management

**Hashem, Mahboub**, PhD, Florida State University, 1984; Professor in Mass Communication and Chair, Department of Mass Communication

**Hassan, Mohamed**, PhD, University of Arizona, 2005; Assistant Professor in Electrical Engineering

**Hatim, Basil**, PhD, University of Exeter, 1982; Professor in Language and Literature (on leave Fall 2006)

**Haverila, Matti**, PhD, Tampere University of Technology, 1995; Associate Professor in Management, Marketing and Public Administration

**Heaton, J. Lade**, JD, University of Utah, 1972; Senior Lecturer in Management, Marketing and Public Administration

**Heidcamp, William**, PhD, University of Pittsburgh, 1971; Professor in Biology and Chemistry and Dean, College of Arts and Sciences

**Heintz, W. Eirik**, MArch, Harvard University, 1994; Associate Professor in Foundations

**Hewitt, David**, MFA, Cornell University, 1979; Associate Professor in Foundations

**Horger, Christopher**, MA, University of Arizona, 1992; Instructor in Writing Studies

**Hunter III, Starling**, PhD, Duke University, 1999; Assistant Professor in Management, Marketing and Public Administration

**Husseini, Ghaleb**, PhD, Brigham Young University, 2001; Assistant Professor in Chemical Engineering

## I

**Ibrahim, Taleb**, PhD, Auburn University, 1997; Associate Professor in Chemical Engineering

**Islam, Mohammad**, PhD, Columbia University, 2003; Assistant Professor in Physics

## J

**Jaidi, Asad Hasan**, PhD, University of Kansas, 1993; Associate Professor in Physics

**Jarrah, Mohammad-Ameen**, PhD, Stanford University, 1989; Professor in Mechanical Engineering and Director, Graduate Program in Mechatronics Engineering

**John, Mary Anne**, MA, University of Calcutta, 1993; Instructor in Writing Studies

**Jumean, Fawwaz**, PhD, City University of New York, 1973; Professor in Biology and Chemistry and Chair, Department of Biology and Chemistry

## K

**Kalupa, Frank**, PhD, University of Southern California, 1979; Professor in Mass Communication

**Kanan, Sofian**, PhD, University of Maine, 2000; Assistant Professor in Biology and Chemistry

**Karake-Shalhoub, Zeinab**, PhD, George Washington University, 1987; Professor in Management Information Systems

**Karavatos, Nicholas**, CELTA, St. Giles University, 1999; Assistant Professor in Language and Literature

**Katodrytis, George**, AADip, Architectural Association, UK, 1985; Associate Professor in Architecture

**Katsioloudes, Marios**, PhD, University of Pennsylvania, 1990; Professor in Management, Marketing and Public Administration

**Kawash, Jalal**, PhD, University of Calgary, 2000; Assistant Professor in Computer Science

**Keck, Stephen**, DPhil, University of Oxford, 1992; Associate Professor in International Studies

**Kennedy, Thomas**, MLA, Cornell University, 1991; Assistant Professor in Architecture

**Khallaf, Ashraf**, PhD, Florida Atlantic University, 2004; Assistant Professor in Accounting and Finance

**Khamis, Mustafa**, PhD, University of California at Davis, 1985; Associate Professor in Biology and Chemistry

**Khan, Masood**, MS, Colorado State University, 1991; Instructor in Design

**Khan, Sajid**, PhD, University of Manchester, 2001; Assistant Professor in Management, Marketing and Public Administration

**Kharkhurin, Anatoliy**, PhD, City University of New York, 2005; Assistant Professor in International Studies

**Khawaja, Ali**, MBA, American University of Sharjah, 2004; Instructor in Management Information Systems

**Kherfi, Samer**, PhD, Simon Fraser University, 2002; Assistant Professor in Economics

**Khoury, Suheil**, PhD, Michigan State University, 1994; Associate Professor in Mathematics and Statistics

**Kim, Jong**, PhD, Emory University, 2005; Assistant Professor in Economics

**King, John**, PhD, University of Tennessee at Knoxville, 1995; Associate Professor in Mass Communication

**Knuteson, Sandra**, PhD, Clemson University, 2004; Assistant Professor in Biology and Chemistry

**Kucuk, Ismail**, PhD, University of Utah, 2001; Assistant Professor in Mathematics and Statistics

- L**
- Landolsi, Taha**, PhD, University of Texas at Dallas, 1999; Assistant Professor in Computer Engineering
- Lanteigne, Betty**, PhD, Indiana University of Pennsylvania, 2004; Assistant Professor in Language and Literature
- Lea, David**, PhD, University of Ottawa, 1990; Professor in International Studies
- Leduc, Guillaume**, PhD, Carleton University, 1995; Assistant Professor in Mathematics and Statistics
- Lee, Jessica**, MA, San Francisco State University, 2005; Instructor in Writing Studies
- Lee, Minsoo**, PhD, Washington State University, 1999; Associate Professor in Economics
- Lewis, Dennis**, MA, University of Toronto, 1995; Senior Instructor in Writing Studies
- Logsdon, Bradley**, PhD, Iowa State University, 2000; Assistant Professor in Biology and Chemistry
- Lonnman, Bruce**, MAUD, Cornell University, 1986; Associate Professor in Architecture
- Loughlin, Kevin**, PhD, University of New Brunswick, 1970; Associate Professor in Chemical Engineering
- Love, Don**, PhD, Ohio University, 1997; Assistant Professor in Mass Communication
- Lynch, Andy**, PhD, Southern Illinois University at Carbondale, 2004; Assistant Professor in Mass Communication
- M**
- Majdalawieh, Munir**, PhD, George Mason University, 2006; Assistant Professor in Management Information Systems
- Majeed, Tariq**, PhD, York University, 1991; Assistant Professor in Physics
- Mason, Peter**, MBA, Marshall University, 1977; Instructor in Management, Marketing and Public Administration
- McCallum, Brent**, MS, American University, Washington, DC, 1993; Assistant Professor in Accounting and Finance
- McClane, Richard**, MA, University of Utah, 1997; Senior Instructor in Intensive English
- McElwain, Gregory**, MA, University of New Mexico, 1990; Instructor in Writing Studies
- McKechnie, Donelda**, PhD, Bradford University, 2001; Assistant Professor in Management, Marketing and Public Administration
- McLaurin, J. Reagan**, PhD, Memphis State University, 1994; Associate Professor in Management, Marketing and Public Administration
- Mehdi, Laurial**, MA, State University of New York, 1984; Instructor in Intensive English
- Mitchell, Kevin**, MArch, University of Washington, 1996; Associate Professor in Architecture and Associate Dean, School of Architecture and Design
- Mitias, Peter**, PhD, Louisiana State University, 1997; Associate Professor in Economics and Director, Graduate Program in Business Administration
- Mokhtar, Ahmed**, PhD, Concordia University, 1998; Associate Professor in Architecture
- Mosbo, John**, PhD, Iowa State University, 1973; Professor in Biology and Chemistry and Vice Chancellor for Academic Affairs
- Mourtada-Sabbah, Nada**, PhD, University of Pantheon-Assas (Paris II), 1997; Associate Professor in International Studies and Chair, Department of International Studies
- Moustafa, Amer**, PhD, University of Southern California, 1999; Associate Professor in Architecture and Director, Graduate Program in Urban Planning
- Munday, Susan**, MPhil, University of Glasgow, 2002; Instructor in Writing Studies
- Musameh, Mustafa**, PhD, New Mexico State University, 2006; Assistant Professor in Biology and Chemistry
- N**
- Naumann, R. Earl**, PhD, Arizona State University, 1981; Professor in Management, Marketing and Public Administration
- Noori, Neema**, MPhil, Columbia University, 2003; Instructor in International Studies
- Nsiri, Imed**, MA, Indiana University, 2000; Instructor in Language and Literature
- O**
- Olson, Dennis**, PhD, University of Wyoming, 1982; Professor in Accounting and Finance and Interim Chair, Department of Accounting and Finance
- Ozkul, Tarik**, PhD, Florida Institute of Technology, 1988; Associate Professor in Computer Engineering (on leave Fall 2006)
- P**
- Pallathucheril, Varkki**, PhD, The Ohio State University, 1992; Associate Professor in Urban Planning (Spring 2007)
- Papadakis, Anne Marie**, MEd, University of New Castle Upon Tyne, 2003; Instructor in Intensive English
- Pilkington, Mark**, MA, Royal College of Art, 1977; Associate Professor in Design and Chair, Department of Design
- Pringle, Jane**, MEd, St. Petersburg State University, 2003; Instructor in Intensive English
- Q**
- Qadah, Ghassan**, PhD, University of Michigan, 1983; Associate Professor in Computer Engineering
- Qaddoumi, Nasser**, PhD, Colorado State University, 1998; Associate Professor in Electrical Engineering
- R**
- Rab, Samia**, PhD, Georgia Institute of Technology, 1997; Associate Professor in Architecture and Chair, Department of Architecture
- Raddawi, Rana**, PhD, La Sorbonne Nouvelle University (Paris III), 1995; Assistant Professor in Language and Literature
- Radnell, David**, PhD, Rutgers, The State University of New Jersey, 2003; Assistant Professor in Mathematics and Statistics
- Randle, Jay**, MArch, North Carolina State University, 1971; Professor in Architecture
- Rehman, Habib-ur**, PhD, Ohio State University, 2001; Assistant Professor in Electrical Engineering
- Richards, R. Malcolm**, PhD, University of Michigan, 1974; Professor in Accounting and Finance and Dean, School of Business and Management
- Richardson, Tina**, MA, University of Oregon, 2003; Instructor in Writing Studies
- Rifki, Fatih**, PhD, University of North Carolina at Chapel Hill, 1998; Professor in Architecture and Dean, School of Architecture and Design
- Riordan, Olivia**, MEd, Temple University, 2001; Instructor in Intensive English
- Ronesi, Lynne**, PhD, University of Connecticut, 2000; Assistant Professor in Writing Studies
- Rousseu, Scott**, MEd, University of Southern Queensland, 2003; Instructor in Intensive English
- Rupasingha, Anil**, PhD, Texas A&M University, 1997; Assistant Professor in Economics
- Russell, Dennis**, PhD, University of Hawaii, 1981; Associate Professor in Biology and Chemistry
- S**
- Saad, Mohsen**, PhD, University of Delaware, 2003; Assistant Professor in Accounting and Finance
- Sabet, Mehdi**, MArch, Virginia Polytechnic Institute, 1978; Associate Professor in Architecture
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