AUS | الجامعة الأميركية في الشارقة
American University of Sharjah

Undergraduate Catalog 2012–2013



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American University of Sharjah

Undergraduate Catalog 2012–2013

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His Highness Sheikh Dr. Sultan Bin Mohammad Al Qassimi

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

Chancellor's Message



I am delighted to welcome students, faculty members and staff to AUS for the academic year 2012–2013. Established in 1997, AUS has since gained a widely recognized reputation for academic quality in higher education in the United Arab Emirates and beyond. As chancellor, I am gratified by our university's fine academic reputation. I also feel a tremendous optimism about our future. AUS will not rest on past accomplishments. On the contrary, the coming years will see a continuing commitment to institutional improvement so that AUS provides its students with the best possible undergraduate and graduate education in the Gulf region.

Students who attend AUS find that their experience at the university provides them with a high-quality education in their field of choice. Yet there is much more to an AUS education than only mastering the core competencies of a particular academic discipline. AUS strives to empower its students so that they enjoy an education that opens their minds and broadens their horizons. The AUS experience enables its students to participate with self-confidence and ease in the ever-expanding global environment. Whether graduates remain in the Gulf or take on challenges anywhere in the world, they will find that AUS has prepared them for success.

The AUS experience is an educational and developmental journey that transcends the classroom. A major part of AUS's training is learning skills that enable graduates to succeed throughout their lives. At AUS students learn to reflect deeply, to communicate effectively, to think clearly and to work successfully in teams or by themselves. AUS students become problem solvers and creative thinkers who are well prepared to assume leadership positions as their careers progress.

AUS students learn to respect diversity; they engage in dialog, discussion and debate in ways that expand their horizons and prepare them to succeed in diverse cultural environments. Yet, our students also learn to value their cultural heritage and stay true to their historical roots, even as they cooperate with colleagues from a wide variety of national backgrounds.

AUS trains its students to understand the long-term importance of personal integrity and professional ethics, for themselves and for society at large. AUS expects its graduates to become concerned adults who are aware of the challenges that their society faces and who make positive contributions to improve the world around them.

This catalog provides a first introduction to an AUS education, and it will serve as a continuing reference for students while they attend the university. It contains all of the information that students will need to chart their academic careers while at AUS. It lists available courses, outlines important regulations, and describes the academic and co-curricular services that the university offers. This same information is available on the university's website, www.aus.edu. This website should be considered the official source of such information, since it is updated more frequently than this catalog. I urge students and their parents to become familiar with the rules and regulations this catalog contains. Faculty members should also consult it to remain familiar with the information it provides.

During the years that you attend AUS as a student, you will see how your university continues to progress and build on past achievements. AUS will continue to enhance the quality of the education that it offers, increase the range of the services that it provides, and equip its students with all of the competencies and skills that enable them to succeed throughout their lives.

Peter Heath

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  - Dr. Hany El-Kadi, Associate Dean, College of Engineering
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  - Dr. A. Paul Williams, Associate Dean, School of Business and Management
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- Ms. Haifa Ismail, Director, Student Leadership Program
- Mr. Mohammad Atif Ehsan, Director, Student Residential Life

The graduation requirements for any individual student are normally determined by the catalog that was effective when the student matriculated in the major. A student may choose to follow the catalog effective for the semester when the student expects to complete his/her graduation requirements. The policies, procedures and academic regulations published in the American University of Sharjah catalog are effective at the time of publication but may be subject to change. Students are responsible for adherence to the most up-to-date policies, procedures and academic regulations.

Undergraduate Academic Calendar 2012–2013

Fall Semester			2012
April	12	Thursday	Early applications deadline for Fall Semester 2012
June	7	Thursday	Transfer students' application deadline for Fall Semester 2012
	28	Thursday	Regular admissions applications deadline for Fall Semester 2012 for applicants from outside UAE
July	12	Thursday	Regular admissions applications deadline for Fall Semester 2012 for applicants from inside UAE
	26	Thursday	Deadline for new students to apply for financial grant for Fall Semester 2012
September	6	Thursday	Residential halls open
	6	Thursday	TOEFL Test
	7	Friday	Welcome session for new students and parents
	9	Sunday	New students' academic and school orientation
	10	Monday	Registration for all returning students ends 5 p.m.
	10–11	Monday–Tuesday	Placement tests for new students
	12–13	Wednesday–Thursday	Registration for new students
	16	Sunday	First day of classes/Late registration and add and drop period begin
	18	Tuesday	Late registration and add and drop period end at 5 p.m.
October	4	Thursday	Applications for Fall Semester 2012 graduation due
	17	Wednesday	Honors Convocation
	25	Thursday	Classes end at 10 p.m. for Eid Al Adha holiday*
November	4	Sunday	Classes resume at 8 a.m.
	14	Wednesday	Classes end at 10 p.m. for Al Hijra holiday*
	18	Sunday	Classes resume at 8 a.m.
	22	Thursday	Deadline for enrolled students to apply/renew financial grant for Spring Semester 2013
	29	Thursday	Classes end at 10 p.m. for UAE National Day holiday
December	3	Monday	Classes resume at 8 a.m.
	4	Tuesday	Deadline to withdraw from a course without a grade penalty, 5 p.m.
	13	Thursday	Regular admissions applications deadline for Spring Semester 2013 for applicants from outside UAE
	16–January 3	Sunday–Thursday	Advising and early registration for Spring Semester 2013
	20	Thursday	Transfer students' application deadline for Spring Semester 2013
	20	Thursday	Deadline for new students to apply for financial grant for Spring Semester 2013
	24	Monday	Classes end at 10 p.m. for Christmas holiday
	26	Wednesday	Classes resume at 8 a.m.
	27	Thursday	Regular admissions applications deadline for Spring Semester 2013 for applicants from inside UAE
	31	Monday	Classes end at 10 p.m. for New Year holiday
January	2	Wednesday	Classes resume at 8 a.m.
	9	Wednesday	Fall Semester 2012 classes end at 10 p.m.
	10	Thursday	Fall Semester 2012 study and examination period begins
	16	Wednesday	Fall Semester 2012 study and examination period ends at 10 p.m.
	17	Thursday	Make-up examination day
	19	Saturday	Fall Semester 2012 Commencement
Spring Semester			**2013**
January	24	Thursday	Residential halls open
	24	Thursday	TOEFL test
	25	Friday	Welcome session for new students and parents
	27	Sunday	New students' academic and school orientation
	28	Monday	Registration for all returning students ends at 5 p.m.
	28–29	Monday–Tuesday	Placement tests for new students
	30–31	Wednesday–Thursday	Registration for new students
February	3	Sunday	First day of classes/Late registration and add and drop period begin
	5	Tuesday	Late registration and add and drop period end at 5 p.m.
	21	Thursday	Applications for Spring Semester 2013 graduation due
March	28	Thursday	Classes end at 10 p.m. for Spring Break
April	7	Sunday	Classes resume at 8 a.m.
	18	Thursday	Deadline to withdraw from a course without a grade penalty, 5 p.m.
	25	Thursday	Transfer students' application deadline for Summer Term 2013
May	1	Wednesday	Application for Summer Term 2013 graduation due
	5–23	Sunday–Thursday	Advising and early registration for Summer Term 2013 and Fall Semester 2013
	9	Thursday	Deadline for enrolled students to apply/renew financial grant for Fall Semester 2013
	23	Thursday	Spring Semester 2013 classes end at 10 p.m.
	25	Saturday	Spring Semester 2013 study and examination period begins
	30	Thursday	Spring Semester 2013 study and examination period ends at 10 p.m.
June	1	Saturday	Make-up examination day
	8	Saturday	Spring Semester 2013 Commencement
Summer Term			**2013**
June	9–10	Sunday–Monday	Registration for Summer Term 2013
	11	Tuesday	First day of classes /late registration and add and drop period begin
	13	Thursday	Late registration and add and drop period end at 3 p.m.
July	9	Tuesday	Deadline to withdraw from a course without a grade penalty, 3 p.m.
	22	Monday	Summer Term 2013 classes end at 10 p.m.
	23–24	Tuesday–Wednesday	Summer Term 2013 study and examination period
	25	Thursday	Make-up examination day

* 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.

University Terminology

Academic Integrity	Refers to ethical behavior and principles such as honesty, responsibility, respect and fairness that guide conduct in an academic setting. For complete information, consult the Student Academic Integrity Code included later in this catalog.
Academic Standing	Determined by regulations governing good standing, probation and dismissal
Academic Year	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
Add and Drop	A period of time at the beginning of each semester/term when students can adjust schedules by dropping or adding courses or changing sections of a course
Admission	Formal acceptance as a student
Advisor	Faculty member/administrator assigned to counsel students on academic matters. The student is called the advisor's "advisee."
Alumni	Those who have graduated from American University of Sharjah
Audit, Course	Permission to attend and participate in a course without benefit of a grade or credit
Audit, Degree	Methodical examination and reviewing of students' compliance with their degree requirements
Bachelor's Degree	A four-year minimum undergraduate degree
Calendar, Academic	Annual listing of all official dates and deadlines for the academic year
Catalog Year	A student's catalog year denotes which specific set of graduation requirements will apply to that student. Unless altered, a student's catalog year is the year when the student was admitted to study at AUS.
Class Standing	The class ranking determined by the number of credits an undergraduate student has earned. For example, 0-14 is Freshman I, 15-29 is Freshman II, 30-44 is Sophomore I, etc.
Common Examinations	Examinations for courses with multiple sections scheduled at a common time at the request of the college/school. Courses with more than three sections and at least two instructors are eligible to be considered for a common examination time slot.
Concentration	Subspecialization within a major that allows a student to focus on a particular aspect of the major
Corequisite	A course required to be taken simultaneously with another course
Course	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
Course Load	Total credits for which a student is registered in a given semester or term
Credit	The equivalent of 50 minutes of class instruction, two to three 50-minutes laboratory sessions, or one or two 50-minute recitation sessions per week for one regular semester. Design courses, studios and visual and performing arts courses may be weighted differently
Curriculum	A structured set of learning outcomes built in a specified set of courses
Department	An academic unit of a college or school
Directed Study	An investigation under faculty supervision beyond what is offered in existing courses
Dismissal	The involuntary separation of a student from the university for unacceptable conduct or unsatisfactory academic achievement. A student is academically dismissed when he/she fails to achieve academic good standing in three consecutive semesters.
Educational Records	Records directly related to the education of a student and maintained by the Office of the Registrar
Elective Course	A course selected at a student's discretion after consultation with the advisor
Exchange Student	An exchange student is a study abroad student who is not formally admitted to American University Sharjah but is allowed to take courses at AUS for a maximum of one academic year within the context of an established formal exchange program.
Extracurricular	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
Fee	Charges for services; does not include course tuition
Full-Time Student	An undergraduate student who is registered for 12 or more credit hours in a given semester
General Education Requirements	Requirements common to all undergraduate students designed to provide both breadth and specialization in their academic degree programs
Good Standing	Academic designation applied to an undergraduate student who has achieved a cumulative GPA of 2.00 or higher
GPA	Grade point average of the grades earned in AUS courses
Grade Points	Numerical value associated with each grade
ID Card	University student identification card providing and controlling access to university facilities and services
Independent Course	A course listed in the catalog but offered in an independent study format

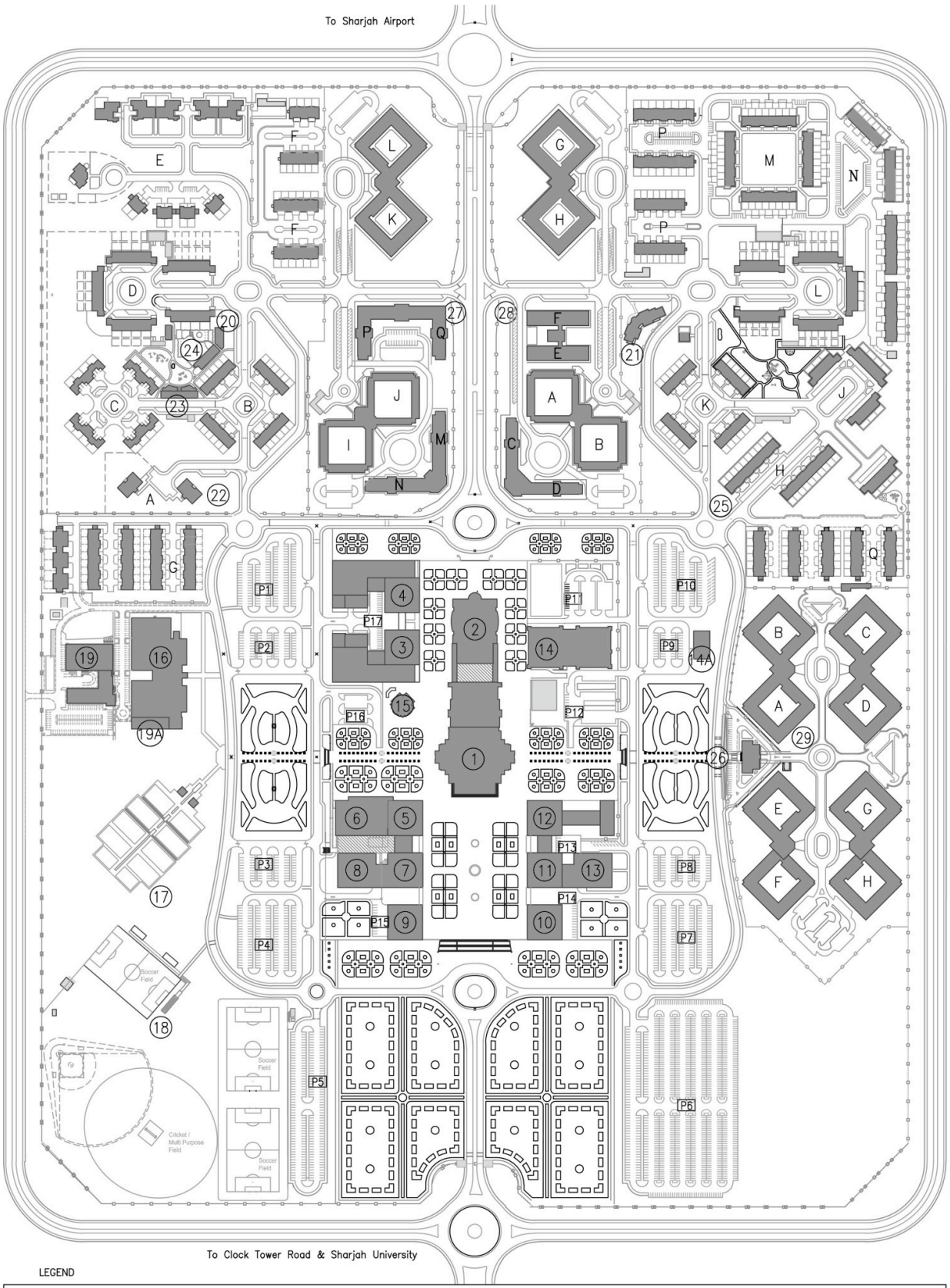
Independent Study	Independent course (IC) or directed study (DS) beyond the courses offered in a specific semester conducted by a student under the supervision of a designated faculty member
Major	A student's main field of study
Matriculation	Enrollment as a degree-seeking student
Minor	A secondary field of study requiring at least 18 credit hours
Non-degree Student	Designation used for students who are enrolled in courses but are not pursuing a degree program
Petition	A written request seeking a waiver of or an exception to a university regulation, policy or deadline
Placement Test	A proficiency examination given to determine a student's ability in a subject where competence is an important consideration. Placement test scores determine whether the corresponding preparatory course will be waived.
Preparatory Courses	Undergraduate courses designated as 00X. Students may be waived out of these courses by placement tests. Preparatory courses do not count in the credits earned toward a degree, but they do count in the grade point average.
Prerequisite	A course required to be completed prior to registration in another course
Prerequisite/Concurrent	A course that must be completed either along with or before enrolling in a another course
Probation	A warning status resulting from the student's unsatisfactory conduct
Probation, Academic	Status of any undergraduate student who has less than a 2.00 cumulative GPA
Readmission	The act of admitting a student back to the university through the Office of Enrollment Management/Undergraduate Admissions after an interruption of studies for more than one semester. Academically dismissed students are not eligible for readmission.
Registration	The process of enrolling in classes
Regular Student	A degree-seeking student
Reinstatement	The exceptional act of allowing an academically dismissed student to resume studies following dismissal. Academically dismissed students who have been away longer than one semester may not apply for reinstatement.
Required Courses	Courses other than free electives prescribed by the college/school necessary for the completion of a particular degree program
Residence	A student's tenure within the university inclusive of all interruptions of study
Schedule, Class	A list of courses offered during a semester that specifies the days, hours, locations of classes and the names of the instructors
Schedule, Student	A listing of the courses a student is taking in a given semester that specifies the days, hours, locations of classes and the names of the instructors
Semester	Either of the two 15-week periods of instruction followed by an examination period into which the academic year is divided
Study Abroad Student	An AUS student who is taking courses at another university during a regular semester or a non-AUS student who is taking courses at AUS in the context of a semester exchange program.
Suspension	The involuntary separation of a student from the university for unacceptable conduct. Suspension extends from one semester to a maximum of one calendar year.
Term	A period of instruction and exams that is shorter than a semester
Transcript	A student's historical academic record
Transfer Credit	Credit from course work completed at another institution that is accepted at AUS and which may or may not be applicable toward a specific AUS degree
Transfer Student	A student admitted to AUS after having met the AUS transfer student admission requirements. Credits completed at the student's previous university may or may not transfer to AUS.
Transient Student	A student who has completed an undergraduate or graduate degree at AUS or elsewhere and who has registered at AUS for additional courses
Tuition	The fees charged for courses each semester or term
Undergraduate	A student who is working toward completion of a bachelor's degree
Visiting Student	A student enrolled at another accredited institution who receives permission to register at AUS (for up to two semesters) to earn credit to transfer back to his or her home institution
Withdrawal	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	Email
Academic Support Center	515 2096	515 2097	aac@aus.edu
Achievement Academy/Bridge Program	515 2653/54	515 2638	academy@aus.edu
Admissions/Enrollment Management	515 1000	515 1020	admission@aus.edu
Architecture, Art and Design	515 2869	515 2800	deancaad@aus.edu
Arts and Sciences	515 2412	558 5067	deancas@aus.edu
Business and Management	515 2310	515 4065	deanofsbm@aus.edu
Chancellor	515 2205	558 5858	chancellors_office@aus.edu
Corporate Relations	515 2066	515 2065	odaa@aus.edu
Development and Alumni Affairs/VCDA	515 2547	515 2297	odaa@aus.edu
Engineering	515 2948	515 2979	dosoe@aus.edu
Finance	515 2185	515 2190	finance@aus.edu
Finance and Administration/VCFA	515 2192	515 2130	vcfa@aus.edu
General Information	558 5555	558 5858	info@aus.edu
Grants and Scholarships	515 2005/55/60/72	515 2040	scholarship@aus.edu
Health Center	515 2699	515 2690	clinic@aus.edu
Human Resources	515 2228	515 2139	hr@aus.edu
Information Technology	515 2119	515 2120	ithelpdesk@aus.edu
Institutional Effectiveness and Planning	515 2206	558 5858	oiep@aus.edu
International Exchange Office	515 4027	515 4010	ixo@aus.edu
Library	515 2252	558 5008	auslibrary@aus.edu
Operations	515 2299	558 5009	operations@aus.edu
Provost	515 2020	515 2150	provost@aus.edu
Public Affairs/VCPA	515 2207	515 2200	public_affairs@aus.edu
Registrar	515 2031	515 2040	registration@aus.edu
Research	515 2208	515 4025	research@aus.edu
Research and Graduate Studies/VPRGS	515 2208	515 4025	vprgs@aus.edu
Sponsorship Liaison	515 1016	515 1020	sponsors@aus.edu
Strategic Communications and Media	515 2212	515 2288	communications@aus.edu
Student Accounts	515 2233/82	515 2190	studentaccounts@aus.edu
Student Affairs/VCSA	515 2166	558 5024	studentaffairs@aus.edu
Student Leadership Program	515 4772	515 4770	osaslp@aus.edu
Student Learning and Counseling Services	515 2767	515 2711	lcs@aus.edu
Student Residential Life	515 2434	515 2294	res-halls@aus.edu
Testing and Professional Development Center	515 1111	515 1011	testingcenter@aus.edu
Undergraduate Affairs and Instruction/VPUA	515 2281	515 2050	vpua@aus.edu
Emergency Numbers			
Maintenance Emergency	515 2100		
Medical Hotline (24 hours)	050 635 7651		
Security	515 2222		



LEGEND

1. Main Building, Auditorium
2. Library
3. Engineering School Left
4. Engineering School Right
5. Student Center
6. Food Court
7. Architecture & Design I
8. Architecture & Design II
9. Languages, Health Center
10. Arts and Sciences: Physics
11. Arts and Sciences: Chemistry
12. Business & Management
13. New Academic Building
14. School of Business and Management
14A. SBM Service Yard
15. Mosque
16. Sports Complex
17. Outdoor Courts
18. Sport Fields
19. Campus Service Centre
19A. North West Utility Service Block
20. Temporary Wellness Center
21. Youth Center
22. Faculty/Staff Housing (West)
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The University

Historical Preamble

American University of Sharjah (AUS) was founded in 1997 by His Highness Sheikh Dr. Sultan Bin Mohammad 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

Vision Statement

American University of Sharjah (AUS) will be the region's leader in higher education, known for excellence and innovation in teaching, learning, research and service.

Mission Statement

American University of Sharjah (AUS) is a comprehensive, independent, non-profit, coeducational institution of higher education that fosters excellence in teaching, learning and research. Based on an American model of higher education and grounded in the culture of the Gulf region, AUS fosters a community that embraces cultural diversity and whose members are committed to the ideals of open intellectual inquiry, ethical behavior, and social and civic responsibility. An engaged, productive and effective member of society, AUS educates lifelong learners who display mastery in the core competencies of their areas of specialization, and who communicate clearly, think critically and solve problems creatively.

Overview

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.

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.

Through the College of Architecture, Art and Design, the College of Arts and Sciences, the College of Engineering, and the School of Business and Management, the university offers 26 majors and 54 minors at the undergraduate level and 13 master's degrees.

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

AUS is licensed and its programs are accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates.

AUS is also accredited in the United States of America by the Commission on Higher Education of the Middle States Association of Colleges and Schools (3624 Market Street, Philadelphia, PA 19104, USA, Tel +1 215 662 5606) and by the Department of Education of the State of Delaware.

The bachelor of science degrees in chemical engineering, civil engineering, computer engineering, computer science, electrical engineering and mechanical engineering offered by the College of Engineering are accredited by ABET (www.abet.org).

The Bachelor of Science in Business Administration (BSBA) as well as the Master of Business Administration (MBA) and Executive Master of Business Administration (EMBA) degrees offered by the School of Business and Management are accredited by the Association to Advance Collegiate Schools of Business (AACSB), www.aacsb.edu.

The Bachelor of Architecture program of the College of Architecture, Art and Design is accredited by the National Architectural Accrediting Board (NAAB) of the United States, www.naab.org.




CMD Lab

Campus Life

The Campus Complex

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 12 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 student residential halls (for men and for women) as well as a large Sports Complex and a Student Center. Approximately 40 percent of the student body lives in campus housing. Unlike most American universities, AUS requires faculty members and their families 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.

Campus Services

Banking

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. ATMs are located at the bank, the Student Center and the Women's Welcome Center.

Bookstore

Located on the ground floor of the Library Building, the bookstore sells all required textbooks, other books, art supplies, stationery, notebooks and other general gift items.

Campus Cash Program

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 www.aus.edu/campuscash.

Copy Center

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

A variety of local and international franchise restaurants, coffee shops and snack services are located in the Student Center and the Library Building. 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.

Gifts and Memorabilia

Located on the ground floor of the Library Building adjacent to the bookstore, the AUS Gift Shop offers a variety of merchandise, memorabilia and gift items customized for AUS.

Government-Related Services/International Students Services

The Public Relations Department handles all official government documents and transactions for students, faculty and staff, including passport custody, medical test assistance, 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.

For immigration issues, contact government_relations@aus.edu. For international students issues, contact ois@aus.edu. For further information, visit www.aus.edu/govermentservices.

Hairdresser

A beauty salon is located in the Women's Welcome Center, and a barbershop is located in the Student Center.

ID Cards

Students must carry their IDs at all times and have them available upon request. ID cards must be validated by the Public Relations Department every semester (including summer term) to avoid charges. The Public Relations Department also issues AUS ID cards for faculty, staff and their dependents.

Laundry

Regular and dry-clean laundry services are available on the west and east sides of campus near the faculty housing.

Lost and Found

The lost and found is located at the Student Center reception desk. Lost and found items are held for a specific period of time. After the holding period expires, the procedure for disposing unclaimed items takes effect.

Mail

AUS provides a full-service post office on the ground floor of the Main Building. Mail is sorted daily in the post office and distributed to all offices. 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
PO Box 26666
Sharjah, UAE

Mini-Marts

Two Sharjah Cooperative Society mini-marts provide 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

Parking lots, free and paid, are provided for faculty, staff, students and visitors. Vehicles must be registered with the Public Relations Department/Security Division/AUS Parking Services located on the mezzanine floor of the Main Building, office MM33. Once the vehicle is registered, a car-parking sticker is issued. Faculty, staff and students using rented cars or using cars on a temporary basis, as well as visitors, are issued temporary permits. AUS parking stickers should always be visibly displayed on the car's windshield. These stickers must be renewed during the first two weeks of every academic year.

Parking regulations and details on issuing car stickers are posted at www.aus.edu/parking. The university reserves the right to make changes in urgent situations without any prior notice.

Pharmacy

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

Safety

The Safety Enforcement Division, part of the Public Relations Department, is located on the mezzanine floor of the Main Building. This division provides information on occupational safety and health hazards, and promotes a safe and healthy environment on campus. The Safety Enforcement Division can be contacted at safety@aus.edu. More information on the services and responsibilities of the Safety Enforcement Division is available at www.aus.edu/safety.

Security

The Security Division, part of the Public Relations Department, is the recognized law enforcement agent on campus. It monitors security on the entire campus, including the 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.

The Security Division is located on the mezzanine floor of the Main Building and can be contacted at aus_security@aus.edu. For more information on the Security Division's services, please refer to www.aus.edu/security.

Transportation

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

Travel

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.

Facilities and Resources

Architecture, Art and Design Facilities

Beginning with the freshman year, College of Architecture, Art and Design (CAAD) students benefit from open studios and robust, state-of-the-art facilities. Students accepted into the second year have dedicated individual worktables and computer workstations with network connections. Dedicated ancillary spaces, which are shared by all curricula, include an exhibition gallery, lecture hall, digital classrooms and closed network studios, high-end Macintosh and Intel-based labs, and comprehensive printing facilities. For CAAD students and faculty, there are Lighting, Photography, Sound and Print labs, an Interactive Lab, and a new Materials Lab and Library. Facilities cover the history of making —from clay to new materials and techniques that comprehensively span the use of the hands and hand-tools to mechanical and digital fabrication. The Digital Fabrication Lab is among the most advanced university facilities internationally.

Computer Learning Resources

The Information Technology (IT) Department serves the computer-related administrative, instructional, technical and research needs of students, faculty and staff. It also acts as the university's gateway to the Internet for academic purposes. Services provided include email accounts and passwords, online courseware (Blackboard), wireless and local area networks and telephone services.

All classrooms are networked and 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.

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.

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.

Development and Alumni Affairs

The Office of Development and Alumni Affairs (ODAA) fosters relationships between AUS and its alumni by providing opportunities for mutual involvement that contribute to the missions and interests of both. Since many of the alumni are situated within the neighboring community, the ODAA also seeks to publicize the university's programs, goals and achievements to the off-campus community, including alumni, parents and interested friends of the university.

The ODAA promotes a spirit of unity and of possible collaboration among current and former students on current as well as future projects. The alumni are valuable assets, and they are provided ways to aid in the further development of the university by drawing on their knowledge, skills,

financial resources and their sense of deep loyalty to their alma mater.

The ODAA enhances the financial wellbeing of AUS by raising contributions for the AUS Endowment Fund and establishing fruitful contacts and mutual collaborations with the wider community, which in turn enhances the visibility of AUS and its stature in the UAE and beyond.

The ODAA also offers students and alumni comprehensive career services. It works closely with industry in the UAE and the region to promote interaction between potential employers and AUS students and alumni. It organizes corporate briefings, the AUS Business Forum, the annual Alumni Reunion and the annual Career Fair, and provides information on job opportunities, internships and summer employment. The ODAA has a career resource library and an up-to-date database of AUS alumni and employers in the UAE and Middle East.

For more information on the ODAA, please visit www.aus.edu/odaa, or contact Dr. Nada Mourtada-Sabbah, Vice Chancellor for Development and Alumni Affairs, 06 515 2547, vcda-office@aus.edu.

Laboratories

Engineering and Computing Laboratories

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

Chemical engineering laboratories focus on unit operation, software, corrosion, environmental, petroleum, water, materials, fluid flow and heat.

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

Computer science and computer engineering laboratories relate to programming, digital systems, microprocessors, very large scale integration (VLSI), embedded systems, industrial computer applications, computer networks, software engineering, operating systems and databases.

Electrical engineering laboratories focus on electronics, electric power, control, measurements, machines, communications and signal processing, nondestructive testing and medical electronics.

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

The various departments share eight computer labs with more than 230 stations. All labs have dedicated lab instructors and engineers. Additionally, all engineering facilities offer wireless connectivity.

Interpreting and Translation Laboratory

The Department of Arabic and Translation Studies has a purpose-built interpreting facility. It features simultaneous interpreting booths, a consecutive interpreting table, Internet access and equipment for simulated video teleconferencing. The department also has another lab, which is equipped with machine translation software, TRADOS and other relevant software, including Internet-based, needed in language engineering as well as subtitling.

Mass Communication Laboratories and Studios

Students in the Department of Mass Communication benefit from high-tech digital classroom labs with Mac and PC computer stations featuring graphic design, desktop publishing, video effects, video editing and multimedia software. The Mass Communication TV Studio is an excellent facility that is dedicated to the development of student media skills. The studio consists of four digital wide-screen cameras, a wide-screen digital video mixer and a digital audio mixer. A variety of sets can be created quickly, including a broadcast news set.

Science Laboratories

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, glove box, 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, TOC, HPLC equipment and a 400 MHz Bruker Biospin NMR machine. The physics laboratories are supplied with up-to-date standard equipment, including computer interfaces, motion sensors, current sensors, voltage sensors, magnetic field sensors, linear air tracks, photogates, smart timers, projectile launchers, ballistic pendulums, rotational systems, digitometer, electric field mappers, current balance apparatus, signal/function generators, oscilloscopes, a 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, X-ray machines, a Millikan oil drop apparatus, heat engines/gas law apparatus, a thermal expansion apparatus and an adiabatic gas law 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, a gel documentation system, a UV trans-illuminator, refrigerated microcentrifuges, a trans-blot semi-dry transfer apparatus, a gel dryer, CO2 cell incubator, -80 °C freezer, a tissue homogenizer, and a thermocycler for DNA amplification.

Library

The AUS Library, an 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 collection of 125,000 items is 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 hands-on information literacy classes to teach students research skills. 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 at http://library.aus.edu.

Strategic Communications and Media Department

The Strategic Communications and Media Department is responsible for developing, overseeing and implementing a comprehensive communication strategy for AUS. The

communications plan is aligned with the university's vision, mission and strategic directions and is designed to achieve AUS's short- and long-term objectives by successfully targeting and communicating with key university audiences and core constituencies. The department works closely with the institution's leadership to advance AUS's local, regional and international positioning aspirations; actively support all aspects of its institutional advancement agenda; solidify its current favorable public image; efficiently manage its media, print and electronic communication tools; successfully engage internal and external constituents; ensure campus-wide communications discipline; and create a culture of collaborative production and effective dissemination of quality information.

Research and Grants

AUS supports and promotes the research and consulting activities of its faculty members. In addition, AUS offers its students opportunities to work on faculty research projects, to present papers with faculty at international conferences and to assist faculty in developing research grants.

AUS upholds its ethical and legal responsibility to administratively review all proposed research projects involving humans or animals 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; research involving animals must be approved by the Animal Care Committee.

For further information on the university's research and grant opportunities, please visit the AUS website.

Research Centers

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 hazards 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 retrofitting; analysis and design of earthquake-resistant structures; evaluation of local site effects; preparation of macrohazard and microhazard zonation 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.

Institute of Materials Systems

The Institute of Materials Systems (IMS) was established in 2001 based on the recommendations of GCC Ministers for Public Works and Housing to promote materials research and education. It collaborates with governmental and private sectors in areas of materials research and applications, focusing on quality control, performance, sustainability, development and use of standard procedures, and quality assurance materials used in the region. Objectives of the institute are to conduct applied 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.

Mechatronics Center

The Mechatronics Center leads research and development in advanced engineering systems to address high-tech technology transfer in the region. It promotes multidisciplinary research activities between faculty members and graduate students at AUS, and industry and governmental agencies that require extensive integration of instrumentation, control systems, electronics, intelligent software and computers. The Mechatronics Center offers excellent networking opportunity with leading industries in the region as well as top academic institutions worldwide. Areas of expertise within the center include embedded and distributed process control, remote monitoring, nonlinear and intelligent control systems, robotics and autonomous systems, unmanned vehicles and machine vision.

Testing and Professional Development Center

The AUS Testing and Professional Development Center serves as a central point of testing for both the AUS campus and the community. The center accommodates the placement tests for newly AUS admitted students as well as university testing. The center is part of the ETS Strategic Testing Network and offers the ETS Internet-based TOEFL as well as an institutional paper-based TOEFL in addition to other testing services.

AMIDEAST, one of the region's most prominent international testing administrators, is an AUS testing partner and has a permanent office on the AUS campus to administer TOEFL tests (paper-based) on a regular basis, as well as other recognized international tests.

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 through providing preliminary physical examinations to all students and employees as a mandatory part of registration/employment process, followed by continued quality care throughout their time at AUS.

The UHC is staffed with a highly qualified medical team, which includes general practitioners, a clinical counselor and 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. The UHC has access to an on-campus laboratory and pharmacy to assist in serving the AUS community.

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, smoking cessation and healthy eating.

Health Insurance Plans for Students

As part of the registration procedures, every undergraduate student must enroll in one of two health insurance plans by visiting the University Health Center and completing the necessary paperwork. Undergraduate students who fail to come to the UHC prior to the semester deadline and complete insurance enrollment documents will automatically be placed on Plan I. Plan I is compulsory for AUS-sponsored undergraduate students but optional for others who are covered by private insurance (proof of coverage must be submitted to the UHC). Plan II is compulsory for all undergraduate students who are not enrolled in Plan I. For more information on the health insurance plans, visit www.aus.edu/healthcente.

University Sports Complex

The Sports Complex facilities include indoor sports courts (basketball, tennis, squash and volleyball), multipurpose halls and exercise and gymnastic 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, table tennis and martial arts events; outdoor courts (tennis, volleyball and basketball); a soccer field; a cricket ground; a cricket practice net; and a baseball field.

The AUS athletic facilities are available for the benefit of the entire AUS community. The Student Athletics and Recreation Department fosters the continuing development of collegiate sports in the UAE through organizing and hosting athletic championships, symposia and training in sports and fitness. Students, staff and faculty members are entitled to free participation, regardless of their abilities, in a variety of sports and leisure activities including fitness training, football, basketball, badminton, handball, volleyball, table tennis, tennis, squash, track and field games, martial arts and other athletic pursuits.

Details on the AUS athletic facilities are available in the *Student Handbook* and at www.aus.edu/osa/athletics.

Student Life on Campus

Code of Conduct

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 (OSA) establishes and enforces those rules and regulations. The full text of the Student Code of Conduct is provided in the *Student Handbook* and at www.aus.edu/osa/codeofconduct.

As part of OSA, Judicial Affairs is responsible for educating students about their rights and responsibilities, creating awareness within the AUS community about the Student Code of Conduct, and implementing the code in a fair and consistent manner. 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 A254–256 and 233–234.

Judicial Affairs also offers mediation services, which assist students in resolving conflicts through mediation. Students are trained in mediation and awarded a certificate on successful completion of mediation sessions.

For more information, please refer to the *Student Handbook* or visit www.aus.edu/osa/judicialaffairs.

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 through charity, awareness and outreach programs. 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 (office A222), call 515 2794 or email osacom-services@aus.edu.

Cultural Events

Drama performances and musical events, ranging from classical and regional to jazz and rock, are brought to campus through the Cultural Events Committee. For more information, visit www.aus.edu/events.

Office of Student Affairs (OSA)

The Office of Student Affairs is responsible for making student life interesting and noteworthy at AUS. Student Affairs transforms student life with a purpose, engaging students in activities outside the classroom. OSA offers non-academic student support services and state-of-the-art facilities that enable students accomplish their personal and educational goals. Students are engaged in diverse programs, activities and events and provided services through Student Athletics and Recreation, the Student Clubs and Organizations Office, the Community Services Office, the Student Employment Office, the Student Multicultural Learning Program, the Student Leadership Program, Student Residential Life, Student Learning and Counseling Services, and Judicial Affairs. More information on Student Affairs is available at www.aus.edu. You can also visit the Office of the Vice Chancellor for Student Affairs (M-217 on the Second Floor of the Main Building), call 06 515 2166 or email studentaffairs@aus.edu.

Residential Life

The main objective of the Student Residential Life Department of OSA 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 residential halls also offer resident students part-time employment opportunities. Students are selected semester-wise for two positions: desk attendant and resident assistant. These jobs provide students with a chance to gain valuable work experience and also develop their communication and leadership skills.

Student Athletics and Recreation

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 in the Student Athletics and Recreation Department to help students develop team play, sportsmanship and healthy lifestyles. A variety of programs are available, featuring both team and individual sports, and fitness and leisure activities, which offer broad-based competitive and instructional programs for both genders. Details on the university's athletic facilities are available in the Student Handbook and at www.aus.edu/osa/athletics.

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.

In line with its continuous endeavor to foster collegiate sports in the UAE, the Student Athletics and Recreation Department offers students the opportunity to participate in intercollegiate athletic championships, symposia and training courses it organizes and hosts.

Student Center

The Student Center plays an important role in the extracurricular life at the university by serving as a central hub for student activities. It is primarily dedicated to serving the cultural, social and recreational interests of the student body as well as to providing students with a comfortable and inviting atmosphere to unwind.

The Student Center is more than just a place for students to socialize and relax; the Student Development and Organization Department's (SDOD) offices are located at the center to provide students with non-academic support services and facilities under one roof. Student Center provides a wide array of amenities and facilities. These include an information desk, a meeting room, club offices, lounges, and a multipurpose room.

SDOD manages the Student Center facilities and all events and activities that take place at the center throughout the year.

Student Council

His Highness Sheikh Dr. Sultan Bin Mohammad 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. For information, please see the *Student Handbook* or visit www.aus.edu/osa/studentcouncil.

Student Development and Organizations Department (SDOD)

Student Development and Organizations Department (SDOD) promotes student intellectual growth, skills and all-round personality development by engaging them in multicultural programs, registered student organizations, volunteer programs, student employment, and varied events and activities locally, regionally and internationally. SDOD offers resources and services that aid student participation and development and builds university reputation through student achievements. For more information, please see the Student Handbook or visit www.aus.edu/osa/studentorganizations.

Student Employment

Opportunities for on-campus employment are available to all AUS students. Students may work no more than 15 hours per week (60 hours/month). Students may work for 40 hours per week (160 hours/month) during academic breaks and summer terms only. 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 voluntarily off-campus during exhibitions and important events in UAE. Further information on all campus employment opportunities is available through the Student Employment Office located in the Student Center (office A223).

Student Leadership Programs

The Student Leadership Program (SLP) fosters ethical leadership and offers a wide range of opportunities that develop students' leadership, personal and communication skills and prepares them for a lifelong commitment to leadership and citizenship. The Student Leadership Program offers various leadership enrichment programs such as Peer Leaders Program, Civic Leadership and Responsibility Program, Emerging Leaders Program, Special Function Leaders Program, Student Training and Workshop Series and Women Leadership and Enrichment Program. SLP engages students in local, regional and international conferences and Model United Nations programs that aid in the development of character, public speaking skills, confidence, mindset and overall leadership capabilities. The Student Leadership Program is located in the Student Center, First Floor, A249, 250 and A239. For more information visit www.aus.edu/osa/leadership_program, email osaslp@aus.edu or call 515 4772.

Student Multicultural Learning Program

The Student Multicultural Learning Program is for students to gain firsthand knowledge of cultural diversity and expand their understanding of the cultural, historical and sociological backgrounds of the UAE and of other countries around the world. Besides cultural diversity, students also learn about diversity in business, government, politics and lifestyle that exist in other societies around the globe. For more details visit www.aus.edu/osa.

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 Development and Organizations Department is the central support for the numerous student organizations on campus. Its role includes supervising and providing assistance with program planning and implementation. The student organizations at AUS span a wide range of interests, including sports, music, literature, recreation, culture and social issues. There are also many cultural/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 www.aus.edu/osa/studentorganizations.

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

Student Publications

Practical writing experience is available to AUS students through three student publications, the *Leopard*, *Realms* and *Arabian Leopard*. Students interested in contributing to or working on these publications should contact the Student Development and Organizations Department for further information.

The *Leopard* Newspaper: "A Reason to Roar": The *Leopard* is an official university newspaper and a voice of AUS students. 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.

Arabian Leopard: The *Arabian Leopard* newspaper gives students the chance to develop and proudly present their Arabic writing skills and creative writing.

Students with Physical Challenges

Student Learning and Counseling Services provides assistance to AUS students who are physically challenged. Students who need further information should contact Student Learning and Counseling Services in the Student Center (offices A202–207) or call 515 2732. Please also refer to the Academic Support Center section.

Student Educational Services

Academic Support Center

This center provides students assistance in academic matters through group and individual advising. The center works directly with students on academic probation, and students with other academic difficulties, such as students with physical challenges that impede academic progress, or students with specific learning disabilities (also refer to Students with Physical Challenges above).

The center offers advising for students concerning majors, career paths and career interests in relation to their academic programs.

The center supports the mission of the university by coordinating and tracking student retention and the progress of first-year students.

Cisco Academy

AUS hosts a Cisco networking academy in the College of Engineering. The academy trains students and professionals to design, build and maintain computer networks and prepares them for industry-standard certification. For more details, see the College of Engineering section of this catalog or visit www.aus.edu/cen/cisco or email ciscoacademy@aus.edu.

International Exchange Programs

The International Exchange Office works with AUS students who wish to study at universities in other countries either for a semester or a year. The office also facilitates the admission of international students coming to AUS to study.

For more information on exchange students' admission to AUS, please see the Exchange Student Admission section in Admission to Undergraduate Studies later in this catalog.

For information on study abroad opportunities for AUS students, please see the section entitled AUS Students Studying Abroad under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

In addition to facilitating student exchanges and study abroad, the International Exchange Office also administers processes enabling faculty-led study tours, visiting scholars, visiting guests and delegations, tuition exchange programs, and the dissemination of information regarding international scholarships and internships.

Learning and Counseling

Student Learning and Counseling Services (SLCS) offers support services to enhance the success of students. These services include assisting with academic growth, educational and career goals, problem solving, decision making, understanding and appreciation of oneself, and interpersonal relationships.

Counseling 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 or by visiting the SLCS on the first floor of the Student Center. For more information, please email SLCS on lcs@aus.edu.

Student Learning and Counseling Services offers a variety of services to students, including, personality/WAIS-III, IQ, Insight Inventory, Dyslexia Adult Screening Test (DAST), Brown Attention Deficit Disorder Scale (BADDS), Dyscalculia Test and Dyscalculia Guidance for testing Mathematic Anxiety, and mental/behavioral testing. Students may choose to include any member of their family or other significant persons in the process.

Services offered by SLCS include:

Counseling

Counselors work with students to explore any academic or personal problems or concerns they may be experiencing. Examples of common issues that bring students to SLCS 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. Students who have been counseled at home or off-campus may wish to continue with counseling at the university.

SLCS provides different types of counseling services: individual counseling, group counseling, couples counseling, crisis counseling, family therapy and personality testing.

SLCS also offers private consultation for students, faculty members and staff members who would like advice about how to help a student through a difficult time.

In addition to direct counseling, counselors can also provide referral information to students.

Self-Help Resources

SLCS 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, and test-taking strategies.

Student Workshops

Workshops are conducted throughout the academic year on topics such as time management, study skills, communication skills, anxiety and stress management, anger management, and eating and body image concerns. Workshop topics and dates are advertised around campus, or students can call to learn about future workshops. Students are encouraged to contact SLCS with ideas for future workshops.

Mathematics Learning Center

The Mathematics Learning Center (MLC), located in the New Academic Building room NAB 239A, provides one-on-one tutorial sessions for students enrolled in all 100-level mathematics courses. Student may drop in for consultation during the weekly scheduled sessions to seek understanding of certain course-related concepts. Consultation does not cover specific homework, or project-related questions. For some of the above courses, the MLC also offers review sessions prior to exams. Math tutorials for remedial and 100-level math courses are available on iLearn. Students can submit their math questions by email through iLearn and schedule appointments with tutors. For more information about MLC, visit http://www.aus.edu/cas/doms.

Writing Center

The AUS Writing Center, located on the first floor of the AUS Library building and in the new School of Business and Management building (room SBM 176), helps students become independent, confident writers. Available to all AUS students, the Writing Center offers one-on-one writing conferences by appointment or on a drop-in basis. Consultations may include thesis development, organization, outlining, paragraph development, vocabulary, sentence structure and mechanics. Students may visit the Writing Center to work on 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. For more information, visit www.aus.edu/cas/writingcenter.



Achievement Academy

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The Achievement Academy is composed of three units: the Bridge Program, Testing Services, and the Professional Development and Outreach Program.

The Bridge Program is a comprehensive, multifaceted university preparation program to act as a transition between high school and university studies. It is a holistic, content-based, outcome- and standards-driven English language acquisition and university preparation academic skills program. Students also receive instruction in content-based courses such as math and physics (for science students) designed to prepare them for exit exams from current required preparatory courses.

Testing Services is a licensed site for TOEFL testing (both paper- and Internet-based) as well as other international tests for proficiency and certification.

Professional Development offers on-site as well as workplace-based training and workshops to enhance professional competency in a number of fields.

The Outreach Program conducts courses in general English, TOEFL preparation, workplace English and business English on the AUS campus and throughout the UAE. The program establishes partnerships with various community organizations in order to provide educational opportunities for individuals who wish to further develop their English and personal and professional communication skills.

Bridge Program

Mission Statement

The Bridge Program in the Achievement Academy at American University of Sharjah will improve student readiness for matriculation into their majors and for the rigors of an academic program of study in higher education. The program works with students to increase their language proficiency to a level suitable for study in courses taught in English; to improve students' analytical, reasoning and problem-solving skills in math and physics (as applicable) to ready them for university math and physics courses; and to enhance students' personal, academic and study skills to maximize the likelihood of success in their university experience.

For information on the Bridge Program, please contact:

Achievement Academy
American University of Sharjah
PO Box 26666
Sharjah, United Arab Emirates
Tel +971 6 515 2653 or 2654
Fax +971 6 515 2638
academy@aus.edu

Admission and Placement

Admitted AUS students who score below 71, but above 37, on the TOEFL may study in the Bridge Program. Those who score below 37 have the option to enroll in a special program to raise their score to 37 or above so that they may enroll in the Bridge Program. Registration in the Bridge Program levels is determined by TOEFL and placement test scores.

Program Structure

The Bridge Program offers two levels of English language study, math, physics and university preparation courses. English courses include integrated instruction in reading, writing, grammar, listening, speaking and Test of English as a Foreign Language (TOEFL) training. Math and physics courses prepare students for university-level courses in those subjects. The university preparation courses include topics such as time management, note-taking, research methods, public presentations, critical thinking, problem solving, adapting to university life and developing personal skills. Students study the following per week: English, 15 hours; math (or physics, if required), 3–5 hours; university preparation, 3 hours; and Learning Enhancement Center (LEC) to reinforce learning, 3 hours. Physics and math may not be taken in the same semester in the Bridge Program.

Learning Enhancement Center

Students spend at least three hours per week in the Learning Enhancement Center (LEC) working on remedial activities, assignments, reading, homework and independent studies. All LEC work is recorded and kept in portfolios, which is worth five percent of the course grade. The Learning Enhancement Center has a wide variety of supplementary material and provides tutoring and workshops.

Academic Integrity

Students are expected to complete their own assignments and write their own quizzes and examinations. Students found guilty of academic dishonesty will receive a failing grade on the assignment, quiz or examination, and may be reported to the administration for further disciplinary action. All Bridge Program students should refer to the AUS Student Academic Integrity Code found in the Academic Policies and Regulations section of this catalog.

Attendance and Lateness

Bridge Program students are required to follow the university attendance policy. For more information on the policy, please see the Attendance and Lateness section in the Academic Policies and Regulations section of this catalog.

Course Withdrawal

Withdrawal from Bridge Program courses follows the undergraduate course withdrawal policy. Please see the Course Withdrawal section under Academic Policies and Regulations later in this catalog.

Evaluation and Promotion

Promotion within the Bridge Program is based on grades (which reflect class performance), scores on the mid-term and final exams, and teacher recommendations. Upon passing, students are promoted to the next level.

Duration

The length of time required to satisfy the program requirements varies with each student's linguistic background, capabilities and effort. Successful completion of the program could take as long as two semesters and one summer session.

Bridge Program Credit Hours

Except for the UPA 200 course, all courses taught in the context of the Bridge Program are for credit. For information on course credits and course credit hours distribution, please refer to the Bridge Program's course descriptions. After matriculation, grades earned in courses completed within the context of the Bridge Program count within the student's undergraduate cumulative GPA (CGPA). Credits earned in Bridge Program courses do not count toward a student's undergraduate graduation requirements.

Repeating Courses

A student may repeat any course, pending seat availability, up to two times. Only the last entry of the repeated course is counted in the calculation of the cumulative GPA.

Exit from the Bridge Program

Students begin studies in their major courses in the semester after they satisfy both of the following criteria:

- 71 or above on the Internet-based TOEFL (iBT)
- pass all Bridge Program courses and satisfy all program requirements

Students may study in the Bridge Program for a maximum of two semesters (plus the summer term if necessary). Students who have not matriculated after two semesters plus summer term may be disallowed from continuing their studies in the Bridge Program.

Course Descriptions

ELP 100 English Language Preparation 100 (15-3-2). Focuses on comprehending and producing English at an intermediate level. Emphasizes reading modified academic texts, writing academic-style paragraphs, comprehending spoken English in academic settings and speaking at an intermediate level. Develops students' ability to take notes from short, modified academic lectures, express opinions and give short presentations. Builds skills needed to improve TOEFL scores to at least 480 (or 55 iBT).

ELP 100C English Language Preparation 100 (Contract) (12-6-3). Provides one semester of reinforced English comprehension and production at an intermediate level for students who require additional study. Aims to develop students' academic reading and writing skills. Develops the ability to take notes from short, modified academic lectures, express opinions, and give short presentations. Students will spend a minimum of three hours per week in the computer lab working on a variety of assignments, including writing, grammar and vocabulary. Builds skills needed to improve TOEFL scores to at least 480 (or 55 iBT). Graded as Pass/Fail.

ELP 200 English Language Preparation 200 (15-3-3). Focuses on understanding and producing English at an upper-intermediate level (university entry). Emphasizes reading, listening to, and discussing academic and literary texts and lectures. Enhances skills in writing summaries of texts, paragraphs and basic essays in response to the material and topics covered. Develops students' ability to understand complex ideas in texts and lectures, to apply critical thinking and to prepare for university situations. Builds skills needed to improve TOEFL scores to at least 530 (or 71 iBT).

ELP 200C English Language Preparation 200 (Contract) (12-6-3). Provides one semester of reinforced English comprehension and production at an upper-intermediate level (university entry) for students who require additional study. Aims to develop students' academic reading and writing skills. Focuses on reading, listening to, and discussing academic and literary texts and lectures as well as building ability to write summaries of texts, paragraphs and basic essays in response to the material and topics covered. Enhances understanding of complex ideas in texts and lectures, critical thinking and preparation for university situations. Builds skills needed to improve TOEFL scores to at least 530 (or 71 iBT). Graded as Pass/Fail.

UPA 100 University Preparation (3-0-1). Focuses on developing a positive attitude toward study at university and providing the skills necessary for success in all classes. Stresses goal setting, time management, and specific study skills such as note-taking, memorization, critical thinking and accessing the library for academic research purposes. Designed for Bridge Program students.

UPA 200 University Preparation for Non-Bridge Program Students (3-0-0). Focuses on developing a positive attitude toward study at university and providing the skills necessary for success in all classes. Stresses goal setting, time management, and specific study skills such as note-taking, memorization, critical thinking and accessing the library for academic research purposes. Designed for matriculated students on Academic Probation I. Graded as Pass/Fail. Registration fee applies.

Admission to Undergraduate Studies

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, provided seats are available.

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.

All inquiries, requests for admission application forms and subsequent correspondence should be addressed to:

American University of Sharjah
Office of Enrollment Management
Undergraduate Admissions
PO Box 26666
Sharjah, United Arab Emirates
admission@aus.edu
www.aus.edu/admissions/

Freshman Admission

Minimum Admission Requirements

The university's minimum admission requirements depend on the applicant's type of secondary education program and certificate. For non-vocational certificates only subjects classified as academic are accepted for admission consideration and the calculation of averages.

Admission to the university is competitive, and the actual required minimum average for admission consideration and to guarantee a seat will depend on:

- secondary education certificate or school average
- SAT scores (as applicable)
- number of qualified applicants
- number of available seats

The minimum required average for accepting an application is the equivalent of 80 percent or more in the final year (national exams only) of secondary education, or 80 percent or more in the best two out of the last three years. Other program-specific requirements or restrictions may also apply.

Furthermore, applicants must obtain a score of at least 71 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 required TOEFL score but who otherwise meet AUS admission standards may be admitted to the Achievement Academy/Bridge Program at AUS. For information on matriculation into the chosen field of study after studying in the Bridge Program, please refer to the Exit from the Bridge Program section under the Achievement Academy/Bridge Program section.

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

Secondary School Certificates

Recognized Secondary School Certificates

AUS recognizes secondary school certificates awarded either by ministries of education or by private secondary schools and institutions that are recognized by their host countries. 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

Following is a list of some common certificates and the corresponding minimum levels of performance required for accepting an application at 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.

- **National General Secondary School Certificates (Arts or Science):** minimum required average is the equivalent of 80 percent or more in the final year national exam, or 80 percent or more in best two years
- **American-style High School Diploma:** minimum 3.0 CGPA (or equivalent) on a 4.0 scale (only subjects classified as academic are considered in the calculation of the CGPA). SAT scores are also required.
- **International Baccalaureate Diploma (IB):** must complete any six subjects, with at least three at the higher level
- **Lebanese Baccalaureate:** obtaining the baccalaureate
- **French Baccalaureate or equivalent:** obtaining the baccalaureate
- **Pakistani Board(s) Certificates:** Higher Secondary School Certificate (Part II) required
- **Indian Board(s) Certificates:** Senior Secondary School Certificate (12th Standard) required
- **Iranian Certificate:** completion of pre-university year required
- **German Abitur:** minimum average of 3.0 required
- **IGCSE, GCSE, GCE:** For applications to be accepted for admission consideration, applicants must submit a minimum of eight different IGCSE/GCSE and/or GCE subjects with four C grades and four B grades, or higher. However, priority in admission consideration and the selection of majors will be given to applicants who meet the following criteria:

  1. Have completed 12 years of schooling; School Leaving Certificate must be provided showing last grade (year) completed.
  2. Have completed GCE advanced supplementary level (AS-level) and/or advanced level (A-level) subjects.
  3. Have the highest grades.
  4. Subjects must be from at least four different subject groups. Also, only subjects classified as academic by AUS (including arts and creativity subject group) will be accepted for admission consideration.

Program Admission Requirements

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

- Literary Certificates: Holders may be admitted to the College of Arts and Sciences (except for the biology, chemistry, environmental sciences and mathematics majors), the College of Architecture, Art and Design (except for the architecture and interior design majors) and any major offered by the School of Business and Management.
- Scientific Certificates: Holders may be admitted to any major in any of the colleges/schools.
- 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. For example, the holder of a technical secondary certificate in electricity may apply to electrical engineering.

Advanced Standing Credit Transfer

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 freshman-level courses. The complete transfer policy is available from the Office of Enrollment Management/Undergraduate Admissions.

Applicants must submit a copy of their original secondary school certificate attested by the UAE Ministry of Education along with the subjects' descriptions to the Office of the Registrar no later than the early registration of their second semester of study at AUS. Applicants who submit their documents before their first semester of study will have their documents evaluated toward credit transfer as well as exemption from appropriate placement tests. More information on placement tests is provided in the following section.

Pre-entry Requirements for Freshman Students

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.

Taking the Writing Placement Test is mandatory for all students admitted to the freshman year. Advanced standing and transfer students granted credits for writing courses are waived from taking the Writing Placement Test.

Students who do not sit for the placement tests (with the exception of the Writing Placement Test) will be required to complete the corresponding preparatory course.

Advanced standing and transfer students may be exempted from taking certain placements tests depending on subjects/courses completed and grades earned.

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., MTH 00X, PHY 00X, WRI 00X). The course's final grade counts toward the cumulative grade point average, but the course's credits do not count toward graduation requirements. 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).

Transfer Admission

Admission Requirements

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

- They are in good academic standing (i.e., not on probation or dismissed from the institution from which they are transferring).
- They achieved at their institution a minimum cumulative grade point average (CGPA) as required by AUS for that type of institution.
- They are transferring from recognized and accredited institutions of higher education offering learning experiences equivalent to those offered at AUS and have successfully completed one or more semesters at their institutions.

Required Placement Tests

Majors	Placement Test				
	Engineering Math	Business Math	Architecture Math	Physics	English
English Language and Literature/Mass Communication	No	No	No	No	Yes
Biology/Chemistry/Environmental Sciences/Mathematics	Yes	No	No	Yes	Yes
International Studies	No	No	No	No	Yes
International Studies (International Economics Concentration)	No*	Yes*	No	No	Yes
Architecture/Interior Design	No	No	Yes	No	Yes
Design Management/Multimedia Design/Visual Communication	No	Yes	No	No	Yes
Business Administration (all majors)/Economics (BA)	No	Yes	No	No	Yes
Computer Science	Yes	No	No	Yes	Yes
All engineering majors	Yes	No	No	Yes	Yes
Undeclared Major	**	**	**	**	**

** Students with a declared concentration in international economics must take either the business math placement test or the engineering math placement text.*

*** Students with undeclared major should take all the placement tests of their intended major.*

Note: The appropriate placement test(s) must be taken before a student can enroll in the corresponding first-year course.

- Prior to their admission to the institutions from which they are transferring, they met the AUS requirements for admission.
- They meet the English language proficiency requirements of AUS. TOEFL may not be required for students studying at a four-year university in North America where English is the medium of instruction.
- 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.

Pre-entry Requirements for Transfer Students

Depending on credits transferred, transfer students might need to sit for certain placement tests. Please check the information on Pre-entry Requirements for Freshman Students earlier in this section for details on placement tests and preparatory courses.

Transfer of Credits

Transfer applicants from two-year community colleges in North America and 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 from which the applicant is transferring.

Courses completed more than five years prior to matriculation as an undergraduate student at AUS are not transferable.

No more than 50 percent of the credits required to earn a degree from AUS may be transferred from another institution. In addition, transfer students must satisfy the university's graduation residence requirements as outlined in the Academic Policies and Regulations section of this catalog.

Grades earned on a transferred course do not transfer and will not be used to calculate the student's cumulative grade point average (CGPA). The transfer course(s) could be used to satisfy registration and graduation requirements where applicable.

Transcripts of transfer students will be evaluated only once. Transfer students have to submit their official transcripts, syllabi and requested work samples to the Office of Enrollment Management/Undergraduate Studies by the dates specified in the Transfer Applicants Deadlines section later in this section of the catalog. 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, Inc. (www.abet.org).

Business administration courses will be transferred only from programs accredited by the Association to Advance Collegiate Schools of Business (AACSB) or from universities approved by the School of Business and Management.

Files completed by the transfer applicants' deadlines will be evaluated, and students will be awarded transfer credits, as applicable, before the first day of registration of the student's first semester at AUS. Students will receive email notification of their transferred credits by the Office of the Registrar. Files not completed by the deadline may be evaluated during the first semester at AUS. No transfer of credits will be awarded beyond the first semester.

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 by the appropriate academic division at AUS. The Office of the Registrar maintains and updates the transfer students' records. The complete transfer policy is available from the Office of Enrollment Management/Undergraduate Admissions.

Applicants with Physical Challenges

Depending on available facilities and the type of physical condition, the university may provide special services to applicants with physical challenges. Applicants with special needs are requested to contact the Office of Student Affairs at studentaffairs@aus.edu to determine if a specific service can be provided by AUS. This information will be treated confidentially.

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 freshman or transfer admission and must submit the corresponding application with all the required documents to the Office of Enrollment Management/Undergraduate Admissions by the assigned dates (see the section on Admission Deadlines).

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.

Non-degree students may enroll in any university course for which they have the necessary academic background and qualifications. They must register for courses through the Office of the Registrar. In courses with enrollment limits, priority is given to AUS students.

Early Freshman 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 and SAT scores (as applicable).

Early freshman 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.

Admission Deadlines

Freshman Applicants' Deadlines

All applications must be on file in the Office of Enrollment Management/Undergraduate Admissions by the following dates:

Fall Semester 2012

Early Admission Applicants

April 12, 2012

Regular Applicants:

From outside UAE: June 28, 2012

From inside UAE: July 12, 2012

Spring Semester 2013

Regular Applicants:

From outside UAE: December 13, 2012

From inside UAE: December 27, 2012

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

Transfer Applicants' Deadlines

All transfer applications along with materials for evaluation of transferable courses must be on file in the Office of Enrollment Management/Undergraduate Admissions by the admission deadlines listed below. Courses will not be evaluated for transfer until the official transcripts, syllabi and requested work samples are submitted.

Fall Semester 2012
June 7, 2012

Spring Semester 2013
December 20, 2012

Summer Term 2013
April 25, 2013

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

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 in 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 (AED) 5,000 and a residential hall room reservation deposit (if applicable) of AED 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.

Falsified Admission Documents

American University of Sharjah reserves the right to apply disciplinary actions, including revoking admission granted and dismissing a student from AUS, any time it is brought to the attention of the Office of Enrollment Management that a student submitted forged documents and provided false information to gain admission to the university.

Other Admission Categories

Exchange Student Admission

An exchange student is not formally admitted to American University of Sharjah but is allowed to take courses at the university in the context of a semester exchange program.

Students must first apply through the study abroad office at their home institutions. In addition, they must submit to the AUS International Exchange Office a complete online application, accessible through www.aus.edu/ixo/incomingexchange.

Exchange students register through the Office of the Registrar. They may enroll in any university course for which they have the necessary academic background and qualifications. In courses with enrollment limits, priority is given to AUS students.

Normally, a student is allowed to register as an exchange student for not more than one academic year.

For further information, please contact the International Exchange Office at ixo@aus.edu.

Visiting Student Admission

A visiting student is one who is not formally admitted to American University of Sharjah but is allowed to take courses at AUS for transfer back to the student's home institution. Visiting students are not registered in the context of a semester exchange program between AUS and the student's university. Visiting students should check with their home institutions about the transferability of AUS credits to their programs.

Applicants seeking visiting student status must submit to the AUS International Exchange Office a complete online application accessible through www.aus.edu/ixo/incomingvisiting and an official university transcript showing courses in progress at the time of application.

To secure seats in courses, applications should be submitted by April 15 for summer and fall enrollment and November 15 for spring enrollment.

TOEFL is required except for students studying at a four-year university in North America where English is the medium of instruction.

If the application is approved, registration is completed through the Office of the Registrar. Visiting students may enroll in any university course for which they have the necessary academic background and qualifications. In courses with enrollment limits, priority is given to AUS students.

Normally, a student is not allowed to register as a visiting student for more than one academic year.

For further information, please contact the International Exchange Office at ixo@aus.edu.

Transient Student Admission

Transient student status covers:

- those who have obtained their undergraduate or graduate degrees from AUS and have returned to take extra course(s) at AUS
- those who hold degrees from universities other than AUS and who want to take course(s) at AUS but not toward a degree
- AUS faculty/staff and spouses of faculty/staff who want to take course(s) for reasons other than seeking a degree.

Applicants seeking transient student status at AUS must submit to the AUS International Exchange Office the complete Transient Student Application available at www.aus.edu/ixo/incomingvisiting.

Transient students may enroll in any university course for which they have the necessary academic background and qualifications. They must register for courses through the Office of the Registrar. In courses with enrollment limits, priority is given to AUS students.

Normally, a student can register as a transient student for no more than one academic year.

For further information, please contact the International Exchange Office at ixo@aus.edu.



Academic Integrity

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, American University of Sharjah affirms the importance of respecting the integrity of individual work. The AUS Student Academic Integrity Code 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, AUS 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.

In order to establish within the AUS student body a sense of ethical responsibility, honor and mutual respect, upon matriculation every student will be asked to sign the following Academic Integrity Pledge.

I [student's name] pledge my commitment to the following values:

- *I will hold myself accountable for all that I say and write;*
- *I will hold myself responsible for the academic integrity of my work;*
- *I will not misrepresent my work nor give or receive unauthorized aid;*
- *I will behave in a manner that demonstrates concern for the personal dignity, rights and freedoms of all members of the community;*
- *I will respect university property and the property of others; and*
- *I will not tolerate a lack of respect for these values.*

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 (e.g., regarding such issues as collaborative work, use of study aids or take-home examinations, etc.). Students are also responsible for learning the conventions of documentation and acknowledgment of sources required in academic work.

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 categories.

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:

- doing work for another student
- designing or producing a project for another student

- willfully providing answers during an exam, test or quiz
- calling a student on a mobile phone while taking an exam and providing information
- providing a student with an advance copy of a test
- leaving inappropriate materials behind at the site of an exam or test
- 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.

Faculty members who wish to bring charges against students should do so through the dean (or appointed designee) of the college/school in which the alleged academic integrity code violation occurred. Students who wish to bring charges against other students must do so through the faculty member in whose course or academic activity the alleged academic integrity code violation occurred. The student who brings the charges must identify himself/herself to the faculty member.

Violations of the academic integrity code that involve admission and/or placement testing fall within the jurisdiction of an ad hoc committee that is called upon when such violations are reported and could result in the revocation of admission or dismissal from the university.

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. When the student is enrolled in another college/school, the dean who receives the notification will then notify the student's dean that the offense has occurred. Through this process, the university can monitor multiple occurrences of such errors of judgment by particular students.

2. Dean's Jurisdiction

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

   a. 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 college/school dean (or appointed designee).

   b. The college/school dean (or appointed designee) will promptly notify the student of the charge and will arrange a meeting to discuss the charge with the student. The dean (or appointed designee) will also notify the head 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.

   c. At the 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 working 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.

   d. 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.

   e. When appropriate, the dean hearing the case (or appointed designee) will gather additional evidence from the student, the complainant and other concerned parties before the adjudication process.

   f. After reviewing the charges and the evidence, the dean hearing the case (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 hearing the case, 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.

1. In assigning a penalty, the dean will take into account both the seriousness of the offense and any particular circumstances involved.
2. 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 or a lowered overall grade for the course

   d. a failing grade of XF 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. The student may not withdraw from a course in which an infraction has been found. No refund or cancellation of tuition fees will be permitted in such cases.
5. 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 as applicable. If consensus cannot be reached, the Provost or his/her representative will adjudicate.
6. Penalties (d)–(f) will become a permanent part of the student's file maintained indefinitely by the Office of the Registrar, with appropriate notation indicating that there has been a violation of the Student Academic Integrity Code.
7. The student may petition to replace the XF grade that resulted from a (d) penalty with an F grade at graduation or at complete withdrawal time. For details, please refer to Appeal of an XF grade under Student Petitions and Appeals.

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.

Suspension

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 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 hearing the case when the original action was implemented. The student will then need to submit the Reactivation Form to the Office of the Registrar. The form is available at www.aus.edu/registration/forms.

Courses completed outside AUS while on suspension do not transfer.

Dismissal

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 interest of maintaining the standards of behavior and conduct normally expected in a university community. In instances where the dean hearing the case has recommended dismissal, the Academic Appeals Review Committee will review the case and make a recommendation to the Provost.

A student who has been dismissed but who has not been denied the privilege of returning to the university later may apply for readmission through the Office of Enrollment Management/Undergraduate Admissions 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 admission requirements in effect at the time of readmission.

Courses completed outside AUS while on dismissal do not transfer.

Note: *The calendar year that must elapse before a Reactivation Form or 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.*

Notification of Penalty

The dean hearing the case (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 head of the department in which the case occurred and the student's dean if the student is enrolled in another college/school.

In addition to the above and for penalties (d)–(f), the following notification process will apply:

- For penalty (d), the dean hearing the case will inform the Office of the Registrar.
- For penalty (e), the dean hearing the case will inform the student's dean who will, in turn, notify the Office of the Registrar as well as the Vice Chancellor for Student Affairs and take the appropriate academic action.
- For penalty (f), the dean hearing the case must inform the Vice Provost for Undergraduate Affairs and Instruction in writing within five working days of the date of the notice. The Vice Provost for Undergraduate Affairs and Instruction will refer the case to the Academic Appeals Review Committee, which will review it and make a recommendation to the Provost. The Provost will inform the dean hearing the case, the Vice Provost for Undergraduate Affairs and Instruction, the Office of the Registrar and the Vice Chancellor for Student Affairs of the final decision.
- All academic integrity violations will be recorded in the university's academic integrity database maintained by the Office of the Vice Provost for Academic Affairs and Instruction.
- For record keeping of documents pertaining to the infringement of the academic integrity code, please refer to the appropriate section under Student Records herein.

Appeal of Penalty

In cases concerning notation to the student's record [penalties (d)–(f)], students will be notified in writing of their right of appeal. Appeals must be made in writing within five working 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 must be submitted to the Vice Provost for Undergraduate Affairs and Instruction. The Office of the Provost will review the appeal and may consult the case's written record, the appeal request and any person involved in the adjudication process. Following the review, the Office of the Provost 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.

Student Records

Custody of Records

All transcripts and other documents students submitted from other institutions at admission time or later are the property of AUS, and, as such, are part of the student record that is under the custody 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 cannot be returned to the student or forwarded to other institutions.

Student 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. The university allows, nevertheless, copy making of very specific documents included in a student's record. Copies of such documents will only be provided upon submission of a signed request from the student concerned. The request form is available at www.aus.edu/registration/forms. A nominal fee applies.
- request changes or updates to their personal data. Registered students are given access to update their emergency telephone/mobile contact numbers and their personal email address via the secured online student information system. For mailing address updates, an official request signed by the student concerned has to be submitted to the Office of the Registrar/Student Records section. The form is available at www.aus.edu/registration/forms.
- request non-disclosure, within the extent of UAE federal and local laws, of personally identifiable information from education records. The university reserves the right to disclose students' records to the immediate guardian of the student and to the private or public authority sponsoring the student. For further information on students' records, please check with the Office of the Registrar/Student Records section.

Academic Transcripts

A permanent record reflecting the academic achievements of each student who registers at the university (also referred to as a "transcript") is maintained by the Office of the Registrar. At the end of every semester, the Office of the Registrar issues updated transcripts for all the students who were registered for the semester. These transcripts are mailed to every individual student. These copies are not official and are only intended to update students on their academic achievement. Students may also access their transcripts through the secure online student information system. Students are encouraged to review their records online periodically.

Students may obtain copies of their academic transcripts at AUS from the Office of the Registrar. Transcripts will only be released with a signed request from the student concerned. The request form is available at www.aus.edu/registration/forms. A nominal fee applies. The university will issue only complete transcripts, not parts of the student record.

An explanation of the university's grading system is included in the Grades and Academic Standing section herein. A brief explanation is also provided on the back of every official transcript.

Records on Academic Integrity Code Violations

The retention of records on academic integrity code violations is governed by the following:

- In cases where penalties (a)–(c) were assigned: All records pertaining to the infringement of the code are maintained by the student's college/school. If the student does not graduate from AUS, the records are retained for five years after the student's last registration. If the student graduates from AUS, these records are destroyed by the college/school upon the student's graduation.
- In cases where penalties (d)–(f) were assigned: The notation indicating a violation of the Student Academic Integrity Code will become a permanent part of the student's file maintained indefinitely by the Office of the Registrar. Upon graduation, all records pertaining to the violation of the Student Academic Integrity Code that were maintained by the college/school will be transferred to the Office of the Registrar for permanent retention. If the student does not graduate from AUS, all records pertaining to violations of the academic integrity code will be retained by the college/school for five years after the student's last registration at AUS and then transferred to the Office of the Registrar for permanent retention.
- For tracking purposes, all violations are recorded on the university's academic integrity database maintained by the Office of the Vice Provost for Academic Affairs and Instruction.

Records on Student Academic Integrity Code violations maintained by the Office of the Registrar are subject to university regulations concerning the confidentiality of student records. Upon written request, students have the right to inspect their records related to violations of the integrity code.

Enrollment Verifications and Certifications

Students may need different types of official certificates pertaining to their academic record at AUS. These certificates must be requested from the Office of the Registrar using the request forms available at www.aus.edu/registration/forms. A nominal fee applies.

Registration and Course Information

Registration

Assessment

AUS administers standardized tests to assess student learning. Although individual test scores do not affect academic standing or appear on official transcripts, test results provide students with an opportunity to compare their performance to those of students in other universities.

The test scores are used by AUS to better understand and support student learning. Students who are selected for testing and are unavailable due to a documented illness or time conflict resulting from course schedules must petition for an exception prior to the test date. Those students who are not granted an exception and who choose not to complete the test will not be eligible for priority registration during the Early Registration period.

Orientation Program

Prior to registration, academic orientation is held 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. The Office of Student Affairs also introduces university life through campus tours and visits, meetings, lectures, demonstrations and other activities. 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.

Attendance at these programs is mandatory for all new students.

Academic Advisors

Academic advising is an essential element of the educational process. 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 the most recent 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 heads, program coordinators and associate deans or deans. Students on academic probation are provided closer advising and guidance by the Academic Support Center.

Registration Process

Before the registration period begins, the Office of the Registrar posts the registration guide at www.aus.edu/registration. 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 on the online student information system 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:

- advisement and consultation
- selection and registration of courses
- payment of fees

Continuing and returning students register through the website. New students and transfer students register with their respective colleges/schools. Non-degree and transient students register with the Office of the Registrar. Exchange, study abroad and visiting students register with the International Exchange Office.

New and transfer 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 Enrollment Management before registration begins. Transfer students must complete their transfer file and be awarded transfer credits before the end of their first semester at AUS.

Student Course 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 full-time students is 12 credits per semester, and the maximum load is 19 credits per semester. A student can register for up to seven credits (two courses) in a six-week summer term.

The degree programs have been designed to be completed normally in four years, except for architecture, which is a five-year program. However, some students may require additional time. The proposed sequence of study for every program is intended to assist students in planning their semester course load so that they complete their degree requirements within the normal time limit of their respective programs.

Full-Time Students

To be considered full-time, a student must carry a minimum course load of 12 credits per semester.

Part-Time Students

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

- AUS staff members who are pursuing a degree (approval of the employee's director is required)
- those who need fewer than 12 credits to complete an undergraduate degree
- those with special medical conditions
- those who are moved to part-time status by their Academic Support Center Advisor
- those who are enrolled as exchange, non-degree, study abroad, transient or visiting students

Freshman Course Load

Freshman students are normally restricted to five courses per semester to allow time for their adjustment to the learning environment of AUS. Freshman students enrolled in two or more preparatory courses (e.g., MTH 001, WRI 001, etc.) in a semester should register for a maximum of 13 credits.

Probation Students Course Load

A full-time undergraduate 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 undergraduate student who is on a second consecutive probation may only register for four courses with a maximum of 13 credits.

Overload Students

A graduating senior 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 the semester of graduation. All credits exceeding 16 credits will require a supplemental fee.

Auditing Courses

An AUS student who wishes 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. The instructor may establish standards

of class participation and attendance that must be met if a student is to remain in audit status. Registration is managed through the Office of the Registrar. In courses with enrollment limits, priority is given to students registering for credit. Changes to or from audit status must be made before the last day of the add and drop period. Tuition and fees for audit students are the same as those for students registering for credit. The audited course will appear on a student's transcript as audited.

With the permission of the instructor, senior students (90 and above credits) with a minimum CGPA of 3.00 can audit a graduate course in their field. Students are charged based on the undergraduate tuition structure.

Registration in Independent Study Courses

Independent study is the umbrella term used to label two types of independent work: an independent course and directed study.

Students are allowed to take one independent study. A second independent study, for a maximum total of eight credit hours used toward the graduation requirements of one degree, could be approved by the student's associate dean for graduation purposes only.

An independent study should not be used to meet major requirements, minor requirements, concentration requirements or general education requirements.

Students interested in registering for an independent study course must complete the Independent Study Application form available at www.aus.edu/registration/forms and submit it to the Office of the Registrar during the early registration period of the upcoming semester/term. Registration is handled by the Office of the Registrar. Tuition and fees for independent study courses are the same as those for other courses. Independent study courses are graded and appear on the student's transcript.

Independent Course (1 to 4 credits)

An independent course is listed in the catalog but offered in an independent study format. The course is coded using the course number in the catalog.

Students are not allowed to repeat courses in an independent course format.

To be eligible to apply for an independent course, students must be in good academic standing.

Directed Study (1 to 4 credits)

A directed study is an investigation under faculty supervision beyond what is offered in existing courses. Directed study courses are numbered as 396 or 496 courses. The three-letter course prefix reflects the field of study of the course.

In order to be eligible to pursue a directed study, students must have completed a minimum of 75 credit hours with a minimum CGPA of 3.00.

Registration in Graduate-Level Courses

With the approval of their associate dean and the relevant graduate program director, senior undergraduate students with a minimum CGPA of 3.00 can register for up to two graduate-level courses while enrolled at the undergraduate level. Registration is managed through the Office of the Registrar. In courses with enrollment limits, priority is given to graduate students. Students are charged based on the undergraduate tuition structure.

Graduate-level courses completed while enrolled at the undergraduate level cannot be counted toward undergraduate program degree requirements. Once the student is admitted to an AUS graduate program, these courses may be counted toward completion of graduate program degree requirements.

AUS Students Studying Abroad

AUS offers students the opportunity to study abroad at other institutions during a regular semester and gain full AUS course credit. The International Exchange Office aims to provide students the opportunity to immerse themselves in a different culture, to enhance their language skills, to build international work connections and to gain further insight into their field of expertise. With this in mind, students must choose to attend accredited institutions that provide learning experiences similar to those offered by AUS and which meet the following additional requirements:

- The host university is recognized by the UAE Ministry of Higher Education and Scientific Research.
- The language of instruction of the course(s) taken at the host university must be English (except for language courses conducted in other languages), unless otherwise approved by AUS.
- Business administration courses will be transferred only from programs that are AACSB accredited or from universities approved by the School of Business and Management.
- Engineering and computer science courses will only be transferred from academic programs recognized by ABET, Inc.

Of particular interest might be institutions with which AUS has semester exchange programs.

Note: *Normally, students are expected to complete their last semester in residence at AUS unless they are registered in an AUS-recognized semester exchange program.*

Requirements

Students who wish to study abroad during a regular semester must have a minimum cumulative GPA of 2.50 and have completed at least 60 credits of undergraduate courses (excluding credits earned in Achievement Academy/Bridge Program courses and preparatory courses). Courses taken at AUS where D and/or F grades were earned cannot be repeated in the context of a study abroad program for transfer of credits.

Interested students must apply online to the International Exchange Office. Information related to application fees and deadlines is available at www.aus.edu/ixo/outgoingexchange. Students who are approved by the AUS International Exchange Office will be nominated to the host university to complete the application process. Students should be aware that further admission requirements might exist at the host institution.

The approved Course Permission Form - Outgoing Students must be deposited at the Office of the Registrar prior to host institution program start. Failure to do so will result in no credit being awarded for the work completed abroad.

Registration

AUS students who plan to study abroad must register with the AUS Office of the Registrar in addition to registering with the study abroad host university.

Transfer of Credits

Credits earned in study abroad courses will transfer provided the following conditions are met:

- The student submits to the AUS Office of the Registrar an official transcript indicating that the student met the course's passing grade requirement, as indicated on the study abroad form.
- The student had a 2.50 cumulative GPA at the time of registration in study abroad courses.

Grades earned in courses completed outside AUS do not count in the student's cumulative GPA (CGPA).

Credit hours of transferred courses count in the cumulative earned hours and may apply towards meeting graduation requirements.

For further information on studying abroad, please contact the International Exchange Office at ixo@aus.edu.

Summer Courses outside AUS

Requirements

An enrolled student is eligible to apply to take courses at another college/university during the summer with the aim of transferring credits to AUS provided the following conditions are met:

- The student must be in good academic standing at AUS.
- The summer courses at the host university must not be taken as attempts to repeat AUS courses in which D or F grades were previously earned.
- The host university must be located outside the UAE.
- The host university must be recognized by the UAE Ministry of Higher Education and Scientific Research.
- The host university must provide learning experiences similar to those offered by AUS.
- Contact hours for courses at the host university must be equivalent to or greater than the contact hours required for equivalent courses at AUS.
- The language of instruction of the course(s) taken at the host university must be English (except for language courses conducted in other languages), unless otherwise approved by AUS.

Amount of Credit

- Students may normally transfer no more than six credit hours for a six-week summer session conducted at a host university.
- For summer sessions of shorter duration, AUS normally allows no more than one credit hour per week of instruction (e.g., no more than three credit hours for a three-week session).
- Students may register for more than one summer session between spring and fall semesters with approval of the relevant associate dean(s). Students may not be concurrently registered in more than one summer session.
- A college/school may place further restrictions on the allowable maximum number of credits. Students must consult with the relevant associate dean(s) when planning for summer courses outside AUS.

Application Process

Prior to registering for courses at the host university, students must complete the Summer Permission to Take Courses Outside AUS form available at www.aus.edu/registration/forms and submit it to the Office of the Registrar. Credit will not be awarded if the completed form is not submitted to the Office of the Registrar prior to registration in summer courses.

All courses must be approved by the relevant associate dean(s) prior to registration in summer courses.

For information on visas and other related issues, please contact the International Exchange Office at ixo@aus.edu.

Transfer of Credits

Credits earned in summer courses taken outside AUS will transfer provided the following conditions are met:

- Upon completion of the course(s) a student must submit to the Office of the Registrar an official transcript from the host university demonstrating that the minimum course passing grade requirement indicated on the permission form was met.
- The student was in good academic standing at AUS at the time of registration in summer courses at the host university.

Grades earned in summer courses completed outside AUS do not count in the student's cumulative GPA (CGPA). Credit hours of transferred courses count in the cumulative earned hours and may apply towards meeting graduation requirements.

For further information on the transfer of credits policy, please contact the Office of the Registrar.

Internship Registration

A number of degree programs at AUS require students to successfully complete an internship. Internships do not carry academic credit, are charged a registration fee and are graded as Pass/Fail. Internships that contribute to meeting graduation requirements must be a minimum of five consecutive weeks with a minimum of 200 work hours.

To be eligible to pursue an internship, students should normally have completed a minimum of 75 undergraduate credit hours (excluding credits earned in Achievement Academy/Bridge Program courses and/or in preparatory courses). A college/school may have higher minimum credit hour requirements. Approval is granted by the internship coordinator within the college/school.

Students must be registered for internships in the semester/term in which they plan to complete the internship. Internship registration has to be completed by the end of the third week of classes of a regular semester and by the end of the first week of classes of a summer term.

Internships are normally completed during the summer before the final year of study. Students pursuing a summer internship may not register for courses during the same summer term. With the approval of the associate dean of the student's college/school, a student who meets the eligibility requirements may pursue an internship during a fall or spring semester, provided the student's course load does not exceed six credit hours.

Exchange, Non-degree, Transient and Visiting Student Registration

See the corresponding sections under Admission to Undergraduate Studies.

Tuition and Fees

Please refer to the Tuition, Grants and Scholarships section of this catalog for specific information on tuition, fees, payment methods and deferment of tuition and fees.

Add and Drop

Students are allowed to add and/or drop courses at the beginning of every semester/term. The add and drop period begins on the first day of class. The duration of the add and drop period may vary, and the actual dates are published in the registration guide for each semester/term, which is available at www.aus.edu/registration.

Courses dropped during the add and drop period are not recorded in a student's transcript. The semester tuition is recalculated accordingly with no fee penalty charged. Students interested in adding and/or dropping courses should first consult with their respective advisors.

Students who register for a course and do not attend it may be automatically dropped. Students who are automatically dropped will not be eligible for a tuition refund or adjustment.

Attendance and Lateness

Attendance and participation in all class, studio, recitation, workshop and laboratory sessions are essential to the process of education at AUS. 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.
- 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. Stricter attendance requirements may be approved by the university for courses that depend upon student contributions to complete collaborative team-based projects or to prepare for public performances. Attendance requirements are specified in the course syllabus. Up until the end of the 10th week of classes, a grade of W is assigned to the student for the specific course. Beyond the 10th week of classes, a grade of WF will be assigned. 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.

Course Withdrawal

Students are permitted to withdraw from courses without grade penalty by submitting the Withdrawal Form (available at www.aus.edu/registration/forms). The student must submit the form in person to the Office of the Registrar.

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 (F grade) for the WF, and this will be used in calculating the student's GPA. Furthermore, as of the 11th week of classes, faculty members may assign a WF for excessive absence.

If a student with a 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 Student Petition Form (available at www.aus.edu/registration/forms) 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.

Students are expected to maintain a minimum load of 12 credits per semester. Students on AUS financial grants/scholarships must maintain full-time status. For more details, refer to the Tuition, Grants and Scholarships/Grants and Scholarships section.

Students who register for a course and do not attend it may be automatically dropped. Students who are automatically dropped will not be eligible for a tuition refund or adjustment.

A student may not withdraw from a course in which an academic integrity infraction has been found and a penalty applied.

Withdrawal from the University

In the event a student wishes to withdraw from the university, he/she must submit the Complete Withdrawal Form to the Office of the Registrar in person. The form is available at www.aus.edu/registration/forms.

Depending on the time of withdrawal, a grade of W or WF will be recorded for all the courses the student was registered for in the semester of withdrawal. In addition, the refund schedule outlined in the table below will apply.

Withdrawal from the University*
Before the end of the first week of classes
100% refund excluding non-refundable deposits
During the second week of classes
50% refund of tuition
During the third week of classes
25% refund of tuition
After the third week of classes
0% refund
***Refunds for summer term withdrawals are prorated.**

Reinstatement

Students Away for One Semester

- A student in good academic standing is allowed no more than one semester of leave. To resume studies following a one-semester leave, the student must submit a Reactivation Form (available at www.aus.edu/registration/forms) to the Office of the Registrar one month prior to registration.
- Students who were on probation prior to complete withdrawal must petition for reinstatement to the Office of the Registrar one month prior to registration. The Student Petition Form is available at www.aus.edu/registration/forms.
- Students seeking reinstatement following academic dismissal are required to file a Reinstatement Petition form with the Academic Support Center before the official deadline of the corresponding registration semester, as published by the Center. The Reinstatement Petition and the deadlines for submitting it are available from the Center. Reinstatement may only be made on the basis of extraordinary circumstances.

Students Away Longer than One Semester

Students in good standing or on probation who leave AUS for two or more consecutive semesters must submit a new application for admission to the Office of Enrollment Management/Undergraduate Admissions. Academically dismissed students who have been away longer than one semester may not apply for reinstatement.

Transfer of Credits

Courses taken at another institution during this interim period will not be transferred.

Course Information

Course Code

Every course in each discipline or field of study offered by the university is represented by a three-letter prefix followed by a three-digit number indicating the level of the course content, e.g., BIO 260 Genetics and Molecular Biology.

In this example, BIO is the course prefix (which represents biology) and 260 is the course number. This particular course is a sophomore-year course in biology (denoted by the 200 level). This course is more advanced than 100-level introductory courses such as BIO 103 Introduction to Human Biology.

Normally, 100-level course numbers denote freshman-level courses, 200-level course numbers denote sophomore-level courses, 300-level course numbers denote junior-level courses, and 400- or 500-level course numbers denote senior-level courses. Courses with a 00X number are preparatory courses. They are intended

for students with a deficiency in a specific subject matter. These courses do not count toward graduation.

In general, courses should be taken in order of increasing difficulty.

Course Credit Hours

All courses are valued in credits. Normally, each credit hour represents 50 minutes of class instruction per week each semester, two to three 50-minute laboratory sessions per week each semester, or one or two 50-minute recitation sessions per week each semester. Design courses, studios, and visual and performing arts courses may be weighted differently.

The numbers in parentheses following the title of a course indicate the course contact hours distribution and the course credit information. The first digit in parentheses refers to the number of class contact hours per week the course requires, the second digit denotes the number of laboratory or practice hours required weekly, and the third digit refers to the number of credits the student will receive upon successfully completing the course. Below is an example:

CHM 101 General Chemistry I (3-3-4)

In this example, CHM 101 has three contact hours per week, three lab hours per week, and the student who successfully completes the course receives four credit hours.

Note: *Credits earned for preparatory courses do not count toward graduation requirements.*

Course Descriptions and Syllabi

Except for non-recurring topics courses (also referred to as special topic courses), descriptions of courses offered by AUS are listed in the Course Descriptions section of this catalog and on the university website. Courses are grouped by course subject and sorted by course code within the college/school offering them. Descriptions of non-recurring topics courses are made available during registration in the college/school offering the course.

Course syllabi are available from the department or program office. They include course title and course code; pre-requisites (if any) and co-requisites (if any); name, contact information and office hours of the instructor; course description; course outcomes; course schedule; assignments and due dates; assessment methods and the weights assigned to them; and reading material and course texts.

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 AUS courses. Equivalent courses satisfactorily completed at other institutions may also meet prerequisite requirements by transfer credit. Students should consult the head of the appropriate department and the Office of the Registrar for more information.

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. In addition to prerequisites, certain courses also have co-requisites, prerequisites/concurrent and/or other criteria. This information is noted immediately following the description of the course.

In general, courses should be taken in order of increasing difficulty.

Courses Offerings and Schedules

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.

Except for workshop, design, visual arts and performing arts courses, classes ordinarily meet three days per week in 50-minute sessions or two days per week in 75-minute sessions during regular semesters. Laboratory experiences are normally scheduled for two to three 50-minute sessions once a week. Equivalent meeting time is scheduled for summer terms.

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

Fields of Study

Degree Offerings

American University of Sharjah has four colleges/schools that offer both undergraduate and graduate degree programs. Undergraduate degree programs are listed below. Graduate degree offerings are listed in the *AUS Graduate Catalog*.

College of Architecture, Art and Design

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

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 Biology
- Bachelor of Science in Chemistry
- Bachelor of Science in Environmental Sciences
- Bachelor of Science in Mathematics

College 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 Industrial Engineering
- Bachelor of Science in Mechanical Engineering

School of Business and Management

- Bachelor of Arts in Economics
- Bachelor of Science in Business Administration with majors in accounting, economics, finance, management, management information systems and marketing

Declaration of a Major

Normally, students declare their major by applying to a particular college/school and to a major within that college/school. 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.

Students who wish to change major but do not meet the admission requirements of the new major may seek undeclared major status, provided they have earned less than 60 credits. Such students must secure admission to their major of choice by the end of the their sophomore year. Undeclared students are responsible for consulting with the Academic Support Center for course advising.

To declare a major, the student must submit the Change of Major Form to the office of the associate dean of the college/school housing the major of his/her choice by the last day of the 12th week of classes of the fall or spring semester. This form is available from the Office of the Registrar. The office of the associate dean will forward the approved forms to the Office of the Registrar. Forms received by the Office of the Registrar by the end of the add and drop period will be effective as of the following semester/term.

A change in major might entail a change in a student's catalog. Please refer to the Catalog section under Graduation Requirements for more details.

Transferring from Non-Degree to Degree Status

Students wishing to transfer from non-degree to degree status must have completed 15 credits with a minimum cumulative GPA of 2.00. Moreover, a request must be submitted to the Office of Enrollment Management/Undergraduate Admissions for a change of status. For application deadlines, see the Admission to Undergraduate Studies section.

Students may request to have their non-degree credits applied toward the degree program. 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. For more details, please refer to the Catalog section under Graduation Requirements.

Declaration of a Double Major

Students may select to enroll in two separate majors. To declare a second major, a student must complete the Minor/Double Major Form (available at www.aus.edu/registration/forms) and submit it to the office of the associate dean of the college/school housing the second major by the last day of the 12th week of classes of the fall or spring semester. The office of the associate dean will forward the approved forms to the Office of the Registrar. Forms received by the Office of the Registrar by the end of the add and drop period will be effective as of the following semester/term.

Senior students should declare their second major no later than the end of the 10th week of classes of the semester preceding their graduation semester.

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. The student's degree and transcript will indicate all majors completed at the time of graduation.

For graduation information, please refer to Double Major Requirements under the Graduation Requirements section.

Change of Major

Students seeking to change their major within their college/school or to change their college/school must complete the Change of Major 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 associate dean of the college/school housing the new major by the last day of the 12th week of classes of the fall or spring semester. The office of the associate dean will forward the approved forms to the Office of the Registrar. Forms received by the Office of the Registrar by the end of the add and drop period will be effective as of the following semester/term.

To be eligible for a change of major, a student must meet the requirements for acceptance to the new major. For details on the admission requirements of a major, please refer to the corresponding section under the college/school housing the major.

A change in major might entail a change in a student's catalog. Please refer to the Catalog section under Graduation Requirements for more details.

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 minor (refer to the index of this catalog).

College of Architecture, Art and Design

- Minor in Architectural Studies
- Minor in Design Management
- Minor in Film
- Minor in Illustration and Animation
- Minor in Interior Design
- Minor in Landscape Architecture
- Minor in Photography
- Minor in Product Design
- Minor in Urban Design
- Minor in Urban Planning

College of Arts and Sciences

- Minor in Actuarial Mathematics
- 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
- Minor in English Language
- Minor in English Literature
- Minor in Environmental Policy
- Minor in Environmental Sciences
- Minor in Governmental Studies
- Minor in History
- Minor in International Studies
- Minor in Mass Communication
- Minor in Middle Eastern Studies
- Minor in Music
- Minor in Philosophy
- Minor in Physics
- Minor in Psychology
- Minor in Theatre
- Minor in Women's Studies

College of Engineering

- Minor in Aerospace Engineering
- Minor in Biomedical Engineering
- Minor in Computer Engineering
- Minor in Computer Science
- Minor in Electrical Engineering
- Minor in Engineering Management
- Minor in Environmental and Water Engineering

- Minor in Mechanical Engineering
- Minor in Mechatronics Engineering
- Minor in Petroleum Engineering
- Minor in Renewable Energy
- Minor in Software Engineering and Security

School of Business and Management

- Minor in Accounting
- Minor in Economics
- Minor in Finance
- Minor in International Business
- Minor in Islamic Banking and Finance
- Minor in Management
- Minor in Management Information Systems
- Minor in Marketing
- Minor in Operations Management
- Minor in Public Administration

Declaration of Minors

To be eligible to apply for a minor, students normally must have completed a minimum of 30 credits of course work and be in good academic standing. A student cannot declare a minor in his/her major field of study. A student cannot pursue more than two minors.

To declare a minor, a student must complete the Minor/Double Major Form (available at www.aus.edu/registration/forms) and submit it to the office of the associate dean of the college/school housing the minor by the last day of the 12th week of classes of the fall or spring semester. The office of the associate dean will forward the approved forms to the Office of the Registrar. Forms received by the Office of the Registrar by the end of the add and drop period will be effective as of the following semester/term.

Senior students should declare their minor no later than the end of the 10th week of classes of the semester preceding their graduation semester.

A student may drop a minor prior to graduation by submitting the Minor/Double Major Form to the Office of the Registrar no later than the end of the add and drop week of the semester of graduation.

Minors are noted on the student's transcript. They do not appear on the degree.

For information on completing a minor, please refer to Requirements for Minors in the Graduation Requirements section of this catalog.

Concentrations

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

To declare a concentration, a student must complete the Change of Major Form available from the Office of the Registrar and submit it to the office of their associate dean by the last day of the 12th week of classes of the fall or spring semester. The office of the associate dean will forward the approved forms to the Office of the Registrar. Forms received by the Office of the Registrar by the end of the add and drop period will be effective as of the following semester/term.

For programs where concentrations are a choice, students should declare their concentrations no later than the end of the 10th week of classes of the semester preceding their graduation semester.

Grades and Academic Standing

Examinations

Regular and common final examination schedules are published by the Office of the Registrar at www.aus.edu/registration. 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 of the semester to make the necessary adjustments to his/her schedule.

Grading System

The grade point average (GPA) is based on a four-point scale.

Effective Fall 2009, the minimum passing grade for any course taken at AUS is C-. Courses completed with D grades prior to Fall 2009 will meet the free electives graduation requirement.

The following grading system is used at AUS:

Excellent	
A	equals 4.00 grade points
A-	equals 3.70 grade points
Good	
B+	equals 3.30 grade points
B	equals 3.00 grade points
B-	equals 2.70 grade points
Satisfactory	
C+	equals 2.30 grade points
C	equals 2.00 grade points
C-	equals 1.70 grade points
Poor	
D	equals 1.00 grade points
Fail	
F	equals 0.00 grade points
Academic Integrity Violation Fail	
XF	equals 0.00 grade points
Withdrawal Fail	
WF	equals 0.00 grade points

Grades not calculated in the grade point average are:

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

The grade appeal process is outlined in the Student Petitions and Appeals section herein.

Incomplete Grades

The work for a course must be completed by the end of the final exam day for that course. In the case of unexcused incomplete work, an F grade is given for the missing work and the course grade is computed accordingly. Only in exceptional cases, such as a

compelling medical or other emergency certified in writing by a medical or other professional, is a student assigned an incomplete grade (I) in a given course. The instructor of the course will then process an Incomplete Grade Form through the college/school housing the course and submit it to the Office of the Registrar for final approval and implementation. The Incomplete Grade Form must be submitted within the final examinations period.

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 either an F grade or the alternative grade indicated by the instructor of the course on the Incomplete Grade Form. It is the responsibility of the student to find out from his/her professor the specific dates by which requirements must be fulfilled.

In Progress Grades

Project and internship courses could take longer than one semester to complete. In this case, the college/school associate dean will request that the Registrar enter an In Progress (IP) grade. The request for an In Progress grade must be submitted within the final examination period.

The in-progress work must be completed before the deadline agreed upon with the Registrar, not exceeding the end of the following semester/term. An IP 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.

Repeating Courses

A student may repeat any course, pending seat availability, up to two times. Students are allowed to repeat a preparatory course up to Sophomore I standing (less than 45 credits). Students are allowed to repeat WRI 101 or WRI 102 up to Junior I standing (less than 75 credits).

Effective June 2004, only the last entry of the repeated course is counted in the calculation of the cumulative GPA.

Students may not repeat at another institution a course in which they earned a D or F grade in at AUS with the aim of transferring credits.

Students may not repeat courses in an independent course format.

Class Standing

The class standing of a student in a specific semester is determined by the number of credit hours the student has completed up until and excluding that semester. The following table summarizes the earned credit hours to class standing equivalencies:

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

During the period of early registration, the credit hours of the courses in progress are considered when determining the class standing of a student who wishes to enroll in a course with a class standing restriction.

Grade Point Average

AUS uses two grade point averages: the semester grade point average (SGPA) and the cumulative grade point average (CGPA).

Quality Points

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 grades obtained in non-credit courses are not included in the computation of a grade point average. The grades of preparatory courses count in both the SGPA and the CGPA.

Effective June 2004, only the last entry of the repeated course is counted in the calculation of the CGPA.

Semester Grade Point Average (SGPA)

The SGPA is the grade point average of grades earned in a particular semester. It is calculated by dividing the sum of the quality points of courses taken in a particular semester by the total number of credits of the courses taken in that same semester.

SGPA=sum (quality points of courses taken in semester X)/sum (credit hours of courses taken in semester X)

Cumulative Grade Point Average (CGPA)

The CGPA is calculated by dividing the sum of the quality points of courses taken in all semesters by the total number of credits of all courses taken in all semesters.

CGPA=sum (quality points of courses taken in all semesters)/sum (credit hours of courses taken in all semesters)

Students who enroll in the Achievement Academy/Bridge Program prior to admission to the undergraduate level will have the last six credits earned in Bridge Program courses in addition to credits earned in preparatory courses taught within the context of the Achievement Academy/Bridge Program counted in the calculation of their undergraduate CGPA.

Effective June 2004, only the last entry of a repeated course is considered in the CGPA calculation.

Academic Standing

An undergraduate student's academic standing is determined by his/her CGPA.

Matriculated Achievement Academy students start their first undergraduate semester in good standing, regardless of their most recent Bridge Program academic standing.

Good Academic Standing

In order to be considered in good standing, an undergraduate student must maintain a CGPA of at least 2.00 out of 4.00. A student must be in good standing to be eligible for graduation.

Placement on Academic Probation

All undergraduate students are placed on academic probation at the end of a semester in which the CGPA falls below 2.00. A full-time undergraduate 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 undergraduate student who is on a second consecutive probation may only register for four courses with a maximum of 13 credits. Thereafter, an undergraduate student must be in good academic standing (minimum CGPA of 2.00) to continue at AUS.

Undergraduate students placed on academic probation must sign a contract with the Academic Support Center. Probation students are expected to fulfill the obligations of their probation contract and meet on a regular basis with their Academic Support Center advisor. In addition, undergraduate students who have earned less than 30 credit hours and who are placed on academic probation for the first time are required to successfully complete the university study skills course UPA 200 offered by the Achievement Academy/Bridge Program. Students who have enrolled in the Achievement Academy/Bridge Program prior to admission to the undergraduate level and have completed the university study skills course UPA 100 while in the Academy are exempted from this requirement. For more details, see the section on the Achievement Academy/Bridge Program in this catalog.

Removal of Academic Probation

Undergraduate academic probation will be removed at the end of any semester in which the student attains a CGPA of 2.00.

Academic Dismissal

An undergraduate 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.

University Honors and Awards

Dean's List

The Office of the Registrar issues the Dean's List of honor students at the end of each semester. A notation of the Dean's List award is also added to the student's transcript in the corresponding semester. Dean's Lists are not issued for summer terms.

To be placed on the Dean's List, a student must:

- have registered and completed a minimum of 15 credit hours in gradable courses in the semester
- have at least a 3.50 SGPA
- be in good academic standing
- have no failing grades in any of his/her courses during that semester
- have no incomplete grades
- have no record of sanctions resulting from violations of the Student Academic Integrity Code or Student Code of Conduct

Chancellor's List

Students who have been placed on the Dean's List for both the fall and spring semesters of an academic year are further recognized by the Office of the Provost. These students are placed on the Chancellor's List and are honored during the fall Honors Convocation of the following academic year.

Graduation Honors

The university grants Latin honors at graduation. For details on graduation honors, please see Graduation Honors in the Graduation/Graduation Procedures section.

Student Petitions and Appeals

Student Responsibility

All official university communications are distributed through the AUS-issued email address. These are considered official notifications. Students are responsible for checking their AUS email 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. Students should keep copies of all course syllabi.

Petitions

Students may petition for exceptions to academic policies of the university. Petitions are processed through the Office of the Registrar. The Student Petition Form is available at www.aus.edu/registration/forms.

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.

A student who believes that he/she has a legitimate concern regarding a final course grade must inform the professor responsible for the course in writing no later than five working days after the last day of the final examinations period. The student should then discuss the matter with the professor. If a resolution cannot be reached, the student should contact the department head to discuss the matter. Every effort should be made to resolve the issue at the departmental level. If the dispute is over a final course grade and the matter cannot be resolved at the departmental level, the student may file a formal grade appeal with the college/school. Formal grade appeal requests must be submitted to the associate dean of the college/school in which the course was taught no later than five working days prior to the first day of class of the following semester. A grade appeal review will be conducted by the college/school, and the student and the professor responsible for the course will be notified of the outcome.

If a student believes that the grade appeal review by the college/school was affected by procedural errors or the lack of consideration of factors relevant to the case, then an appeal may be submitted to the Academic Appeals Review Committee through the Vice Provost for Undergraduate Affairs and Instruction. The student must clearly state the reasons for the appeal and submit all relevant material to the Vice Provost for Undergraduate Affairs and Instruction within five working days from the date of notice of the outcome of the grade appeal review by the college/school. The Academic Appeals Review Committee will consider the case to determine if due process was followed by the college/school and make a formal recommendation to the Provost. The Office of the Provost will notify the student and the college/school of the outcome.

Appeal of an XF Grade

In cases where a failing grade of XF was assigned to a course as a result of an academic offense penalty, a student may petition during the semester of graduation, or at complete withdrawal from AUS, to have the grade converted to an F on the academic transcript. The petition is submitted to the Office of the Registrar along with the Application for Graduation or the Complete Withdrawal Form. The final decision will be made by the Office of the Provost.

The F grade resulting from an XF grade will be reverted back into an XF grade if the student reactivates his/her record at AUS.

Appeal of Other Academic-Related Issues

If a student wishes to discuss an issue pertaining to a course, an instructor or other academic-related issues, the student may direct his/her concern to the head 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 at the university as to require even more formal safeguards for the aggrieved student and faculty member involved, the dean will prescribe an appropriate procedure consonant with the university's mission or refer the matter to the Academic Appeals Review Committee through the Vice Provost for Undergraduate Affairs and Instruction. Academic appeals requests must be submitted no later than the end of the first day of orientation week of the following semester.

Graduation

Graduation Requirements

Catalog

The graduation requirements for any individual student are normally determined by the catalog that was effective when the student matriculated in the major. A student may choose to follow the catalog effective for the semester when the student expects to complete his/her graduation requirements. To change catalogs, a student must file a Change of Academic Catalog Form (available at www.aus.edu/registration/forms) with the Office of the Registrar no later than the end of Add/Drop period of the student's graduation semester/term. Every individual student is personally responsible for meeting all graduation requirements as detailed in his/her catalog year.

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 CGPA is at least 2.00.

In case of substantial changes in course offerings, equivalent graduation requirements are determined by the dean of the student's college/school.

Disclaimer: *Course information, content and prerequisites may be subject to change as a result of the university's commitment to a process of continual improvement in academic programs. Students must comply with the most up-to-date course requirements.*

Courses

Courses are considered primary components of the curriculum and should not be split into individual credits to be counted in different areas of the degree audit.

Passing Grade Requirement

Effective Fall 2009, the minimum passing grade requirement for a course to meet any area of the graduation requirements and to satisfy any course prerequisites and/or co-requisites is C-. Courses completed with D grades prior to Fall 2009 will meet the free electives graduation requirement.

General Education Program

Mission Statement

Liberal studies form the core component of an AUS education. The General Education Program encourages intellectual discovery and critical reflection, promotes an appreciation of the various modes of human inquiry, and develops the knowledge and skills to succeed in and contribute to the Arab Gulf region and the world at large. The program fosters personal development by providing the foundation for lifelong engagement with the questions that shape individuals and societies. General education at AUS complements professional programs by offering opportunities for students to reflect on a diverse and increasingly interdependent world and their place within it.

Program Goals and Outcomes

The General Education Program provides students with opportunities to:

Goal A. Gain an understanding of the history and culture of the Arab World

Outcomes

- Explain the literary, artistic or scientific traditions of the Arab world
- Analyze the interdependencies between the Arab Gulf region, the Middle East and the world at large

Goal B. Examine the values and ideas that have shaped the Western intellectual and cultural traditions

Outcomes

- Describe intellectual and cultural traditions of the Western world
- Analyze and explain how Western traditions have influenced the present

Goal C. Explore how modes of human inquiry or expression enhances our understanding of culture

Outcomes

- Analyze cultural ideals and values in order to enhance self-understanding and empathy for others
- Explain how societies are defined in relation to culture, nationality, race, ethnicity or gender
- Analyze and explain implied and expressed cultural values and attitudes in works of literature (literary perspectives)
- Analyze and explain the development of human institutions, ideas and social structures (historical perspectives)
- Analyze and explain philosophical works that present perspectives on social and cultural issues or problems (philosophical perspectives)

Goal D. Appreciate the roles of creative endeavors in enriching the human condition

Outcomes

- Identify, interpret and explain themes in works of literature or art (study of arts/literature)
- Explain how artistic and literary traditions have influenced individuals, cultures or societies (study of arts/literature)
- Demonstrate an understanding of creative processes through the production of works of art or literature (engagement in arts/literature)
- Reflect upon and explain the decisions made during the creative process (engagement in arts/literature)

Goal E. Reflect on the consequences of individual and collective human action

Outcomes

- Explain the ways in which individuals, groups, institutions or societies behave and influence one another
- Analyze and describe how social, cultural, political or economic conditions affect individuals
- Analyze and explain human behavior in a variety of contexts
- Assess the ethical dimensions of actions and explain the relationships between individual moral choices and professional responsibility

Goal F. Recognize the value of the natural and physical sciences

Outcomes

- Explain how scientific hypotheses are conceived and tested
- Explain how basic scientific concepts are related to contemporary issues

Goal G. Employ quantitative reasoning as a conceptual tool for analysis and description

Outcomes

- Analyze data to identify quantitative and qualitative relationships
- Apply basic mathematical concepts
- Demonstrate proficiency in deductive reasoning and problem solving

Goal H. Develop the skills and abilities to thoughtfully seek information,

critically analyze sources and clearly formulate complex ideas

Outcomes

- Communicate effectively in written English
- Communicate effectively in spoken English
- Evaluate written communication, identify key ideas and establish hierarchies of information
- Structure clear and persuasive arguments based on an analysis and presentation of evidence
- Analyze and explain how culture affects communication
- Identify and access information resources efficiently and effectively based upon the Association of College and Research Libraries standards

Goal I. Investigate how digital technology can facilitate inquiry and the advancement of knowledge

Outcomes

- Demonstrate how digital technology can contribute to understanding
- Demonstrate the ability to use digital technology to enhance analysis, description and presentation

General Education Requirements

Every student must complete a minimum of 42 credits in core and non-core general education requirements (GER) with a minimum grade of C- to graduate. In addition, students must successfully complete one course from each area of the major-designated requirements.

Core Requirements

Students must successfully complete a minimum of 18 credits in courses meeting the following core general education areas. Credits earned in these areas cannot be counted towards other general education requirements or other degree program requirements.

- history and culture of the Arab world: three to six credits
- culture in a critical perspective: three to six credits
- arts and literature: three to six credits
- human interaction and behavior: six to nine credits

Non-Core Requirements

Students must successfully complete a minimum of 24 credits in courses meeting the following non-core general education areas. Courses in these areas may also meet major requirements. In cases where a course is considered both a non-core general education requirement and a major requirement, credits for the course are counted only once towards the overall credits earned.

- natural and physical sciences: a minimum of six credits
- mathematics: a minimum of three credits
- statistics: a minimum of three credits (for College of Engineering, please see degree program details)
- communication: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses in this area. 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 and cannot be repeated once the student has earned 75 credit hours.

Major-Designated Requirements

Students must successfully complete one course from each of the following areas:

- ethical understanding
- discipline-specific writing intensive course
- oral proficiency
- information literacy
- computer literacy

Information on specific courses meeting each of the areas above is available at www.aus.edu/generaleducation.

Students who transfer to AUS may satisfy general education requirements if the course(s) being transferred meet the outcomes of a general education area as defined by the general education program.

Major Requirements

Each student in a degree program must complete at least 36 credits in major and major-related courses. The specific major requirements of a major are listed under the corresponding program section in this catalog. Some major requirements may count toward fulfilling non-core or major-designated general education requirements; credits of such courses will not double count.

Double Major Requirements

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 catalog in effect for the student's primary major will be followed for the degree audit of the second major.

Double Concentration Requirement

Certain degree programs offer students the choice of a double concentration. In cases where the two concentrations have common courses, courses used to fulfill the requirements of the first concentration can double count toward the second concentration.

Because the second concentration is not a degree requirement, it is considered a free choice of the student. As such, courses used toward the second concentration can double count as free electives.

Minor Requirements

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. At least six credits of the courses at or above the 300 level must be taken in residence at AUS. 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.

The catalog in effect for the student's major will normally 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. Graduation requirements for both the major and the minor must be completed at the same time. The minimum cumulative GPA for minor courses is 2.00. For those programs offering a minor, the specific course requirements constituting a minor are listed under the corresponding department section in this catalog.

All courses used for the major and/or the double major degree requirements may also be used toward the minor. To complete an additional minor, students must satisfy all the requirements of the two minors.

Free Electives Requirement

To satisfy the free electives requirement, students must complete at least two courses with a minimum of six credits of free electives. Courses taken to satisfy a double concentration requirement can count toward free electives. Preparatory courses do not fulfill the free electives requirement. A college/school may exclude certain courses from being counted as free electives. For more details, please refer to the degree requirements section of the corresponding program section later in this catalog.

As of Fall 2009, a grade of C- or higher is required for any course taken to satisfy the free electives requirement. Courses completed with D grades prior to Fall 2009 will meet the free electives graduation requirement.

Internships

Internships that contribute to meeting graduation requirements must be a minimum of five consecutive weeks with a minimum of 200 work hours. Internship offerings and requirements are listed under the various program requirements.

For information on internship registration, please see Registration and Course Information/Internship Registration earlier in this section of the catalog.

Graduation Residence Requirements

Candidates for the bachelor's degree are expected to complete their last semester in residence at the university unless registered in an AUS-recognized semester exchange program. 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.

Transfer students must successfully complete at least 50 percent of the required credits for a degree in residence at AUS.

Time Limit on Duration of Study

Regardless of the catalog by which the student's graduation requirements are governed, all degree requirements must be completed within eight years of admission to AUS as an undergraduate student or matriculation from the Achievement Academy/Bridge Program, inclusive of any leave.

Academic Standing Requirement

A student must be in good academic standing to be eligible for graduation.

Graduation Procedures

Participation in the Commencement Ceremony

The university holds two commencement exercises: a fall commencement ceremony at the end of the fall semester and a spring commencement ceremony at the end of the spring semester.

Prospective candidates for graduation in a summer term or a fall semester are eligible to participate in the corresponding fall commencement ceremony. Likewise, prospective candidates for graduation in a spring semester are eligible to participate in the corresponding spring commencement ceremony.

Students registered at the 11th week of a semester for courses/project/internship necessary to complete their degrees may participate in commencement at the end of that semester.

Students who do not wish to participate in the commencement exercises of their semester of graduation must complete an Absentia Form available at www.aus.edu/registration/forms or www.aus.edu/commencement. Absentia graduates are not eligible to participate in another semester commencement ceremony.

Application for Graduation

Candidates for degrees file an Application for Graduation form in the Office of the Registrar during the registration period of the last expected semester/term of study. The Application for Graduation form is available at www.aus.edu/registration/forms or www.aus.edu/commencement. The deadlines for application submission are published in the academic calendar at the front section of this catalog, as well as at www.aus.edu/commencement. 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.

Students who fail to complete all degree requirements by the end of the semester/term for which they apply to graduate need not reapply for graduation. Their previous application will be automatically moved to the following semester.

Conferral of Degrees

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

Degrees are conferred at the end of the semester/term in which requirements have been met. Conferral of the degree is noted on the academic transcript of the graduate with the date of graduation.

Names on Degrees

The names of AUS students will be spelled in English exactly as they appear on their passports or identity cards when printed on degrees. 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.

Graduation Honors

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

Summa cum laude:	3.90–4.00 CGPA
Magna cum laude:	3.70–3.89 CGPA
Cum laude:	3.50–3.69 CGPA

Latin honors are noted on the student's diploma and transcript.

Attestation of Degrees and Transcripts

The Office of the Registrar provides information relevant to the attestation of degrees and transcripts with the UAE Ministry of Higher Education and Scientific Research. For details, please see www.aus.edu/commencement.



Tuition, Grants and Scholarships

Tuition and Fees

Tuition for full-time undergraduate students is given in the table below. The full-time course load is 12 to 16 credits. Students registering for more than 16 credits are charged a supplementary fee per credit over 16. Part-time students are charged per credit regardless of their major. Additional undergraduate fees and housing charges are given in the tables that follow.

Non-degree, transient and visiting students must pay the same tuition and fees as regular students. Tuition payment for exchange students attending AUS is governed by the specific terms of the exchange agreement.

The tuition payment of AUS students studying abroad at universities with which AUS has a semester exchange program is governed by the exchange agreement. For details on payment procedures, please check with the International Exchange Office.

AUS students who have received approval to study abroad at a university that does not have a semester exchange program with AUS make their payments directly to their study abroad host university.

Undergraduate Tuition (in AED)			
Students Registered in All Majors	**Rate A***	**Rate B****	**Summer Term**
Less than 12 credits	3,360 per credit hour	3,480 per credit hour	3,360 per credit hour
12 to 16 credits	38,220	39,960	
Over 16 credits	38,220 + 2,550 per credit exceeding 16 credits	39,960 + 2,660 per credit exceeding 16 credits	

***Rate A:** *For continuing undergraduate student and undergraduate students matriculated from the Achievement Academy with uninterrupted registration from Spring 2007.*

****Rate B:** *For undergraduate and Achievement Academy students admitted after Spring 2007 and for students returning in or after Fall 2008 after not attending AUS for at least one regular semester (Spring or Fall).*

Achievement Academy Tuition (in AED)	
Regular Semester	**Summer Term**
25,960	3,360 per credit

Compulsory Fees (in AED)		
Textbook Fee	For all full-time undergraduate students; redeemable only at the AUS bookstore	900
Student Activities	All students	200
Health Insurance (either/or)	Plan I: For AUS-sponsored students	600
	Plan II: For all students who are ***not*** on Plan I	300
FE (Fundamentals of Engineering) Exam	For all chemical, civil, electrical and mechanical engineering students registered in the Design Project II course, payable once [US$ 250 directly to NCEES (National Council of Examiners for Engineering and Surveying) and AED 100 to AUS].	$250 + AED 100

Conditional Fees (In AED)		
Lab/Technology Fee A	Applies for each registered course that has Lab/Tech Fee Rate A noted in its course description	630
Lab/Technology Fee B	Applies for each registered course that has Lab/Tech Fee Rate B noted in its course description	870

Student Housing Fees (in AED)			
Utilities Service Fee	Fee automatically added to any residential hall room reserved (except in summer)		140
Refundable Dorm Deposit	One-time fee applied when students first register for residential halls – refundable after cancelation		1,000
Room Type	**Description**	**Regular Semester**	**Summer Term**
Private	Single occupancy with private bath and kitchenette	14,900	5,960
Semi-Private	Single occupancy with a shared bath and kitchenette	10,550	4,220
Sharing	Double occupancy with a shared bath and kitchenette	5,780	2,310
Single	Single occupancy with a common bath and no kitchenette (men only)	5,560	-
Double	Double occupancy with a common bath and no kitchenette (men only)	3,230	-

Fines/Charges (In AED)	
Late Registration	500
Late Payment (if tuition and fees are not settled by the first due date)	500
Reinstatement Fee (if fees are not settled by the second due date)	1,500
Returned Check Penalty (per check if returned by bank)	500
Declined Credit Card (per transaction for deferred payments if credit card is declined upon charging)	500

Payment Methods

Tuition and fees are due each semester at or before the time of registration and form an integral part of registration. For information on the deferment of tuition and fees, please see the Deferment of Tuition and Fees section below.

AUS accepts the following methods of payment:

- cash in UAE Dirhams (AED) 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.)
- credit cards (including online payment)
- direct transfers to Sharjah Islamic Bank Account No. 0029-200170-001, IBAN number: AE65 0410 0000 2920 0170 001 (student's name and ID number must be noted on transfer)

A charge of AED 500 is added if a check is returned for insufficient funds or if a credit card authorization payment is declined.

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 2282/515 2039 or sending an email to studentaccounts@aus.edu.

Deferment of Tuition and Fees

Students are expected to pay their tuition and fees or to make arrangements for deferred payment during the registration period. The deferment of tuition and fees is approved only if all of the following conditions are met:

- 60 percent of the tuition and fees have been paid by the payment deadline.
- The student does not have access to checks or credit cards.
- The student has a clean payment history.
- The Fee Deferment Request Form is completed and signed by the student and is authorized by a Finance Department official. The form is available at www.aus.edu/admin/forms/or from Student Accounts.

Late Fees and Fines

All university 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.

Grants and Scholarships

Located on the mezzanine floor of the Main Building, the Office of Financial Grants and Scholarships provides a range of grants and scholarship packages that help undergraduate students finance their education.

Students may apply for grants and scholarships regardless of their race, color, gender, religion, disabilities, age or national origin. Applications for grants and scholarships may be collected directly from the Office of Financial Grants and Scholarships (Main Building MM01). Specific forms, as indicated in the appropriate sections below, can also be printed from the website at www.aus.edu/registration/forms. For more information, please call 515 2005/2055/2060/2072 or visit www.aus.edu/grants_scholarships.

Grants

Chancellor's Scholars

First-time students who have paid the seat reservation deposit by the deadline specified on the letter of admission and who meet the following requirements may apply for the highly competitive Chancellor's Scholars Award:

- 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

- school extracurricular activities as detailed in an essay the student must submit
- a minimum average of 95 percent or equivalent in the last three years of secondary education
- limited financial resources

The award is offered in fall semesters only; it is granted for the academic year, provided the recipient continues to meet the requirements at the end of the fall semester. It covers 75 to 100 percent of the student's tuition (for a maximum of 16 credit hours) and lab/technology fees.

Application for the Chancellor's Scholars Award is available at www.aus.edu/registration/forms. Applicants for the Fall 2012 semester must submit their applications to the Office of Grants and Scholarships by July 26, 2012.

Conditions for Maintaining Chancellor's Scholars Award

Recipients of the Chancellor's Scholars Award who wish to maintain it for the upcoming year must submit a renewal application (available from the Office of Financial Grants and Scholarships) by the enrolled students' deadlines. Please refer to the Office of Financial Grants and Scholarships website (www.aus.edu/grants_scholarships) for the actual dates.

Chancellor's Scholars Awards are re-evaluated at the end of every regular semester. In order to maintain the award, students must meet the following conditions:

- achieve a minimum semester GPA of 3.00
- achieve a minimum cumulative GPA of 3.30
- maintain a full-time student status with a minimum of 15 credits
- not be suspended or placed on conduct probation

In addition to meeting the above conditions, students applying to renew their Chancellor's Scholars Award must provide evidence of limited financial resources.

Family Tuition Grant

For families with more than one child enrolled simultaneously at AUS as full-time undergraduates in a degree program, a tuition discount of 25 percent is given to each sibling after the first. The 25 percent discount is granted for both tuition (for a maximum of 16 credit hours) and lab/technology fees. Family tuition grants are awarded for fall and spring semesters only.

To receive the family tuition grant, students must complete the Family Tuition Grant Application form available at www.aus.edu/registration/forms and submit it to the Office of Grants and Scholarships by the end of the first week of classes.

In the event that any sibling withdraws below 12 credits, the family grant will be discontinued the next regular semester the awarded sibling is registered.

Financial Grant

AUS financially assists full-time undergraduate students who demonstrate limited financial resources in the form of a financial grant. A financial grant is normally awarded for fall and/or spring semesters. Financial grants apply to summer terms, provided the student was on financial grant in the preceding spring semester of the same academic year and is registered for credited summer term courses at AUS.

Financial grants normally apply toward students' tuition for a maximum of 16 credit hours. Students on financial grant who live on campus in double or sharing rooms are granted partial assistance toward their residential hall fees.

First-time Students

First-time students who demonstrate limited financial resources and have paid the seat reservation deposit by the deadline specified on the letter of admission may apply for a financial grant.

The amount awarded depends on the financial need and academic qualifications of the applicant.

The Financial Grant Application is available at www.aus.edu/registration/orms. Financial grant applications for new students must be submitted to the Office of Financial Grants and Scholarships by the following deadlines:

- Fall 2012 applications: July 26, 2012
- Spring 2013 applications: December 20, 2012

Enrolled Students

Enrolled full-time students who demonstrate limited financial resources and have completed a minimum of 12 credits at AUS and who achieve a minimum cumulative GPA of 2.00 may apply for a financial grant.

The amount awarded depends on the financial need and academic qualifications of the applicant.

Financial grant applications for enrolled students are available from the Office of Financial Grants and Scholarships. Applications must be submitted to the Office of Financial Grants and Scholarships by the following deadlines:

- Fall 2012 applications: May 10, 2012
- Spring 2013 applications: November 22, 2012

Maintaining the Financial Grant

Students who wish to maintain their financial grant must submit, each year, a renewal application (available from the Office of Financial Grants and Scholarships) by the enrolled students' deadlines listed above.

Financial grants are awarded for the academic year, provided continuation conditions are met at the end of the first regular semester on financial grant.

In order to maintain their award, students on financial grant must meet the following conditions every semester:

- achieve a minimum cumulative GPA of 2.00 (must be in good academic standing)
- maintain a full-time student status (minimum of 12 credits)
- not be suspended or placed on conduct probation

In addition to meeting the above conditions, students applying to renew their financial grant must provide evidence of limited financial resources.

Scholarships

Athletic Scholarships

Athletic scholarships are offered by the Office of Student Affairs with the aim of providing assistance to current full-time AUS student-athletes with limited financial resources who demonstrate athletic excellence and outstanding sports qualities.

Athletic scholarships are granted to eligible student-athletes on a renewable semester basis subject to terms and conditions of the AUS Athletic Scholarship Program. For more information on this scholarship, please contact the Office of Student Affairs or e-mail studentaffairs@aus.edu.

Dean's List Scholarship

Subject to available budget, students placed on the Dean's List at the end of the fall or spring semesters are eligible for a Dean's List Scholarship, which provides a tuition remission of up to 5 percent including lab/technology fees. This remission is applicable to the semester immediately following the

semester when the student was placed on the Dean's List, provided that in this semester the student is enrolled as a full-time student and is receiving no more than 90 percent of student financial grant and/or scholarship from AUS and other external sponsors.

Application forms are not required. The Dean's List Scholarship is awarded during the third or fourth week of classes of the fall and spring semesters; it is not available in the summer.

Merit Scholarship

First-time students who demonstrate academic excellence by achieving a minimum cumulative average grade score of 95 percent or its equivalent in the final year of their secondary education may be eligible for a Merit Scholarship.

Application forms are not required. First-time students are evaluated for eligibility at admission time by the Office of Enrollment Management/Undergraduate Admissions. Merit Scholarships of enrolled students are automatically renewed as long as the conditions for maintaining it are met.

The scholarship is granted by semester. It covers 10 percent of both tuition (for a maximum of 16 credit hours) and the lab/technology fees. Continuing students who meet the conditions for maintaining the Merit Scholarship at the end of a spring semester are granted this scholarship for the next summer term provided they are registered for credited summer term courses at AUS.

Conditions for Maintaining the Merit Scholarship

- achieve a minimum semester GPA of 2.50
- achieve a minimum cumulative GPA of 3.00
- maintain a full-time student status (minimum of 12 credits)
- Students who are placed on conduct probation at any time during the semester may not be eligible for the award in the following semester.

Petrofac Endowment Scholarship

The Petrofac Endowment Scholarship provides assistance for junior and senior students in the College of Engineering who have limited financial resources and who demonstrate academic excellence and exemplify the hallmark traits that characterize American University of Sharjah: honor, integrity, leadership and service to others.

The scholarship provides up to 50 percent of tuition and is awarded yearly in the fall semester. This scholarship does not cover AUS residential hall fees or summer term courses.

Students applying for this scholarship must hold the passport of a country in which Petrofac operates. A list of these is available from the Office of Financial Grants and Scholarships. Applications must be submitted to the Office of Financial Grants and Scholarships by May 20, 2012.

Conditions for Maintaining a Petrofac Endowment Scholarship

- achieve a minimum cumulative GPA of 3.25
- maintain a full-time student status (minimum of 12 credits)
- not be suspended or placed on conduct probation

Sheikh Khalifa Scholarship

The Sheikh Khalifa Scholarship, awarded to juniors and seniors, recognizes academic excellence, leadership potential, service to community, demonstrated talent in the field of study, and participation in extracurricular and university activities.

The Sheikh Khalifa Scholarship is awarded through an annual competition conducted within each college/school. It is granted for up to four consecutive semesters or until graduation requirements are complete, whichever occurs first, provided the continuation conditions are met. This scholarship is not awarded for the summer term.

Students interested in applying for the Sheikh Khalifa Scholarship should consult with the associate dean of their college/school.

Conditions for Maintaining the Sheikh Khalifa Scholarship

- achieve a minimum semester GPA of 3.25
- maintain a full-time student status (minimum of 12 credits)
- not be suspended or placed on conduct probation

AUS Students on International Exchange Programs

AUS students on grants/scholarships must obtain approval from the Office of Financial Grants and Scholarships before starting a semester abroad at a host university.

In cases where the AUS student pays tuition and/or housing fees directly to AUS for study abroad, the student will continue to use their AUS grants and AUS-funded scholarships for that semester abroad. In all other cases of students studying abroad, financial grants and AUS-funded scholarships will not be awarded.

Discontinuing Awarded Grants/Scholarships

In order to maintain an awarded grant/scholarship, students must continue to meet the conditions set by each of the grants/scholarships they hold. These conditions are detailed within the specific grant/scholarship section.

Students awarded grants and/or scholarships who withdraw from the university, are academically dismissed or are suspended at any given semester lose their grant and/or scholarship for that same semester.

Sponsorship Liaison

The Sponsorship Liaison Division coordinates and communicates with external organizations sponsoring students to study at AUS.

The division provides various support services to both the sponsoring organizations and their sponsored students, including admission coordination, orientation, academic follow-up, progress reports, guidance, housing assistance and financial matters.

Moreover, the division is the main link for sponsors to communicate messages to sponsored students. It also coordinates the on- and off-campus annual meetings with sponsors and their students.

For further assistance and information, please contact the Sponsorship Liaison Officer, 515 1016, sponsors@aus.edu.



College of Architecture, Art and Design

Dean

Peter Di Sabatino

Associate Dean

Ahmed Mokhtar

The College of Architecture, Art and Design (CAAD) 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 Bachelor of Architecture program is further accredited by the National Architectural Accrediting Board (NAAB) of the United States.

The College of Architecture, Art and Design 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 college 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 college 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 college seeks to contribute to the development of professional standards and innovation in architecture and design.

The College of Architecture, Art 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 advising 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

Degree Programs

CAAD offers the following undergraduate degree programs:

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

CAAD also offers a Master in Urban Planning degree program. For details, please refer to the *AUS Graduate Catalog*.

Minor Offerings

CAAD offers the following minors:

- architectural studies
- design management
- film
- illustration and animation
- interior design
- landscape architecture
- photography
- product design
- urban design
- urban planning

Details on each minor are provided in the catalog section of the department offering the minor.

Career Opportunities

CAAD prepares students for careers in a wide variety of fields:

- architecture, environmental design, interior design, urban design, urban planning
- 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 in Studio Majors

Admission to the studio majors (architecture, interior design, multimedia design and visual communication) in the College of Architecture, Art and Design is competitive. The number of available seats in second-year studio majors is limited to the following:

- architecture and interior design 64
- multimedia design and visual communication 32

Selection for advancement to the second-year studios is competitive. Selection criteria are detailed in the catalog section of the department housing the studio major.

The number of available seats in second-year design management is not limited.

Year Status

Year status in the College of Architecture, Art 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 CAAD students are required to have a personal laptop computer. The laptop must meet specifications published by CAAD. Laptops that do not meet specifications published by the college 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 College of Architecture, Art and Design will make every effort to monitor student progress through the advisement process; however, students are responsible 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 fees, and lab fees may apply for some courses. However, students are given a limited account for printing and plotting large-format drawings.

Ownership of Student Work

The College of Architecture, Art and Design reserves the right to retain

indefinitely selected examples of student work for archiving, publicity and exhibition.

Responsibility for Equipment

The College of Architecture, Art and Design provides an extensive range of digital and electronic equipment for student use. For some courses, college equipment is checked out to a student or a group of students for use on or off campus. Students are expected to treat college equipment with care and will be held financially responsible for breakage, damage, late return or loss.

Foundations Year

The foundations year is an autonomous one-year program that supports the common educational requirements for all fields of study within the College of Architecture, Art 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 College of Architecture, Art and Design students in studio majors 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 studio 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 analog and digital technologies through exercises and projects that are integrated within the studio context

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. 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 111 Descriptive Drawing I
- DES 112 Descriptive Drawing II
- DES 121 Introduction to Architecture and Design History
- DES 122 Modern Developments in Architecture and Design
- DES 131 Design Foundations I
- DES 132 Design Foundations II

Design management students must complete DES 111, DES 131 and either DES 121 or DES 122.

The teaching load in foundations is shared by professors from all the fields of study in the College of Architecture, Art and Design. 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

Michael Hughes, Head

Faculty

Peter Di Sabatino
Brian Dougan
Mona El-Mousfy
W. Eirik Heintz
George Katodrytis (on leave Fall 2012)
Thomas Kennedy
Jerry Kolo
Ginger Krieg Dosier
Kevin Mitchell
Ahmed Mokhtar
Amer Moustafa
Varkki Pallathucheril
Samia Rab (on leave AY 2012–2013)
Robert Reid
William Sarnecky
Kevin Sweet

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 designated 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 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 living values. It gives abiding form, order and proportion to activities. Architecture is a message to the world about certainties and doubts, values and beliefs, preoccupations and neglects. It both expresses and reveals.

The practice of architecture today, as in the past, requires coordinated contributions from multiple 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.

Program Goals

The Bachelor of Architecture program aims to:

- provide students with a comprehensive understanding of the historical and theoretical forces that shape architecture
- prepare future architects to make contributions to improving the built environment through leadership, personal engagement and professional practice while respecting human diversity and adhering to ethical standards

- provide students with the knowledge and skills necessary to conceive, develop and communicate complex design proposals
- foster critical thinking and cultivate an approach to design that values the role of research, analysis and experimentation
- promote a critical understanding of building technologies and their impact on the built environment

Program Outcomes

Upon completion of the Bachelor of Architecture program, graduates should be able to:

- apply historical precedents to inform and enrich the design process
- describe how personal design work relates to historical traditions and design theory
- explain the diversity of roles in contemporary architectural practice
- demonstrate an understanding of the standards of professional practice
- analyze and explain the cultural role that the architectural profession plays with regional and global contexts
- demonstrate an understanding of the principles of universal design
- demonstrate the ability to employ traditional means of representation, computer-aided design, digital modeling and digital fabrication to develop and communicate design ideas
- articulate, present and discuss design proposals in verbal, written and graphic form
- employ research, analysis and iterative processes to inform and enrich the process of design
- engage in critical self-reflection in order to evaluate the design process and its results
- demonstrate the ability to integrate structural, constructional and environmental control systems into a comprehensive building design proposal
- analyze and explain the relationship between building design and environmental sustainability
- demonstrate an understanding of how traditional and contemporary building technologies have been developed to respond to environmental challenges

Accreditation

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit US professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture and the Doctor of Architecture. A program may be granted a six-year, three-year or two-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The American University of Sharjah College of Architecture, Art and Design offers the following NAAB-accredited degree program:

BArch (159 undergraduate credits)

Next accreditation visit: 2013

Curriculum

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 159 credits comprise the degree program, including a minimum of 102 credits of required course work in architecture and closely associated fields. These courses represent the irreducible core of the discipline of architecture.

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 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 15 credits of free electives from general university offerings.

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 Program

Advancement to Second Year

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 minimum requirements:

- all four foundations studio courses (DES 111, DES 112, DES 131, DES 132) with a minimum grade point average (GPA) of 2.00 out of 4.00 in each sequence (design and drawing)
- both courses in history of material culture (DES 121 and DES 122)
- MTH 111 Mathematics for Architects or its prerequisite (MTH 003), or MTH 103 Calculus I
- at least one course in writing (WRI) at the 100 level or above
- a minimum of 27 undergraduate credit hours (including the above courses)
- a cumulative GPA of 2.30

In addition, selection for advancement to the second year may also include portfolio review.

Formal notification of advancement to the second year will be announced by the College of Architecture, Art 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 advanced based on academic achievement, and a waiting list will be established. If there are available seats at the time of fall registration, consideration will be given to those students who fulfilled requirements during summer term or who wish to change majors, based on the same advancement criteria.

Further Advancement Reviews

As an extension of the regular advising 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+ (2.30) in all university courses
- a minimum major studio average of 2.30 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 student who fails a studio, or does not attain the required studio average, will be required to meet with the department advising committee.
- A student who does not attain the required studio average must repeat the studio with the lower grade.
- Any studio may be repeated only once.
- A student who fails to achieve the minimum studio average necessary for promotion after repeating is dismissed from the program.

Enrolling in Graduate Courses

Fifth-year architecture students with a minimum CGPA of 3.00 can register for up to two 500-level graduate courses in urban planning (UPL). Students pay the regular undergraduate fee per credit.

Graduate UPL courses taken at the undergraduate level cannot be counted toward undergraduate program degree requirements. Once the student is admitted to an AUS graduate program, these courses may be counted toward completion of the graduate program degree requirements.

Degree Requirements

A minimum of 159 credits, including the following, is required:

- a minimum of 42 credits of general education requirements
- 102 credits of major requirements
- a minimum of 15 credits of free electives
- five weeks of approved professional training (internship)

> **Note***: In order to graduate with a Bachelor of Architecture degree, a student must maintain a minimum cumulative grade point average (CGPA) of 2.00 and must have attained a studio average of 2.30 in the final studio sequence (ARC 501 and either ARC 502 or ARC 592). A student who does not attain the required 2.30 average must repeat the studio with the lower grade.*

Please see the proposed sequence of study for a strategy for completing the requirements in five years.

General Education Requirements (minimum of 42 credits)

Students in the Bachelor of Architecture program must satisfy the following general education requirements:

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: a minimum of six credits in courses meeting this requirement, including PHY 104
- mathematics requirement: MTH 103 or MTH 111
- statistics requirement: a minimum of three credits in courses meeting this requirement
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 204
- ethical understanding requirement: satisfied through ARC 463
- discipline-specific writing intensive course requirement: satisfied through ARC 421
- oral proficiency requirement: satisfied through ARC 401
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through ARC 201

For complete information on general education requirements, please refer to the Graduation Requirements section within the Academic Policies and Regulations section of this catalog.

Major Requirements (102 credits)

In addition to the foundations courses, the following courses constitute the major requirements for the Bachelor of Architecture degree program:

- ARC 201 Architectural Design Studio I
- ARC 202 Architectural Design Studio II
- ARC 221 Pre-Modern Architecture and Urban Form
- ARC 222 Modern Architecture and Urban Form
- ARC 232 Materials and Methods I
- ARC 271 Introduction to Landscape
- ARC 281 Architectural Principles
- ARC 301 Architectural Design Studio III
- ARC 302 Architectural Design Studio IV
- ARC 331 Materials and Methods II
- ARC 342 Structures for Architects
- ARC 382 Architectural Detailing
- ARC 397 Internship in Architecture (5 weeks)
- ARC 401 Architectural Design Studio V
- ARC 402 Architectural Design Studio VI
- ARC 421 Architectural Theory
- ARC 451 Environmental Control Systems
- ARC 463 Professional Practice
- ARC 501 Architectural Design Studio VII
- ARC 502 Architectural Design Studio VIII or ARC 592 Final Project Design
- ARC 581 Critical Practice and Contemporary Discourse

Internship

To qualify for the Bachelor of Architecture degree, students must fulfill the internship requirement 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 200 work hours for third-year or 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 summer following their third year. For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

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 502). In addition, ARC 591 Final Project Research (3 credits) must be completed before ARC 592 and will count as a free elective. The final project option is subject to departmental approval.

Free Electives (minimum of 15 credits)

Students must complete a minimum of 15 credits in free electives. Nine credits must be in courses at the 300-level or above. Six credits may be in any courses offered at or above the 100 level, excluding MTH 103 and MTH 111.

Proposed Sequence of Study
Bachelor of Architecture (BArch)

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	DES 111	Descriptive Drawing I	3
	DES 121	Introduction to Architecture and Design History	3
	DES 131	Design Foundations I	3
	MTH 111 or MTH 103	Mathematics for Architects or Calculus I	3
	WRI 101	Academic Writing	3
		Total	**15**
Spring	DES 112	Descriptive Drawing II	3
	DES 122	Modern Developments in Architecture and Design	3
	DES 132	Design Foundations II	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	History and Culture of the Arab World	3
		Total	**15**

SECOND YEAR (36 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ARC 201	Architectural Design Studio I	6
	ARC 271	Introduction to Landscape	3
	ARC 281	Architectural Principles	3
	ENG 204	Advanced Academic Writing	3
	PHY 104	Physics for Architects	3
		Total	**18**
Spring	ARC 202	Architectural Design Studio II	6
	ARC 222	Modern Architecture and Urban Form	3
	ARC 232	Materials and Methods I	3
	GER-COM	Communication	3
	FRE	Free Elective	3
		Total	**18**

THIRD YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ARC 301	Architectural Design Studio III	6
	ARC 221	Pre-Modern Architecture and Urban Form	3
	ARC 331	Materials and Methods II	3
	GER-STA	Statistics	3
		Total	**15**
Spring	ARC 302	Architectural Design Studio IV	6
	ARC 342	Structures for Architects	3
	ARC 382	Architectural Detailing	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**18**
Summer	ARC 397	Internship in Architecture	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ARC 401	Architectural Design Studio V	6
	ARC 421	Architectural Theory	3
	ARC 451	Environmental Control Systems	3
	GER-Core	Arts and Literature	3
		Total	**15**
Spring	ARC 402	Architectural Design Studio VI	6
	ARC 463	Professional Practice	3
	GER-SCI	Natural and Physical Sciences	3
	FRE	Free Elective	3
		Total	**15**

FIFTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ARC 501	Architectural Design Studio VII	6
	ARC 581	Critical Practice and Contemporary Discourse	
	ARC 591 or FRE	Final Project Research or Free Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	ARC 502 or ARC 592	Architectural Design Studio VIII or Final Project Design	6
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

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.

Program Goals

The Bachelor of Interior Design program aims to:

- provide a comprehensive understanding of the historical and theoretical forces that shape interior built environments
- prepare future interior designers to make contributions to improving the built environment through leadership, personal engagement and professional practice while respecting human diversity and adhering to ethical standards
- provide students with the knowledge and skills necessary to conceive, develop and communicate complex design proposals
- foster critical thinking and cultivate an approach to design that values the role of research, analysis and experimentation
- promote a critical understanding of building technologies and their impact on the built environment

Program Outcomes

Upon completion of the Bachelor of Interior Design program, graduates should be able to:

- apply historical precedents to inform and enrich the design process
- describe how personal design work relates to historical traditions and design theory
- explain the diversity of roles in current contemporary interior design practice
- demonstrate a comprehensive understanding of the standards of professional practice
- analyze and explain the cultural role that the architectural profession plays with regional and global contexts
- demonstrate an understanding of the principles of universal design
- demonstrate the ability to employ traditional means of representation, computer-aided design, digital modeling and digital fabrication to develop and communicate design ideas
- articulate, present and discuss design proposals in verbal, written and graphic form
- employ research, analysis and iterative processes to inform and enrich the process of design
- engage in critical self-reflection in order to evaluate the design process and its results
- demonstrate the ability to integrate constructional and environmental control systems, lighting and furnishings into an interior design proposal
- analyze and explain the relationship between interior design and environmental sustainability
- demonstrate an understanding of how traditional and contemporary building technologies have been developed to respond to environmental challenges

Curriculum

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. 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 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 129 credits comprise the degree program, including a minimum of 72 credits of required course work in interior design and closely associated fields. These courses represent the core of the interior design discipline.

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 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 12 additional credits of free electives from general university offerings.

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

Advancement to Second Year

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 minimum requirements:

- all four foundations studio courses (DES 111, DES 112, DES 131, DES 132) with a minimum GPA of 2.00 out of 4.00 in each sequence (design and drawing)
- both courses in history of material culture (DES 121 and DES 122)
- MTH 111 Mathematics for Architects or its prerequisite (MTH 003), or MTH 103 Calculus I

- at least one course in writing (WRI) at the 100 level or above
- a minimum of 27 undergraduate credit hours (including the above courses)
- a minimum cumulative GPA of 2.30

In addition, selection for advancement to the second year may also include portfolio review.

Formal notification of advancement to the second year will be announced by the College of Architecture, Art 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 advanced based on academic achievement, and a waiting list will be established. If there are available spaces at the time of fall registration, consideration will be given to those students who fulfilled requirements during summer term or who wish to change majors, based on the same advancement criteria.

Further Advancement Reviews

As an extension of the regular advising 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 GPA of C+ (2.30) in all university courses
- a minimum major studio average of 2.30 in each year of the interior design studio sequence (IDE 201-01 and IDE 202-01, IDE 301 and IDE 302)

Notes:

- A student who fails a studio, or does not attain the required studio average, will be required to meet with the department advising committee.
- A student who does not attain the required studio average must repeat the studio with the lower grade.
- Any studio may be repeated only once.
- A student who fails to achieve the minimum studio average necessary for promotion after repeating is dismissed from the program.

Degree Requirements

A minimum of 129 credits, including the following, is required:

- a minimum of 42 credits of general education requirements
- 75 credits of major requirements
- a minimum of 12 credits of free electives
- five weeks of approved professional training (internship)

Note: *In order to graduate with a Bachelor of Interior Design degree, a student must maintain a minimum cumulative grade point average (CGPA) of 2.00 and have attained a studio average of 2.30 in the final studio sequence (IDE 401 and either IDE 402 or IDE 492). A student who does not attain the required 2.30 average must repeat the studio with the lower grade.*

Please see the proposed sequence of study for a specific strategy for completing the requirements in four years.

General Education Requirements (minimum of 42 credits)

Students in the Bachelor of Interior Design program must satisfy the following general education requirements:

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: a minimum of six credits in courses meeting this requirement, including PHY 104
- mathematics requirement: MTH 103 or MTH 111
- statistics requirement: a minimum of three credits in courses meeting this requirement
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 204
- ethical understanding requirement: satisfied through IDE 463
- discipline-specific writing intensive course requirement: satisfied through IDE 223
- oral proficiency requirement: satisfied through IDE 401
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through IDE 201

For complete information on general education requirements, please refer to the Graduation Requirements section within the Academic Policies and Regulations section of this catalog.

Major Requirements (75 credits)

In addition to the foundations courses, the following courses constitute the major requirements for the Bachelor of Interior Design degree program:

- IDE 201-01 Interior Design Studio I
- IDE 202-01 Interior Design Studio II
- IDE 211 Color
- IDE 212 Light
- IDE 223 History and Theory of Interior Design I: Global Issues
- IDE 224 History and Theory of Interior Design II: Regional Issues
- IDE 237 Interior Materials and Methods I
- IDE 238 Interior Materials and Methods II
- IDE 301 Interior Design Studio III
- IDE 302 Interior Design Studio IV
- IDE 334 Furniture and Furnishings
- IDE 352 Environmental Control Systems in Interior Design
- IDE 397 Internship in Interior Design (5 weeks)
- IDE 401 Interior Design Studio V
- IDE 402 Interior Design Studio VI or IDE 492 Final Project Design
- IDE 463 Professional Practice

Internship

To qualify for the Bachelor of Interior Design degree, students must fulfill the internship requirement 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 200 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. For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

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 402). In addition, IDE 491 Final Project Research (3 credits) must be completed before IDE 492 and will count as a free elective. The final project option is subject to departmental approval.

Free Electives (minimum of 12 credits)

Students must complete a minimum of 12 credits in free electives. Six credits must be in courses at the 300 level or above. Six credits may be in any courses offered at or above the 100 level, excluding MTH 103 and MTH 111.

Proposed Sequence of Study
Bachelor of Interior Design (BID)

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	DES 111	Descriptive Drawing I	3
	DES 121	Introduction to Architecture and Design History	3
	DES 131	Design Foundations I	3
	MTH 111 or MTH 103	Mathematics for Architects or Calculus I	3
	WRI 101	Academic Writing	3
		Total	**15**
Spring	DES 112	Descriptive Drawing II	3
	DES 122	Modern Developments in Architecture and Design	3
	DES 132	Design Foundations II	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	History and Culture of the Arab World	3
		Total	**15**

SECOND YEAR (36 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	IDE 201-01	Interior Design Studio I	3
	IDE 211	Color	3
	IDE 223	History and Theory of Interior Design: Global Issues	3
	IDE 237	Interior Materials and Methods I	3
	PHY 104	Physics for Architects	3
	ENG 204	Advanced Academic Writing	3
		Total	**18**
Spring	IDE 202-01	Interior Design Studio II	3
	IDE 212	Light	3
	IDE 224	History and Theory of Interior Design: Regional Issues	3
	IDE 238	Interior Materials and Methods II	3
	GER-COM	Communication	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**18**

THIRD YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	IDE 301	Interior Design Studio III	6
	IDE 352	Environmental Control Systems in Interior Design	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**15**
Spring	IDE 302	Interior Design Studio IV	6
	IDE 334	Furniture and Furnishings	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**18**
Summer	IDE 397	Internship in Interior Design	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	IDE 401	Interior Design Studio V	6
	IDE 491 or FRE	Final Project Research or Free Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	GER-STA	Statistics	3
		Total	**15**
Spring	IDE 402 or IDE 492	Interior Design Studio VI or Final Project Design	6
	IDE 463	Professional Practice	3
	GER-SCI	Natural and Physical Sciences	3
	FRE	Free Elective	3
		Total	**15**

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 2.50 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 Design Studio I
- ARC 202 Architectural Design Studio II
- ARC 232 Materials and Methods I
- ARC 281 Architectural Principles

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits from:

- 300-level or above architecture courses not listed as minor requirements
- any 300-level or above courses approved by the department

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 CGPA of 2.50 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 as follows:

- IDE 211 Color or IDE 212 Light
- IDE 223 History and Theory of Interior Design: Global Issues
- IDE 237 Interior Materials and Methods I

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits from the following:

- ARC 331 Materials and Methods II
- 300-level or above interior design courses not listed as minor requirements
- any 300-level or above course approved by the department

Minor in Landscape Architecture

Students enrolling in the landscape architecture 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (12 credits)

- ARC 271 Introduction to Landscape
- ARC 273 Principles of Landscape Architecture
- ARC 324 History of Landscape Architecture
- DES 131 Design Foundations I or DES 101 Design Foundations for Non-majors

Minor Electives (6 credits)

Students must complete a total of six credits as follows:

Group I (3 credits)

- ARC 322 Global Issues in Architecture
- ARC 374 Environmentally Sustainable Design
- ARC 424 Evolution of Cities
- ARC 474 Issues in Contemporary Urban Design

Group II (3 credits)

- ARC 311 Illustration and Rendering
- ARC 316 Photography and Visual Representation
- BIO 330 Ecosystems Management
- PHI 309 Ethics and the Environment

Minor in Urban Design

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 474 Issues in Contemporary Urban Design
- ARC 501 Architectural Design Studio VII

Minor Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- ARC 271 Introduction to Landscape
- ARC 322 Global Issues in Architecture
- ARC 374 Environmentally Sustainable Design
- ENV 100 Principles of Environmental Science
- PSY 102 Social Psychology
- SOC 380 Urban Sociology
- STA 202 Introduction to Statistics for Social Sciences
- any other courses approved by the department

Minor in Urban Planning

Students enrolling in the urban planning 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (minimum of 9 credits)

Students must complete a minimum of nine credits as follows:

- UPL 201 Introduction to Urban Planning
- a minimum of six credits in courses meeting the requirements of one of the following options:

  Option I

  - ARC 474 Issues in Contemporary Urban Design
  - UPL X94 Special Topics in Urban Planning (transportation focus)

  Option II

  - CVE 263 Urban Transportation Planning

- UPL X94 Special Topics in Urban Planning (urban design focus)

Option III

- UPL X94 Special Topics in Urban Planning (urban design focus)
- UPL X94 Special Topics in Urban Planning (transportation focus)

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following list:

- ARC 273 Principles of Landscape Architecture
- ARC 322 Global Issues in Architecture
- ARC 424 Evolution of Cities
- CVE 456 Traffic Engineering
- CVE 457 Airport Planning and Design
- ECO 410 Urban and Regional Economics
- ENV 100 Principles of Environmental Science
- ENV 411 Environmental Assessment and Management
- GEO 201 World Cultural Geography
- MGT 300 Management of Public Organizations
- PBA 317 Urban Management
- PBA 402 Local and Regional Administration
- PBA 411 The Public Policy Environment
- PHI 309 Ethics and the Environment
- SOC 302 Environmental Sociology
- SOC 380 Urban Sociology
- UPL X94 Special Topics in Urban Planning
- any other courses approved by the department

Department of Design

Kevin Badni, Head

Faculty

Shoaib Nabi Ahmad
Tarek Al-Ghoussein
Paul Bantey
Amir Berbić (on sabbatical Fall 2012)
Bob Dahm
Gaurang Desai
Zlatan Filipović
Martin Giesen
David Hewitt
Mark Pilkington
Phil Sheil
Jack Swanstrom
Tonya Sweet
Seth Thompson
Ludmil Trenkov
Clement Vincent

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; and 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.

Program Goals

The Bachelor of Science in Design Management program aims to:

- provide students with appropriate management skills and knowledge for leadership within team-oriented design disciplines
- provide students with the knowledge and skills required for critically analyzing and solving design problems using specific applications to respond to a variety of audiences and contexts
- provide students with the opportunities to explore how forms of communication are influenced by ethical considerations, self-expression and professional demands

Program Outcomes

Upon completion of the Bachelor of Science in Design Management program, graduates will be able to:

- communicate effectively both orally and in writing
- integrate analytical, technical and critical skills necessary to succeed in the contemporary world of entrepreneurial design
- demonstrate knowledge of how the management and allocation of appropriate resources will sustain a design practice
- demonstrate the skills necessary to work with interdisciplinary teams and clients to design and implement projects
- organize, plan, direct, communicate and distribute information using traditional and digital media systems
- demonstrate knowledge of management, communication and information theories
- analyze and describe the technical, formal and conceptual aspects of communication within the design process
- apply theories of design and management
- interpret principles of management and marketing in order to explain regional and global markets
- employ traditional and digital systems and media in the process of design and management projects
- demonstrate an understanding of the complex demands of design, business, labor and law
- demonstrate an understanding of ethical, social and cultural significance of design
- demonstrate an understanding of sustainable business models that are professionally and socially equitable
- explain how design projects for the media and service industries are initiated and evaluated

Degree Requirements

A minimum of 120 credits, including the following, is required:

- a minimum of 42 credits of general education requirements
- 60 credits of major requirements
- a minimum of 12 credits of major electives
- a minimum of six credits of free electives
- five weeks of approved professional training (internship)
- a minimum CGPA of 2.00

General Education Requirements

Students in the Bachelor of Science in Design Management must satisfy the following general education requirements:

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: a minimum of six credits in courses meeting this requirement
- mathematics requirement: MTH 101 or MTH 111
- statistics requirement: STA 202 or QBA 201
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 204 and ENG 225
- ethical understanding requirement: satisfied through DES 462
- discipline-specific writing intensive course requirement: satisfied through DES 231
- oral proficiency requirement: satisfied through DES 300
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through DES 230

For complete information on general education requirements, please refer to the Graduation Requirements section within the Academic Policies and Regulations section of this catalog.

Major Requirements (60 credits)

The following courses constitute the major requirements for the Bachelor of Science in Design Management program.

In the College of Architecture, Art and Design (33 credits)

- DES 111 Descriptive Drawing I
- DES 121 Introduction to Architecture and Design History or
  DES 122 Modern Developments in Architecture and Design
- DES 131 Design Foundations I
- DES 200 Communication Design
- DES 230 Digital Media in Communication Design
- DES 231 History of Design
- DES 300 Design Project
- DES 360 Critical Discourse in Design
- DES 397 Internship in Design Management
- DES 462 Design Management
- DES 472 Exhibition Project
- VIS 361 The Design Profession

In the School of Business and Management (27 credits)

- BIS 101 Business Information Systems
- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- MGT 201 Fundamentals of Management
- MGT 301 Organizational Behavior
- MGT 305 International Business
- MGT 360 Business Ethics and Social Responsibility
- MIS 201 Fundamentals of Management Information Systems
- MKT 201 Fundamentals of Marketing

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 five weeks of full-time work placement (normally 200 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. For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

Major Electives (minimum of 12 credits)

Students are required to complete at least three of the four major electives in courses at the 300 level or above. They can choose to take courses from the following:

- ENG 231 Writing for Visual Media
- PSY 101 General Psychology
- PSY 102 Social Psychology
- any course in CAAD
- any course in SBM
- any course in mass communication

Free Electives (minimum of 6 credits)

Students must complete a minimum of six credits in free electives. Three credits must be in courses at the 300 level or above. Three credits may be in any courses offered at or above the 100 level.

Proposed Sequence of Study
Bachelor of Science in Design Management (BSDM)

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	DES 111	Descriptive Drawing I	3
	DES 121* or MJE	Introduction to Architecture and Design History or Major Elective	3
	DES 131	Design Foundations I	3
	MTH 101 or MTH 111	Mathematics for Business or Mathematics for Architects	3
	WRI 101	Academic Writing	3
		Total	**15**
Spring	DES 122* or MJE	Modern Developments in Architecture and Design or Major Elective	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	History and Culture of the Arab World	3
	GER-Core	Culture in a Critical Perspective	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BIS 101	Business Information Systems	3
	DES 200	Communication Design	3
	DES 231	History of Design	3
	ENG 204	Advanced Academic Writing	3
	STA 202 or QBA 201	Introduction to Statistics for Social Sciences or Quantitative Business Analysis	3
		Total	**15**
Spring	DES 230	Digital Media in Communication Design	3
	ECO 201	Principles of Microeconomics	3
	MGT 201	Fundamentals of Management	3
	MJE	Major Elective	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

*** Students must take either DES 121 or DES 122 to meet the major requirements.**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	DES 300	Design Project	3
	DES 360	Critical Discourse in Design	3
	ECO 202	Principles of Macroeconomics	3
	MIS 201	Fundamentals of MIS	3
	VIS 361	The Design Profession	3
		Total	**15**
Spring	ENG 225	Writing for Business	3
	MKT 201	Fundamentals of Marketing	3
	GER-Core	Arts and Literature	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Summer	DES 397	Internship in Design Management	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	DES 462	Design Management	3
	MGT 305	International Business	3
	MGT 360	Business Ethics and Social Responsibility	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	DES 472	Exhibition Project	3
	MGT 301	Organizational Behavior	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

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.

Mission Statement

The Department of Design aims to cultivate critical thinking and learning through the study of design as a practice relevant to visual culture and communication.

Program Goals

The Bachelor of Science in Multimedia Design program aims to:

- provide students with the knowledge and skills necessary to solve communication problems and competently practice within the multimedia design fields
- introduce students to the knowledge and skills to develop appropriate communicative form across media, dimensions and formats
- provide students with the knowledge and skills required for critically analyzing and solving design problems using specific applications to respond to a variety of audiences and contexts

Program Outcomes

Upon completion of the Bachelor of Science in Multimedia Design program, graduates will be able to:

- communicate effectively both orally and in writing
- integrate a range of tools, media and technology in the processes of design and production
- reflect upon and explain the ethical dimensions of practice within multimedia design fields
- apply appropriate skills, particularly digital tools and techniques, within multimedia design fields
- demonstrate knowledge and abilities necessary to create designed experiences that are developed using storyboarding, computer scripting, sound editing and interface design
- employ visual and verbal forms of communication to convey ideas and information
- demonstrate an understanding of the practical relationship between form, content and context
- demonstrate the ability to use new and emerging technology as a vehicle for the invention of form and a means of effective communication
- employ interactive and time-based media formats (and their delivery) to mediate and communicate content
- plan, coordinate and manage multimedia design projects
- conduct research, synthesize information and apply specific knowledge within the design process
- discuss, analyze and evaluate the technical, formal and conceptual aspects of mediated communication

- demonstrate a critical understanding of design practice within regional and global contexts
- analyze precedents of contemporary works of visual culture to inform multimedia design and production
- demonstrate an understanding of professional responsibility to client and audience

Curriculum

The Bachelor of Science in Multimedia Design (BSMD) requires a minimum of four years (126 credits) of course work, 69 credits of which are required in multimedia-related studies, including sound, video, text, computer graphics and theory courses. The specialization is supported by 42 credits of general education requirements and 15 credits of free electives. 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.

Advancement in the Program

Advancement to Second Year

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 minimum requirements.

- all four foundations studio courses (DES 111, DES 112, DES 131, DES 132) with a minimum grade point average (GPA) of C (2.00) in each sequence (design and drawing)
- both courses in history of material culture (DES 121 and DES 122)
- MTH 100 or any other MTH course
- at least one course in writing (WRI) at the 100 level or above
- a minimum of 27 undergraduate credit hours (including the above courses)
- a minimum CGPA of 2.30

In addition, selection for advancement to the second year may also include portfolio review.

Formal notification of advancement to the second year will be announced by the College of Architecture, Art 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 advanced based on overall academic achievement, and a waiting list will be established. If there are available spaces at the time of fall registration, consideration will be given to those students who fulfilled requirements during summer term or who wish to change majors, based on the same advancement criteria.

Further Advancement Reviews

As an extension of the regular advising 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+ (2.30) must be attained in MUM 201 and MUM 202, with a minimum grade of C- (1.70) 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+ (2.30) must be attained in MUM 301-01 and MUM 302-01 with a minimum of C- (1.70) in each course.

Notes:

- A student who fails a studio, or does not attain the required studio average, will be required to meet with the department advising committee.
- A student who does not attain the required studio average must repeat the studio with the lower grade.
- Any studio may be repeated only once.
- A student who fails to achieve the minimum studio average necessary for promotion after repeating is dismissed from the program.

Degree Requirements

A minimum of 126 credits, including the following, is required:

- a minimum of 42 credits of general education requirements
- 69 credits of major requirements
- a minimum of 15 credits of free electives
- five weeks of approved professional training (internship)
- a minimum CGPA of 2.00

Please see the proposed sequence of study for a specific strategy for completing the requirements in four years.

Note*: In order to graduate with a Bachelor of Science in Multimedia Design, a student must maintain a minimum cumulative grade point average (CGPA) of 2.0 and have attained a studio average of 2.30 in the final studio sequences (MUM 405 and MUM 406). A student who does not attain the required 2.30 average must repeat the studio with the lower grade.*

General Education Requirements (minimum of 42 credits)

Students in the Bachelor of Science in Multimedia Design program must satisfy the following general education requirements:

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: a minimum of six credits in courses meeting this requirement
- mathematics requirement: MTH 100 or a minimum of three credits in any MTH course meeting this requirement
- statistics requirement: a minimum of three credits in courses meeting this requirement
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 204
- ethical understanding requirement: satisfied through VIS 361
- discipline-specific writing intensive course requirement: satisfied through DES 232
- oral proficiency requirement: satisfied through MUM 405
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through MUM 201

For complete information on general education requirements, please refer to the Graduation Requirements section within the Academic Policies and Regulations section of this catalog.

Major Requirements (69 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
- DES 232 Research Methodologies for Design
- MUM 201 Multimedia Design Studio I
- MUM 202 Multimedia Design Studio II
- MUM 221 Motion Graphics and Video
- MUM 301-01 Multimedia Design Studio III
- MUM 302-01 Multimedia Design Studio IV
- MUM 304 Media Systems and Publishing
- MUM 331 3D Animation
- MUM 360 Multimedia Design History and Theory
- MUM 397 Internship in Multimedia Design
- MUM 405 Multimedia Design Studio V
- MUM 406 Multimedia Design Studio VI
- VIS 221 Photography Basics
- VIS 231 Typography I: Normative Typographic Principles
- VIS 361 The Design Profession

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 five weeks of full-time work placement (normally 200 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. For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

Free Electives (minimum of 15 credits)

Students must complete a minimum of 15 credits in free electives. Nine credits must be in courses at the 300-level or above. Six credits may be in any courses offered at or above the 100 level.

Proposed Sequence of Study
Bachelor of Science in Multimedia Design (BSMD)

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	DES 111	Descriptive Drawing I	3
	DES 121	Introduction to Architecture and Design History	3
	DES 131	Design Foundations I	3
	WRI 101	Academic Writing	3
	MTH 100*	Fundamentals of Logic and Geometry	3
		Total	**15**
Spring	DES 112	Descriptive Drawing II	3
	DES 122	Modern Developments in Architecture and Design	3
	DES 132	Design Foundations II	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	History and Culture of the Arab World	3
		Total	**15**

***Students can take MTH 100 or any other 100-level or above MTH course meeting the GER-MTH requirement.**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MUM 201	Multimedia Design Studio I	3
	VIS 221	Photography Basics	3
	VIS 231	Typography I: Normative Typographic Principles	3
	DES 231	History of Design	3
	ENG 204	Advanced Academic Writing	3
		Total	**15**
Spring	MUM 202	Multimedia Design Studio II	3
	MUM 221	Motion Graphics and Video	3
	DES 232	Research Methodologies for Design	3
	GER-STA	Statistics	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (36 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MUM 301-01	Multimedia Design Studio III	3
	MUM 331	3D Animation	3
	MUM 360	Multimedia Design History and Theory	3
	GER-Core	Culture in a Critical Perspective	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**18**
Spring	MUM 302-01	Multimedia Design Studio IV	3
	MUM 304	Media Systems and Publishing	3
	GER-SCI	Natural and Physical Sciences	3
	GER-COM	Communication	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**18**
Summer	MUM 397	Internship in Multimedia Design	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MUM 405	Multimedia Design Studio V	6
	VIS 361	The Design Profession	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	MUM 406	Multimedia Design Studio VI	6
	GER-Core	Course Selected from General Education Core Requirements	3
	GER-SCI	Natural and Physical Sciences	3
	FRE	Free Elective	3
		Total	**15**

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 principles.

Mission Statement

The Department of Design aims to cultivate critical thinking and learning through the study of design as a practice relevant to visual culture and communication.

Program Goals

The Bachelor of Science in Visual Communication program aims to:

- provide students with the practical knowledge and skills necessary to competently practice design within the visual communications fields
- introduce students to the knowledge and skills to develop appropriate, communicative visual form within various media, dimensions and formats
- provide students with the knowledge and skills required for critically analyzing and solving design problems using specific applications to respond to a variety of audiences and contexts

Program Outcomes

Upon completion of the Bachelor of Science in Visual Communication program, graduates will be able to:

- communicate effectively both orally and in writing
- integrate a range of tools, media and technology in the processes of design and production
- reflect upon and explain the ethical considerations related to creation, production, management and distribution within visual communication fields
- create and utilize image, language and typographic form in order to communicate specific content
- demonstrate an understanding of the practical relationship between form, content and context
- analyze various media formats to determine their effectiveness in mediating and communicating content
- demonstrate proficiency in the appropriate use of multiple design technologies
- conduct research, synthesize information and apply specific knowledge within the design process
- discuss, analyze and evaluate the technical, formal and conceptual aspects of visual communication
- analyze and describe contemporary and historical examples of visual communications
- explain how ideas are communicated and information is presented in the context of professional practice
- demonstrate a critical understanding of design practice within regional and global contexts

Curriculum

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, theory 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 126 credits required for the degree comprise 69 credits in required visual communication, digital applications and visual design-related courses. This specialization is supported by 42 credits of general education requirements and 15 credits of free electives. 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 as well as those who plan to pursue graduate studies in visual communication-related areas. The curriculum follows standards of professional North American organizations and is designed to meet or exceed requirements for visual communication experts in the United Arab Emirates.

Advancement in the Program

Advancement to Second Year

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 minimum requirements.

- all four foundations studio courses (DES 111, DES 112, DES 131, DES 132) with a minimum grade point average (GPA) of C (2.00) in each sequence (design and drawing)
- both courses in history of material culture (DES 121 and DES 122)
- MTH 100 or any other MTH course
- at least one course in writing (WRI) at the 100 level or above
- a minimum of 27 undergraduate credits (including the above courses)
- a minimum CGPA of 2.30

In addition, selection for advancement to the second year may also include portfolio review.

Formal notification of advancement to the second year will be announced by the College of Architecture, Art 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 advanced based on academic achievement, and a waiting list will be established. If there are available spaces at the time of fall registration, consideration will be given to those students who fulfilled requirements during summer term or who wish to change majors, based on the same advancement criteria.

Further Advancement Reviews

As an extension of the regular advising 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+ (2.30) must be attained in VIS 201 and VIS 202, with a minimum grade of C- (1.70) 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+ (2.30) must be attained in VIS 301 and VIS 302 with a minimum of C- (1.70) in each course.

Notes:

- A student who fails a studio, or does not attain the required studio average, will be required to meet with the department advising committee.
- A student who does not attain the required studio average must repeat the studio with the lower grade.
- Any studio may be repeated only once.

- A student who fails to achieve the minimum studio average necessary for promotion after repeating is dismissed from the program.

Degree Requirements

A minimum of 126 credits, including the following, are required:

- a minimum of 42 credits of general education requirements
- 69 credits of major requirements
- a minimum of 15 credits of free electives
- five weeks of approved professional training (internship)
- a minimum CGPA of 2.00

> **Note***: In order to graduate with a Bachelor of Science in Visual Communication, a student must maintain a minimum cumulative grade point average (CGPA) of 2.00 and have attained a studio average of 2.30 in the final studio sequence (VIS 405 and VIS 406). A student who does not attain the required 2.30 average must repeat the studio with the lower grade.*

Please see the proposed sequence of study for a specific strategy for completing the requirements in four years.

General Education Requirements (minimum of 42 credits)

Students in the Bachelor of Science in Visual Communication program must satisfy the following general education requirements:

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: a minimum of six credits in courses meeting this requirement
- mathematics requirement: MTH 100 or a minimum of three credits in any MTH course meeting this requirement
- statistics requirement: a minimum of three credits in courses meeting this requirement
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 204
- ethical understanding requirement: satisfied through VIS 361
- discipline-specific writing intensive course requirement: satisfied through DES 232
- oral proficiency requirement: satisfied through VIS 405
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through VIS 201

For complete information on general education requirements, please refer to the Graduation Requirements section within the Academic Policies and Regulations section of this catalog.

Major Requirements (69 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
- DES 232 Research Methodologies for Design
- DES 360 Critical Discourse in Design
- VIS 201 Design Studio I
- VIS 202 Design Studio II
- VIS 221 Photography Basics
- VIS 231 Typography I: Normative Typographic Principles
- VIS 242 Electronic Online Publishing
- VIS 301 Design Studio III
- VIS 302 Design Studio IV
- VIS 331 Typography II: Complex Typographic Systems
- VIS 342 Environment, Experience and Interaction Design
- VIS 361 The Design Profession
- VIS 397 Internship in Visual Communication
- VIS 405 Design Studio V
- VIS 406 Design Studio VI

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 five weeks of full-time work placement (normally 200 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. For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

Free Electives (minimum of 15 credits)

Students must complete a minimum of 15 credits in free electives. Nine credits must be in courses at the 300 level or above. Six credits may be in any courses offered at or above the 100 level.

Proposed Sequence of Study
Bachelor of Science in Visual Communication (BSVC)

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	DES 111	Descriptive Drawing I	3
	DES 121	Introduction to Architecture and Design History	3
	DES 131	Design Foundations I	3
	WRI 101	Academic Writing	3
	MTH 100*	Fundamentals of Logic and Geometry	3
		Total	**15**
Spring	DES 112	Descriptive Drawing II	3
	DES 122	Modern Developments in Architecture and Design	3
	DES 132	Design Foundations II	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	History and Culture of the Arab World	3
		Total	**15**

***Students can take MTH 100 or any other 100-level or above MTH course meeting the GER-MTH requirement.**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	VIS 201	Design Studio I	3
	VIS 221	Photography Basics	3
	VIS 231	Typography I: Normative Typographic Principles	3
	DES 231	History of Design	3
	ENG 204	Advanced Academic Writing	3
		Total	**15**
Spring	VIS 202	Design Studio II	3
	VIS 242	Electronic Online Publishing	3
	DES 232	Research Methodologies for Design	3
	GER-STA	Statistics	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (36 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	VIS 301	Design Studio III	3
	VIS 331	Typography II: Complex Typographic Systems	3
	DES 360	Critical Discourse in Design	3
	GER-Core	Culture in a Critical Perspective	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**18**
Spring	VIS 302	Design Studio IV	3
	VIS 342	Environment, Experience and Interaction Design	3
	GER-COM	Communication	3
	GER-SCI	Natural and Physical Sciences	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**18**
Summer	VIS 397	Internship in Visual Communication	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	VIS 405	Design Studio V	6
	VIS 361	The Design Profession	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	VIS 406	Design Studio VI	6
	GER-Core	Course Selected from General Education Core Requirements	3
	GER-SCI	Natural and Physical Sciences	3
	FRE	Free Elective	3
		Total	**15**

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 CAAD undergraduate courses, including DES 101 or DES 131. ART courses do not meet this requirement.
- at least nine credits in SBM undergraduate courses, including MGT 201

Minor in Film

Students enrolling in the film 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (12 credits)

- FLM 100 The Art of Film
- FLM 201 History of Film to 1945 or FLM 202 History of Film since 1945 or FLM 203 History of Arab Film
- FLM 210 Narrative Structure in Film
- FLM 310 Film Production I

Minor Electives (minimum of 6 credits)

Students must complete a minimum total of six credits from the following list of courses:

- ENG 378 Literature as Film
- ENG 393 Shakespeare On Film
- FLM 312 Film Production II
- FLM 360 Screenwriting
- FLM 401 Significant Film Genres
- FLM 410 Advanced Film Production
- FLM 412 Documentary Film Production
- MUM 311 Animation
- MUM 331 3D Animation
- any 300-level or above courses approved by the department

Minor in Illustration and Animation

Students enrolling in the illustration-animation 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (9 credits)

- MUM 311 Animation
- VIS 213 Illustration Drawing
- VIS 313 Visual Narrative

Minor Electives (minimum of 9 credits)

Students must complete a minimum total of nine credits from the following list of courses:

- ENG 301 Creative Writing
- MUM 331 3D Animation
- VIS 311 Illustration Design
- VIS 312 Illustration Genres
- any other courses approved by the department

Minor in Photography

Students enrolling in the photography 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (9 credits)

- DES 231 History of Design
- DES 362 History of Photography: The Portrait
- VIS 221 Photography Basics or DES 160 Introduction to Photography

Minor Electives (minimum of 9 credits)

Students must complete a minimum total of nine credits from the following list of courses:

- ARC 316 Photography and Visual Representation
- VIS 321 Photojournalism or MCM 377 Photojournalism
- VIS 323 Photography for Communication
- VIS 325 Creative Studio Photography
- any other 300-level and above courses related to photography approved by the department

Minor in Product Design

Students enrolling in the product 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (9 credits)

- DES 170 Introduction to Product Design
- DES 270 Design as Form
- DES 370 Introduction to Prototyping

Minor Electives (minimum of 9 credits)

Students must complete a minimum total of nine credits from the following list of courses:

- DES 340 Materials and Processes for Design
- DES 374 Package Design
- DES 462 Design Management
- IDE 335 Furniture Design Basics
- IDE 460 Exhibition Design
- any other 300-level and above courses related to product design approved by the department


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College of Arts and Sciences

Dean

Mark Edward Rush

Associate Deans

Ibrahim El-Sadek
Pia-Kristina Anderson

The mission of the College of Arts and Sciences is to educate and train students in the liberal arts tradition and to serve as a model of collegiality, liberal learning, scholarship and inquiry. To this end, we offer students the opportunity to probe deeply within and explore linkages across the liberal arts disciplines by offering a robust, diverse curriculum of study in a variety of academic and experiential settings.

Graduates of the College of Arts and Sciences will be prepared to achieve their personal and professional aspirations. They will be well qualified to pursue professional training and/or graduate degrees of their choice.

Degree Offerings

The College of Arts and Sciences offers the following undergraduate degree programs:

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

For information on the college's graduate programs, please see the *AUS Graduate Catalog*.

Minor Offerings

The College of Arts and Sciences offers the following minors:

- actuarial mathematics
- American studies
- applied and computational mathematics
- Arabic language and literature
- biology
- education
- English/Arabic translation
- English language
- English literature
- environmental policy
- environmental sciences
- governmental studies
- history
- international studies
- mass communication
- Middle Eastern studies
- music
- philosophy
- physics
- psychology
- theatre
- women's studies

Department of Arabic and Translation Studies

Ronak Husni, Head

Faculty

Wesam Al-Assadi
Ahmed Ali
Meis Al-Kaisi
Nuha Al-Sha'ar
Said Faiq
Basil Hatim
Peter Heath
Sattar Izwaini
Ghada Jayyusi-Lehn
Boutheina Khaldi
Imed Nsiri
Jeremy Palmer
Gavin Picken
Olatunbosun Tijani

The mission of the Department of Arabic and Translation Studies is to cultivate students' knowledge and understanding of Arabic language and literature, Arab and Islamic studies, and Arabic/English translation and intercultural studies with the aim of preparing its graduates for academic and professional success. For Arabic language and literature and Arab and Islamic studies, students will acquire the necessary linguistic, literary, historical and cultural knowledge of Arabic and associated cultural contexts, and develop the ability to reflect critically on these areas. For Arabic/English translation and intercultural studies, students will acquire the knowledge of and the tools for the use of the two languages effectively in a variety of media, genres and contexts that pertain to translation as intercultural communication. The department offers minors in Arabic language and literature and in English/Arabic translation. It also houses the graduate program in Arabic/English/Arabic translation and interpreting (see the *AUS Graduate Catalog*).

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 Introduction to Arabic Heritage I (Arabic or English) or ARA 102 Introduction to Arabic Heritage II (Arabic or English)
- ARA 204 Intermediate Arabic II or ARA 210 Composition for Native Speakers of Arabic or ARA 308 Arabic Grammar in Use

Minor Electives (minimum of 12 credits)

Students must complete a minimum of 12 credits from any 200-level or above ARA courses, nine of which must be at the 300 level or above.

Minor in English/Arabic Translation

To qualify for a minor in English/Arabic translation, students must demonstrate fluency in English and Arabic. In tandem with a solid grounding in communicative skills and linguistic analysis, the minor in translation focuses on written translation skills in a variety of settings and across disciplines. It also offers an insight into interpreting with a focus on the community. Throughout the program, students are provided with relevant theoretical input that establishes a framework for the study of translation and offers the tools to identify, analyze and resolve translation 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 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

Students seeking a minor in English/Arabic translation 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 or
  TRA 230 Translating Arabic Literary Texts

Minor Electives (minimum of 12 credits)

Students must complete a minimum of 12 credits in courses selected from the following list, with a minimum of nine credits at the 300 level or above:

- ARA 394/ARA 494 Special Topics in Arabic approved by the department
- ENG 321 Cultures in Contact
- TRA 301 Modern Media Translation
- TRA 303 Interpreting: Focus on the Community
- TRA 307 Screen Translation
- TRA 294/394/494 Special Topics in Translation
- TRA 401 Translation Evaluation and History

Department of Biology, Chemistry and Environmental Sciences

Fawwaz Jumean, Head

Faculty

Mohamed Abouleish
Imad Abu-Yousef
Mohammed Al-Sayah (on sabbatical AY 2012–2013)
Aaron Bartholomew
Sarah Dalibalta (on leave Fall 2012)
Oussama El-Kadri
Yehya El-Sayed
Sofian Kanan
Mustafa Khamis
Sandra Knuteson
Amin Majdalawieh
Lucia Pappalardo
Dennis Russell
Fatin Samara
Gautam Sen

Bachelor of Science in Biology (BSB)

The mission of the Bachelor of Science in Biology program is to provide students with a broadly-based, rigorous education in a variety of biology areas. These include environmental biology, ecosystems management, environmental protection, species conservation, physiology, microbiology, molecular biology, genetics, health research, immunology and teaching.

Program Goals

The Bachelor of Science in Biology program seeks to:

- provide students with an integrated knowledge of contemporary principles and applications of biology that will prepare them for advanced degrees and careers in teaching, research, consulting and business
- provide a high-quality, laboratory-rich learning environment where students will learn proper laboratory protocols, plan and conduct experiments in various areas of biology, practice the scientific method, analyze data, and reach logical and reasonable conclusions
- provide opportunities for interested and qualified students to participate in meaningful research projects of their own, under the guidance of the biology faculty
- provide pre-professional education and training for students who wish to pursue careers in related fields such as medicine, genetic engineering, biotechnology and research
- maintain a dynamic curriculum that reflects the needs of a changing world
- foster motivation and opportunities for lifelong learning

Program Outcomes

Upon graduation from the Bachelor of Science in Biology program, students will be able to:

- participate effectively in practical, experience-based learning, through conferences, field experiences, workshops and independent research projects
- apply technologies and become proficient in the use of modern instrumentation
- identify and carry out thoughtful approaches to biology-related problems, including ethical issues and biological threats to the environment
- define simple research tasks, carry them out and use appropriate statistical analysis in the treatment of data
- develop competence in critical thinking, communications, teamwork, information technology and adaptation to change
- produce written and oral reports in the style most commonly used in scientific literature
- demonstrate knowledge of the fundamentals of various molecular, cell and ecological techniques, instruments and equipment

Career Opportunities

Graduates of the Bachelor of Science in Biology program will have the training necessary to work in many areas including genetic research laboratories, immunology research, human genetics counseling, agriculture, horticulture, soil science, marine aquaculture, fisheries, forestry, science education and teaching at all levels, scientific journalism, veterinary medicine, drug and biotechnology, ecosystems management, conservation law enforcement, bioinformatics database companies, pharmaceutical sales and production, university and hospital research centers, natural history museums, nature parks and zoological gardens, government wildlife management, centers for disease control, epidemiology, virology, food testing, public health, and medical and blood testing laboratories.

Admission to the Program

Initial admission to the program follows the university's undergraduate admission requirements.

Formal admission to the program requires meeting the following conditions:

- a cumulative grade point average (CGPA) of 2.00
- a minimum grade of C- (1.70) in at least 19 credits from the following list of required freshman-level science and mathematics courses: BIO 101, BIO 102, CHM 101, CHM 102, PHY 101, PHY 101L, MTH 103

AUS students transferring into the program must meet the formal admission requirements listed above. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

A minimum of 120 credits, including the following, is required:

- a minimum of 44 credits in general education requirements
- 43 credits of major requirements
- a minimum of 18 credits of major electives
- a minimum of 15 credits of free electives in courses at the 100 level or above, excluding MTH 101
- a minimum CGPA of 2.00

General Education Requirements (minimum of 44 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: BIO 101 and CHM 101
- mathematics requirement: MTH 103
- statistics requirement: STA 201
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through BIO 251
- discipline-specific writing intensive course requirement: satisfied through BIO 361
- oral proficiency requirement: satisfied through BIO 251
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through STA 201

Major Requirements (43 credits)

- BIO 102 General Biology II
- BIO 251 Ecology
- BIO 260 Genetics and Molecular Biology
- BIO 310 General Physiology
- BIO 332 Cell Biology
- BIO 335 Microbiology
- BIO 361 Evolution and Biodiversity
- CHM 102 General Chemistry II
- CHM 215 Organic Chemistry I
- CHM 216 Organic Chemistry II
- CHM 217 Organic Chemistry Lab I
- CHM 350 Biochemistry
- PHY 101 Physics I
- PHY 101L General Physics Laboratory I

Major Electives (minimum of 18 credits)

Students must complete a minimum of 18 credits in courses selected from the following list:

- BIO 330 Ecosystems Management
- BIO 394/494 Special Topics in Biology approved by the department
- BIO 421 Marine Environments
- BIO 461 Desert and Maritime Plants
- BIO 481 Cellular and Molecular Immunology
- BIO 491 Senior Project I
- BIO 492 Senior Project II
- ENV 201 Fundamentals of Environmental Science
- ENV 352 Environmental Toxicology
- up to two courses at the 200 level or above in BIO/CHM/ENV/PHY approved by the department

Proposed Sequence of Study
Bachelor of Science in Biology (BSB)

FIRST YEAR (28 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BIO 101	General Biology I	4
	CHM 101	General Chemistry I	4
	MTH 103	Calculus I	3
	WRI 101	Academic Writing	3
		Total	**14**
Spring	BIO 102	General Biology II	4
	CHM 102	General Chemistry II	4
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	History and Culture of the Arab World	3
		Total	**14**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BIO 260	Genetics and Molecular Biology	4
	CHM 215	Organic Chemistry I	3
	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
		Total	**14**
Spring	BIO 251	Ecology	3
	CHM 216	Organic Chemistry II	3
	CHM 217	Organic Chemistry Laboratory I	1
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	GER-Core	Culture in a Critical Perspective	3
	GER-COM	Communication	3
		Total	**16**

THIRD YEAR (32 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BIO 310	General Physiology	4
	BIO 332	Cell Biology	3
	MJE	Major Elective	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**16**
Spring	BIO 335	Microbiology	4
	BIO 361	Evolution and Biodiversity	3
	CHM 350	Biochemistry	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**16**

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MJE	Major Elective	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**15**
Spring	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Bachelor of Science in Chemistry (BSC)

The mission of the Bachelor of Science in Chemistry program is to provide graduates with technical and problem-solving skills in an exciting and central area of scientific knowledge. Graduates will be prepared to pursue careers in industry, consulting, teaching and research.

Program Goals

The Bachelor of Science in Biology program seeks to:

- provide students with an integrated knowledge of contemporary principles and applications of chemistry that will prepare them for advanced degrees and careers in research, industry, education and business
- provide a high-quality, laboratory-rich learning environment where students will learn proper laboratory protocols, plan and conduct experiments in various areas of chemistry, practice the scientific method, analyze data, and reach logical and reasonable conclusions
- provide opportunities for interested and qualified students to participate in meaningful and significant research projects of their own, under the guidance of the chemistry faculty
- provide pre-professional education and training for students who wish to pursue careers in related fields such as medicine, pharmaceuticals, industry, petrochemicals and research
- maintain a dynamic curriculum that reflects the needs of a changing world
- foster motivation and opportunities for lifelong learning

Program Outcomes

Upon graduation from the Bachelor of Science in Chemistry program, students will be able to:

- participate effectively in practical, experience-based learning, through conferences, field experiences, workshops and independent research projects
- apply technologies and use advanced chemical instrumentation such as nuclear magnetic resonance (NMR), high pressure liquid chromatography (HPLC), inductively coupled plasma spectrometry (ICP) and Fourier-transform infrared spectrometry (FTIR)
- identify and carry out thoughtful approaches to chemistry-related problems, including ethical issues and the proper disposal of chemical waste
- define simple research tasks, carry them out and use appropriate statistical analysis in the treatment of data
- develop competence in critical thinking, communications, teamwork, information technology and adaptation to change
- produce written and oral reports in the style most commonly used in scientific literature

Career Opportunities

Chemists have the ability to work in a wide range of industries such as the following: agricultural companies, chemical distributors, chemical laboratories, chemical manufacturing plants, chemistry consulting firms, cosmetic companies, food and beverage companies, government, health protection branches, hospital research laboratories, industrial laboratories, mineral and metal industries, oil companies, petroleum refineries,

pharmaceutical/biotechnology industries, police laboratories, pulp and paper industries, quality control laboratories, research centers/institutes, textile manufacturers and waterworks departments.

Admission to the Program

Initial admission to the program follows the university's undergraduate admission requirements.

Formal admission to the program requires meeting the following conditions:

- a cumulative grade point average (CGPA) of 2.00
- a minimum grade of C- (1.70) in at least 18 credits from the following list of required freshman-level science and mathematics courses: CHM 101, CHM 102, PHY 101, PHY 101L, PHY 102, PHY 102L, MTH 103, MTH 104.

AUS students transferring into the program must meet the formal admission requirements listed above. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

A minimum of 121 credits, including the following, is required:

- a minimum of 44 credits in general education requirements
- 53 credits of major requirements
- a minimum of 9 credits of major electives
- a minimum of 15 credits of free electives in courses at the 100 level or above, excluding MTH 101
- a minimum CGPA of 2.00

General Education Requirements (minimum of 44 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: CHM 101, PHY 101 and PHY 101L
- mathematics requirement: MTH 103
- statistics requirement: STA 201
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through ENV 252
- discipline-specific writing intensive course requirement: satisfied through CHM 335
- oral proficiency requirement: satisfied through CHM 335
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through STA 201

Major Requirements (53 credits)

- CHM 102 General Chemistry II
- CHM 215 Organic Chemistry I
- CHM 216 Organic Chemistry II
- CHM 217 Organic Chemistry Laboratory I
- CHM 218 Organic Chemistry Laboratory II
- CHM 221 Basic Concepts of Inorganic Chemistry
- CHM 241 Quantitative Analysis
- CHM 315 Organic Chemistry III
- CHM 321 Chemistry of Transition Metals
- CHM 330 Physical Chemistry I
- CHM 331 Physical Chemistry II
- CHM 335 Physical Chemistry Laboratory
- CHM 345 Instrumental Analysis
- CHM 350 Biochemistry
- ENV 252 Environmental Chemistry
- MTH 104 Calculus II
- MTH 205 Differential Equations
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following list:

- CHE 467 Corrosion
- CHM 332 Physical Chemistry III
- CHM 394/494 Special Topics in Chemistry
- CHM 415 Spectroscopy in Organic Chemistry
- CHM 431 Biophysical Chemistry
- CHM 491 Senior Research Project I
- CHM 492 Senior Research Project II
- ENV 352 Environmental Toxicology
- ENV 452 Soil and Water Chemistry
- ENV 453 Environmental Monitoring and Analysis Techniques

Proposed Sequence of Study
Bachelor of Science in Chemistry (BSC)

FIRST YEAR (28 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 101	General Chemistry I	4
	MTH 103	Calculus I	3
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	GER-COM	Communication	3
		Total	**14**
Spring	CHM 102	General Chemistry II	4
	MTH 104	Calculus II	3
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	GER-COM	Communication	3
		Total	**14**

SECOND YEAR (31 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 215	Organic Chemistry I	3
	MTH 205	Differential Equations	3
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	GER-Core	History and Culture of the Arab World	3
	GER-COM	Communication	3
		Total	**15**
Spring	CHM 216	Organic Chemistry II	3
	CHM 217	Organic Chemistry Laboratory I	1
	CHM 221	Basic Concepts of Inorganic Chemistry	3
	CHM 241	Quantitative Analysis	3
	GER-COM	Communication	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**16**

THIRD YEAR (31 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 218	Organic Chemistry Laboratory II	1
	CHM 330	Physical Chemistry I	3
	CHM 345	Instrumental Analysis	3
	ENV 252	Environmental Chemistry	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**16**
Spring	CHM 331	Physical Chemistry II	3
	CHM 335	Physical Chemistry Laboratory	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**15**

FOURTH YEAR (31 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 321	Chemistry of Transition Metals	4
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**16**
Spring	CHM 315	Organic Chemistry III	3
	CHM 350	Biochemistry	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

Bachelor of Science in Environmental Sciences (BSES)

The mission of the Bachelor of Science in Environmental Sciences program is to provide graduates with qualifications for meaningful employment in the ever-expanding environmental field. This multidisciplinary program integrates biology, chemistry and other related sciences so as to enable students to identify and understand environmental issues and devise solutions.

Program Goals

The Bachelor of Science in Environmental Sciences program seeks to:

- provide students with an integrated knowledge of contemporary principles and applications of environmental science that will prepare them for advanced degrees and careers in research, industry, education and business
- provide a high-quality, laboratory-rich learning environment where students will learn proper laboratory protocols, plan and conduct experiments, practice the scientific method, analyze data, and reach logical and reasonable conclusions
- provide opportunities for interested and qualified students to participate in meaningful research projects of their own, under the guidance of the environmental sciences faculty
- provide students with adequate background in the basic natural sciences, which will form the basis for their environmental studies
- foster motivation and opportunities for lifelong learning
- maintain a dynamic curriculum that reflects the needs of a changing world
- present students with opportunities for awareness of environmental issues within a global context

Program Outcomes

Upon graduation from the Bachelor of Science in Environmental Sciences program, students will be able to:

- participate effectively in practical, experience-based learning, through conferences, field experiences, workshops and independent research projects
- gain ability to work as a research team member and become proficient in the use of advanced equipment used in environmental analysis, including gas chromatography (GC), high pressure liquid chromatography (HPLC), ion chromatography (IC) and inductively coupled plasma spectrometry (ICP)
- evaluate and discuss sources of local and regional environmental threats and perform impact assessment studies
- define simple research tasks and carry them out, and assist in more complex research tasks as required for professional work
- demonstrate knowledge of the fundamentals of environmental modeling, environmental monitoring techniques and risk assessment
- evaluate the ethical, social, civic, cultural and political dimensions as they relate to environmental issues
- produce written and oral reports in the style most commonly used in scientific literature

Career Opportunities

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 Bachelor of Science in Environmental Sciences program at 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.

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 the 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.

Admission to the Program

Initial admission to the program follows the university's undergraduate admission requirements.

Formal admission to the program requires meeting the following conditions:

- a cumulative grade point average (CGPA) of 2.00
- a minimum grade of C- (1.70) in at least 18 credits from the following list of required freshman-level science and mathematics courses: BIO 101, CHM 101, CHM 102, PHY 101, PHY 101L, MTH 103, MTH 104

AUS students transferring into the program must meet the formal admission requirements listed above. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

Environmental sciences majors must choose among the following options:

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

A minimum of 122 credits, including the following, is required:

- a minimum of 44 credits in general education requirements
- 36 credits of major requirements
- a minimum of 27 credits of concentration requirements and concentration electives
- a minimum of 15 credits of free electives in courses at the 100 level or above, excluding MTH 101
- a minimum of five weeks of full-time, satisfactory internship in environmental sciences with a business or governmental organization
- a minimum CGPA of 2.00

General Education Requirements (minimum of 44 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: CHM 101 and CHM 102
- mathematics requirement: MTH 103
- statistics requirement: STA 201
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through ENV 491
- discipline-specific writing intensive course requirement: satisfied through ENV 491
- oral proficiency requirement: satisfied through ENV 491
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through STA 201

Major Requirements (36 credits)

Basic Mathematics and Sciences (11 credits)

- BIO 101 General Biology I
- MTH 104 Calculus II
- PHY 101 General Physics I
- PHY 101L General Physics Laboratory I

Core Requirements (25 credits)

- CHM 215 Organic Chemistry I
- CHM 217 Organic Chemistry Laboratory I
- CHM 241 Quantitative Analysis
- CHM 345 Instrumental Analysis
- ENV 201 Fundamentals of Environmental Science
- ENV 311 Environmental Modeling
- ENV 411 Environmental Assessment and Management
- ENV 453 Environmental Monitoring and Analysis Techniques
- ENV 491 Senior Research Project I
- ENV 497 Internship in Environmental Science

Concentration in Environmental Biology and Ecosystems (minimum of 27 credits)

Concentration Requirements (18 credits)

- BIO 102 General Biology II
- BIO 251 Ecology
- BIO 260 Genetics and Molecular Biology
- BIO 335 Microbiology
- BIO 361 Evolution and Biodiversity

Concentration Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following list:

- BIO 330 Ecosystems Management
- BIO 394/494 Special Topics in Biology approved by the department
- BIO 421 Marine Environments
- BIO 461 Desert and Maritime Plants
- CHM 216 Organic Chemistry II
- CHM 218 Organic Chemistry Laboratory II
- CHM 221 Basic Concepts of Inorganic Chemistry
- CHM 350 Biochemistry
- CHM 394/494 Special Topics in Chemistry approved by the department
- ENV 252 Environmental Chemistry
- ENV 261 Physical Geography
- ENV 352 Environmental Toxicology
- ENV 394/494 Special Topics in Environmental Sciences
- ENV 451 Waste Treatment
- ENV 492 Senior Research Project II
- up to two courses at the 200 level or above in BIO/CHM/ENV/PHY approved by the department
- one geographic information systems course at the 300 level or above approved by the department

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

FIRST YEAR (28 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BIO 101	General Biology I	4
	CHM 101	General Chemistry I	4
	MTH 103	Calculus I	3
	GER-COM	Communication	3
		Total	**14**
Spring	BIO 102	General Biology II	4
	CHM 102	General Chemistry II	4
	MTH 104	Calculus II	3
	GER-COM	Communication	3
		Total	**14**

SECOND YEAR (32 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 215	Organic Chemistry I	3
	ENV 201	Fundamentals of Environmental Science	3
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	GER-COM	Communication	3
	GER-Core	History and Culture of the Arab World	3
		Total	**16**
Spring	BIO 251	Ecology	3
	CHM 217	Organic Chemistry Laboratory I	1
	CHM 241	Quantitative Analysis	3
	CNE	Concentration Elective	3
	GER-COM	Communication	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**16**

THIRD YEAR (32 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BIO 260	Genetics and Molecular Biology	4
	ENV 311	Environmental Modeling	3
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	CNE	Concentration Elective	3
	GER-Core	Arts and Literature	3
		Total	**16**
Spring	BIO 335	Microbiology	4
	BIO 361	Evolution and Biodiversity	3
	CHM 345	Instrumental Analysis	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**16**
Summer	ENV 497	Internship in Environmental Science	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENV 453	Environmental Monitoring and Analysis Techniques	3
	ENV 491	Senior Research Project I	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	ENV 411	Environmental Assessment and Management	3
	CNE	Concentration Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Concentration in Environmental Chemistry and Analysis (minimum of 27 credits)

Concentration Requirements (15 credits)

- CHM 221 Basic Concepts of Inorganic Chemistry
- CHM 330 Physical Chemistry I
- ENV 252 Environmental Chemistry
- ENV 451 Waste Treatment
- ENV 452 Soil and Water Chemistry

Concentration Electives (minimum of 12 credits)

Students must complete a minimum of 12 credits in courses selected from the following list:

- BIO 335 Microbiology
- BIO 394/494 Special Topics in Biology approved by the department
- CHE 467 Corrosion
- CHM 216 Organic Chemistry II
- CHM 218 Organic Chemistry Laboratory II
- CHM 331 Physical Chemistry II
- CHM 335 Physical Chemistry Laboratory
- CHM 350 Biochemistry
- CHM 394/494 Special Topics in Chemistry approved by the department
- ENV 261 Physical Geography
- ENV 352 Environmental Toxicology
- ENV 394/494 Special Topics in Environmental Sciences
- ENV 492 Senior Research Project II
- up to two courses at the 200 level or above in BIO/CHM/ENV/PHY approved by the department
- one geographic information systems course at the 300 level or above approved by the department

Proposed Sequence of Study
Bachelor of Science in Environmental Sciences (BSES)
Concentration: Environmental Chemistry and Analysis

FIRST YEAR (28 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BIO 101	General Biology I	4
	CHM 101	General Chemistry I	4
	MTH 103	Calculus I	3
	GER-COM	Communication	3
		Total	**14**
Spring	CHM 102	General Chemistry II	4
	MTH 104	Calculus II	3
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	GER-COM	Communication	3
		Total	**14**

SECOND YEAR (31 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 215	Organic Chemistry I	3
	ENV 201	Fundamentals of Environmental Science	3
	CNE	Concentration Elective	3
	GER-COM	Communication	3
	GER-Core	History and Culture of the Arab World	3
		Total	**15**
Spring	CHM 217	Organic Chemistry Lab I	1
	CHM 221	Basic Concepts of Inorganic Chemistry	3
	CHM 241	Quantitative Analysis	3
	CNE	Concentration Elective	3
	GER-Core	Culture in a Critical Perspective	3
	GER-COM	Communication	3
		Total	**16**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENV 311	Environmental Modeling	3
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	CNE	Concentration Elective	3
	GER-Core	Arts and Literature	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	CHM 345	Instrumental Analysis	3
	CHM 330	Physical Chemistry I	3
	ENV 252	Environmental Chemistry	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**15**
Summer	ENV 497	Internship in Environmental Science	0

FOURTH YEAR (32 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENV 451	Waste Treatment	3
	ENV 452	Soil and Water Chemistry	3
	ENV 491	Senior Research Project I	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	ENV 411	Environmental Assessment and Management	3
	ENV 453	Environmental Monitoring and Analysis Techniques	3
	CNE	Concentration Elective	2
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**17**

Double Concentration in Environmental Biology and Ecosystems, and Environmental Chemistry and Analysis

Students must fulfill the requirements of both concentrations, as detailed in the respective previous sections. Courses used to fulfill the requirements of the first concentration can double count toward the second concentration. Once the degree requirements are met, any shortage in credits may be fulfilled by free electives. Double-concentration students generally require more than 120 credits to meet graduation requirements.

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 nine credits in courses at or above the 300 level.
- At least nine credits of the 20 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 in the environmental biology and ecosystems concentration.

Minor Requirements (8 credits)

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

Minor Electives (minimum of 12 credits)

Students must complete a minimum of 12 credits in courses selected from the following list:

- BIO 210 Introduction to Anatomy and Physiology
- BIO 251 Ecology
- BIO 260 Genetics and Molecular Biology
- BIO 310 General Physiology
- BIO 330 Ecosystems Management
- BIO 332 Cell Biology
- BIO 335 Microbiology
- BIO 361 Evolution and Biodiversity
- BIO 394/494 Special Topics in Biology
- BIO 421 Marine Environments
- BIO 461 Desert and Maritime Plants
- BIO 481 Cellular and Molecular Immunology
- CHM 350 Biochemistry

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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.

Minor Requirements (9 credits)

- ENV 100 Principles of Environmental Science or
  ENV 201 Fundamentals of Environmental Science
- ENV 411 Environmental Assessment and Management or
  ENV 412 Concepts and Models in Environmental Management Systems
- SOC 302 Environmental Sociology

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following list:

- ARC 374 Environmentally Sustainable Design
- BIO 330 Ecosystems Management
- ECO 404 Economics of Environmental and Natural Resources
- ENV 294/394/494 Special Topics in Environmental Sciences
- PBA 411 Foundations of Public Policy Analysis
- PHI 309 Ethics and the Environment
- POL 201 Introduction to Political Studies
- POL 304 International Organizations or POL 305 Public International Law
- SOC 380 Urban Sociology

Minor in Environmental Sciences

This 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

The minor is not open to environmental sciences students.

Minor Requirements (6 credits)

- ENV 201 Fundamentals of Environmental Science
- ENV 411 Environmental Assessment and Management

Minor Electives (minimum of 12 credits)

Students must complete a minimum of 12 credits in courses selected from the following list:

- BIO 330 Ecosystems Management
- BIO 335 Microbiology
- CHE 461 Air Pollution
- CHE 467 Corrosion
- CHE 472 Water and Wastewater Treatment Design
- CHM 345 Instrumental Analysis
- any 200-level or above ENV course, excluding ENV 201 and ENV 411

Department of English

John Battenburg, Head

Faculty

Khawlah Ahmed
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Maya Kesrouany
Betty Lanteigne
Gary Linebaugh
Lily Mabura
Aisha Mohamed-Sayidina
Laila Noman
David Prescott
Rana Raddawi

Bachelor of Arts in English Language and Literature (BAELL)

The Department of English offers a Bachelor of Arts in English Language and Literature with concentrations in language or literature. The Department of English also offers minors in education, English language and English literature in addition to a Master of Arts degree in Teaching English to Speakers of Other Languages (TESOL). For more details on the master's degree, please refer to the *AUS Graduate Catalog*.

The Department of English teaches many courses in the humanities, social sciences and rhetoric that apply to the AUS General Education Program. Courses in literature and language describe intellectual and cultural traditions of the Western world; analyze and explain how Western traditions have influenced the present; analyze cultural ideals and values in order to enhance self-understanding and empathy for others; explain how societies are defined in relation to culture, nationality, race, ethnicity and gender; and analyze and explain implied and expressed cultural values and attitudes in works of literature, as well as explain the development of human institutions, ideas and social structures. The literature and linguistics courses are also related to the social sciences, elucidating ideas in the following areas: sociology, psychology, history, language theory, political science and cultural studies. The rhetoric courses help students develop their oral and written communication skills in English.

Mission Statement

The mission of the AUS Department of English is based on a liberal arts and humanities approach to education that aims to prepare students academically in English language and literature. Its programs are designed to foster creative and critical abilities and skills that will enable students to use English in both their academic and professional lives.

The mission of the Bachelor of Arts in English Language and Literature program is to provide students with a broad knowledge of the ways in which literature explores the human experience and how language conveys meaning, preparing students for careers in writing and teaching and for graduate study.

Department and Program Goals

The goals of the Bachelor of Arts in English Language and Literature are to:

- provide knowledge of the linguistic structure of English and its literary use
- enable students to understand English within its historical, theoretical and cultural context
- provide students with insights into the complexity of human thought, emotion and interaction
- teach students the research tools, critical processes and analytical skills necessary for advanced study in diverse fields

Concentration in English Language

The goals of the concentration in English language are to:

- develop students' ability to analyze different components of language
- familiarize students with the theoretical models in linguistic study
- provide students with the skills to analyze the function and use of language
- promote an understanding of how language is used in literary texts
- develop students' linguistic research skills

Concentration in English Literature

The goals of the concentration in English literature are to:

- provide students with the skills to analyze the styles and elements of various genres
- promote an understanding of the exchange of ideas from one culture to another
- explore the philosophical and critical theories which underlie both the understanding and the writing of literature
- explain how ideas and literary styles change from one period to another in response to technological changes, historical events and philosophical concepts
- develop students' literary research skills

Program Outcomes

Concentration in English Language

Upon graduation from the Bachelor of Arts in English Language and Literature program, students with a concentration in English language will be able to:

- analyze the phonological and morphemic structure of the English language
- analyze the syntactic and semantic structure of the English language
- understand that languages are rule governed
- demonstrate knowledge of major theoretical models in linguistics
- assess the power of language in interpersonal interactions
- evaluate how power relations affect language use in different contexts
- identify the contextual factors embedded in communicative events
- explain language change
- recognize the relation between language, thought and culture
- understand the exchange of ideas from one culture to another
- explain the specific rhetorical devices (irony, allusion, connotation) used to convey meaning and evoke emotion
- demonstrate an understanding of the functions of dialogue, setting, voice, tone, atmosphere, narrative structure, imagery, rhythm and metaphor in creative prose and poetry
- analyze the influence of non-Western literary and philosophical traditions on Anglophone literary culture
- employ field work methods to investigate language use in different settings and media
- apply standard linguistic techniques for analysis and description of language

Concentration in English Literature

Upon graduation from the Bachelor of Arts in English Language and Literature, program, students with a concentration in English literature will be able to:

- demonstrate an understanding of the functions of dialogue, setting, voice, tone, atmosphere, narrative structure, imagery, rhythm and metaphor in creative prose and poetry
- explain the specific rhetorical devices (irony, allusion, connotation) by which writers convey meaning and evoke emotion
- explain the ways in which the structure of a work, from the sentence level to the overall organization, expresses meaning
- analyze the syntactic and semantic structure of the English language
- explain language change
- recognize the relation between language, thought and culture
- explain the interchange of ideas that led to such international literary movements as romanticism, realism, modernism, post-modernism and magic realism
- analyze the influence of non-Western literary and philosophical traditions on Anglophone literary culture
- identify the effects of the colonial experience on the Anglophone literature of both the colonizers and the colonized
- explain the philosophies that led to the development of various literary theories
- apply various theoretical approaches to literature
- explain the difference between major literary movements and periods and their predecessors
- recognize the ways in which major writers were influenced by the ideas and events of their time
- demonstrate effective use of primary and secondary sources in writing about literature
- employ effective patterns of organization in all critical and creative work
- produce a comprehensive critical study revealing in-depth knowledge of an individual author, literary movement or theoretical approach

Admission to the Program

Admission to the program follows the university's undergraduate admission requirements.

AUS students transferring into the program must be in good academic standing and must meet the minimum cumulative GPA required for transfer into the program. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Students seeking to major in English language and literature must select a concentration in either English language or English literature.

Degree Requirements

Students majoring in English language and literature must choose one of the following two concentrations:

- a concentration in English language
- a concentration in English literature

A minimum of 120 credits, including the following, is required:

- a minimum of 42 credits of general education requirements
- a minimum of 18 credits of major requirements
- a minimum of 21 credits in major electives for the language concentration and a minimum of 24 credits in major electives for the literature concentration
- a minimum of 24 credits of concentration requirements for the language concentration and a minimum of 21 credits of concentration requirements for the literature concentration
- a minimum of 15 credits of free electives
- a minimum CGPA of 2.00

General Education Requirements (minimum of 42 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: a minimum of six credits taken from the natural and physical sciences area
- mathematics requirement: MTH 100
- statistics requirement: STA 202
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through ENG 490
- discipline-specific writing intensive course requirement: satisfied through ENG 490
- oral proficiency requirement: satisfied through ENG 490
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through STA 202

Major Requirements (18 credits)

- ENG 210 Introduction to Literature
- ENG 215 Contemporary World Literature
- ENG 223 Introduction to Language Study
- ENG 224 English Grammar
- ENG 226 Development of the English Language
- one course from the British literature survey sequence:
  - ENG 308 British Literature Until 1600
  - ENG 309 British Literature: 1600–1800
  - ENG 310 Nineteenth Century British Literature
  - ENG 311 Twentieth Century British Literature

Major Electives (minimum of 21/24 credits)

Students in the language concentration must complete a minimum of 21 credits, and students in the literature concentration must complete a minimum of 24 credits.

Courses can be chosen from:

- ENG 234 Language and Society
- WST 250 Women's Voices Across Cultures
- any 300-level and above courses in education (EDU) and English (ENG) not listed as major requirements or concentration requirements in the student's chosen concentration.

English Language Concentration Requirements (24 credits)

- ENG 234 Language in Society or ENG 372 English and Globalization
- ENG 331 The Sound Patterns of Language
- ENG 332 The Psychology of Language
- ENG 334 Meaning in Language
- ENG 382 Language Variation in Media or ENG 405 Discourse Analysis
- ENG 401 Advanced English Grammar

- ENG 490 Senior Research Project
- ENG 495 Seminar in English

English Literature Concentration Requirements (21 credits)

- ENG 214 Nineteenth Century American Literature or ENG 314 Twentieth Century American Literature
- ENG 300 Introduction to Literary Theory
- ENG 303 Shakespeare's Plays or ENG 316 Modern Drama and Beyond
- one course from the British literature survey sequence not used as a major requirement:
  - ENG 308 British Literature Until 1600
  - ENG 309 British Literature: 1600–1800
  - ENG 310 Nineteenth Century British Literature
  - ENG 311 Twentieth Century British Literature
- 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 credits) Language and Literature			
Term	**Course #**	**Course Title**	**Credit**
Fall	MTH 100	Fundamentals of Logic and Geometry	3
	WRI 101	Academic Writing	3
	GER-Core	History and Culture of the Arab World	3
	GER-Core	Culture in a Critical Perspective	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**
Spring	WRI 102	Writing and Reading Across the Curriculum	3
	STA 202	Introduction to Statistics for Social Sciences	3
	GER-Core	Arts and Literature	3
	GER-SCI	Natural and Physical Sciences	3
	FRE	Free Elective	3
		Total	**15**

SECOND YEAR (30 credits) Language and Literature			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**
Spring	ENG 210	Introduction to Literature	3
	ENG 215	Contemporary World Literature	3
	ENG 223	Introduction to Language Study	3
	ENG 224	English Grammar	3
	GER-COM	Communication	3
		Total	**15**

THIRD YEAR (30 credits) Language Concentration			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 308 or ENG 309 or ENG 310 or ENG 311	British Literature Until 1600 or British Literature: 1600–1800 or Nineteenth Century British Literature or Twentieth Century British Literature	3
	ENG 226	Development of the English Language	3
	ENG 234 or ENG 372	Language in Society or English and Globalization	3
	MJE	Major Elective	3
	MJE	Major Elective	3
		Total	**15**
Spring	ENG 331	The Sound Patterns of Language	3
	ENG 332	The Psychology of Language	3
	ENG 334	Meaning in Language	3
	MJE	Major Elective	3
	MJE	Major Elective	3
		Total	**15**

FOURTH YEAR (30 credits) Language Concentration			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 382 or ENG 405	Language Variation in Media or Discourse Analysis	3
	ENG 401	Advanced English Grammar	3
	ENG 495	Seminar in English	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	ENG 490	Senior Research Project	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credits) Literature Concentration			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 214 or ENG 314	Nineteenth Century American Literature or Twentieth Century American Literature	3
	ENG 308 or ENG 309 or ENG 310 or ENG 311	British Literature Until 1600 or British Literature: 1600–1800 or Nineteenth Century British Literature or Twentieth Century British Literature	3
	ENG 300	Introduction to Literary Theory	3
	ENG 226	Development of the English Language	3
	MJE	Major Elective	3
		Total	**15**
Spring	ENG 303 or ENG 316	Shakespeare's Plays or Modern Drama and Beyond	3
	ENG 308 or ENG 309 or ENG 310 or ENG 311	British Literature Until 1600 or British Literature: 1600–1800 or Nineteenth Century British Literature or Twentieth Century British Literature	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	MJE	Major Elective	3
		Total	**15**

FOURTH YEAR (30 credits) Literature Concentration			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 410 or ENG 421 or ENG 430	The American Novel or Early English Novel or Modern British Novel	3
	ENG 495	Seminar in English	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	ENG 490	Senior Research Project	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Minor in Education

Betty Lanteigne, Coordinator

The minor in education prepares students to be lifelong learners adopting a self-reflective approach. Education courses prepare students to critically analyze and reflect upon a variety of global and regional issues in education.

A minor in education:

- provides theoretical and methodological foundations of teaching and learning in conjunction with technological skills for application to diverse educational settings, in order to create meaningful learning opportunities for students
- engages students in interactive learning that promotes the development of critical thinking, problem solving and performance capabilities
- prepares students to critically analyze, reflect upon and proactively deal with a variety of global and regional issues in a multicultural educational context

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 nine credits in courses at or above the 300 level.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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
(minimum of 12 credits)

Students must complete a minimum of 12 credits in courses selected from the following list:

- EDU 225 Globalization and Education
- EDU 294/394/494 Special Topics in Education approved by the department
- EDU 307 Teaching and Learning in an Electronic Environment
- EDU 309 Classroom Discourse
- EDU 315 Emotional Intelligence
- EDU 319 Teaching and Learning in a Foreign Language
- EDU 325 Methodology and Materials Development
- EDU 329 Curriculum Development
- PSY 302 Developmental Psychology

Minor in English Language

The minor in English language is for all students pursuing other majors who are interested in the nature of language, the tool of communication that makes us human. It provides training in linguistic analysis and enhances students' cross-disciplinary interests in language-related issues.

A minor in English language:

- helps students to understand the history and structure of English
- helps students to understand the relationship between society and language
- 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.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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
(minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following list:

- ENG 302 Stylistics
- ENG 331 The Sound Patterns of Language
- ENG 332 The Psychology of Language
- ENG 334 Meaning in Language
- ENG 372 English and Globalization
- ENG 382 Language Variation in Media
- ENG 385 Language and Gender
- ENG 394/494 Special Topics in Linguistics approved by the department
- ENG 401 Advanced English Grammar
- ENG 405 Discourse Analysis
- ENG 490 Senior Research Project
- ENG 495 Seminar in English

Minor in English Literature

The minor in English literature enables students in other majors to experience the ways in which literature expands our knowledge of human nature and our capacity for empathy. It also provides rigorous training in closely reading literary texts; constructing complex, sophisticated arguments; and analyzing the nuances of language.

A minor in English literature:

- increases students' awareness of the complexity and diversity of the literary culture of the English-speaking world
- increases awareness of 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 12 credits in courses at or above the 300 level.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least nine credits of the 12 credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 (minimum of 12 credits)

Students must complete any four courses at or above the 300 level in English literature for a minimum of 12 credits.

Department of International Studies

Stephen Keck, Head

Faculty

Pia-Kristina Anderson
Pernille Arenfeldt
Mark Aveyard
Arianne Conty
Thomas DeGeorges
Richard Gassan
Kevin Gray
Meenaz Kassam
Anatoliy Kharkhurin (on sabbatical Fall 2012)
Line Khatib
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Angela T. Maitner
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James Sater
Ravindran Sriramachandran
Sabrina Tahboub-Schulte
Juliette Tolay
Yuting Wang
Karen Young

Bachelor of Arts in International Studies (BAIS)

Sharjah's history as an important trading center and meeting place of many cultures makes 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.

Program Mission

The Department of International Studies offers opportunities to develop an appreciation for and fuller understanding of global issues within the context of a diverse multidisciplinary curriculum. Courses encourage students to develop a critical awareness of the ways in which global forces shape and transform regional, national, political, social, cultural and economic change. The Bachelor of Arts in International Studies degree program seeks to provide a foundation for assuming leadership roles in international organizations. Concentrations within the degree program encourage students to deepen their engagement with one or more of the areas introduced in the core requirements.

Program Goals

The Bachelor of Arts in International Studies program seeks to:

- provide an introduction to the disciplines that focus on how global forces influence political, social, cultural and economic change
- enable students to think critically about global issues from a variety of disciplinary perspectives
- provide opportunities to consider the place of the Middle East and the Arab world in international affairs and the study of international relations
- Provide opportunities to develop an understanding of the roles of and a preparation for careers in governmental and non-governmental organizations
- create a challenging intellectual environment that encourages the development of the problem-solving capabilities necessary for dealing with change in a global context

Program Outcomes

Bachelor of Arts in International Studies

Upon graduation from the Bachelor of Arts in International Studies program, students will be able to:

- demonstrate an understanding of the basic concepts, analytical perspectives and methodologies employed in the disciplines of anthropology, economics, history, geography, philosophy, sociology and political science
- employ the critical skills necessary for evaluating primary and secondary sources for their validity, accuracy and biases
- identify and explain key political, historical and cultural developments in the Arab world and the Middle East
- reflect on coursework to improve professional skills and better define career aspirations
- demonstrate the capacity for research in one of the major areas of study

Concentration in International Relations

Upon graduation from the Bachelor of Arts in International Studies program, students with a concentration in international relations will also be able to:

- assess the impact of economic activity upon local, regional, national and international developments
- illustrate the function, range and impact of international organizations
- explain the complex and diverse origins of wars and conflicts
- describe the relationship between law, politics and legal institutions in a global context

Concentration in International Economics

Upon graduation from the Bachelor of Arts in International Studies program, students with a concentration in international economics will also be able to:

- demonstrate proficiency in selected modeling frameworks and quantitative skills necessary for economic analysis
- identify and analyze the trade and monetary issues raised by a country's connections with the rest of the world
- explain the major differences between standards of living in developed and developing countries

Concentration in Arab Studies in a Global Context

Upon graduation from the Bachelor of Arts in International Studies program, students with a concentration in Arab studies in a global context will also be able to:

- identify seminal events and trends that have contributed to the formation of the contemporary Arab world
- employ sources from literature, history and political science to analyze the Arab world within a global context
- explain the developments that led to the formation of the Arab Gulf states

Concentration in Western Studies

Upon graduation from the Bachelor of Arts in International Studies program, students with a concentration in Western studies will also be able to:

- assess major philosophical ideas and political dynamics that have shaped Western understanding
- distinguish the basic components of the American political system
- explain the cultural and political dynamics that shape East/West encounters

Admission to the Program

Admission to the program follows the university's undergraduate admission requirements.

AUS students transferring into the program must be in good academic standing and must meet the minimum cumulative GPA required for transfer into the program. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

Students seeking a degree in international studies must choose one of the following concentrations:

- international relations
- international economics
- Arab studies in a global context
- Western studies

Note: Students who select the concentration in international economics must complete MTH 101 and MTH 102, or MTH 103. Students should take the appropriate math placement test.

A minimum of 120 credits, including the following, is required:

- a minimum of 42 credits of general education requirements
- a minimum of 36 credits in major requirements and major electives
- a minimum of 21 credits in concentration requirements and concentration electives
- a minimum of 21 credits of free electives
- a six-week internship in international studies (INS 497)
- a minimum CGPA of 2.00

General Education Requirements (minimum of 42 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: a minimum of six credits taken from the natural and physical sciences area
- mathematics requirement: MTH 100 or MTH 101
- statistics requirement: STA 202
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through PHI 201
- discipline-specific writing intensive course requirement: satisfied through INS 490
- oral proficiency requirement: satisfied through INS 490
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through STA 202

Major Requirements (30 credits)

- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- HIS 205 World History I [up to 1500] or
  HIS 206 World History II [1500 to present]
- PHI 201 Introduction to Philosophy or PHI 202 Introduction to Islamic Philosophy
- INS 205 World Cultures
- SOC 201 Introduction to Sociology
- INS 322 Global Political Economy
- INS 490 Senior Research Project
- INS 497 Internship in International Studies
- POL 201 Introduction to Political Studies
- POL 202 Introduction to International Relations

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

Major Electives (minimum of 6 credits)

Students must complete a minimum of six credits of major electives from courses at the 300 level or above, selected in consultation with their advisor. Electives may be any course from the following disciplines that is not required in the student's chosen concentration:

- economics
- geography
- history
- international studies
- philosophy
- political science
- psychology
- sociology

Concentration in International Relations (minimum of 21 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 (15 credits)

- INS 301 Globalization
- POL 302 Law and Diplomacy or POL 305 Public International Law
- POL 304/SOC 304 International Organizations
- POL 307 Wars, Conflicts and Diplomacy
- any 300-level or above ECO course

Concentration Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- ECO 306 International Monetary Economics
- ECO 310 Development Economics
- HIS 311 America and the Middle East
- INS 310 The Middle East Meets the West

- INS 325 Imperialism
- 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
- PHI 305 Advanced Social Political Philosophy
- POL 300 Comparative Politics
- POL 308 American Foreign Policy
- POL 309 The American Political System
- any 300-level or above special topic courses approved by the department

Proposed Sequence of Study
Bachelor of Arts in International Studies (BAIS)
Concentration: International Relations

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ECO 201	Principles of Microeconomics	3
	MTH 100 or MTH 101	Fundamentals of Logic and Geometry or Mathematics for Business I	3
	WRI 101	Academic Writing	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**
Spring	ECO 202	Principles of Macroeconomics	3
	INS 205	World Cultures	3
	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 203 or ENG 204	Writing About Literature or Advanced Academic Writing	3
	HIS 205 or HIS 206	World History I [up to 1500] or World History II [1500 to present]	3
	POL 201	Introduction to Political Studies	3
	GER-Core	Culture in a Critical Perspective	3
	GER-Core	Arts and Literature	3
		Total	**15**
Spring	PHI 201 or PHI 202	Introduction to Philosophy or Introduction to Islamic Philosophy	3
	POL 202	Introduction to International Relations	3
	SOC 201	Introduction to Sociology	3
	GER-COM	Communication	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ECO	300-level or 400-level ECO course	3
	INS 301	Globalization	3
	POL 304/ SOC 304	International Organizations	3
	POL 307	Wars, Conflicts and Diplomacy	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	INS 322	Global Political Economy	3
	POL 302 or POL 305	Law and Diplomacy or Public International Law	3
	CNE	Concentration Elective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**15**
Summer	INS 497	Internship in International Studies	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	INS 490	Senior Research Project	3
	CNE	Concentration Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Concentration in International Economics (minimum of 21 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.

Students who select the concentration in international economics must complete MTH 101 and MTH 102, or MTH 103. Students should take the appropriate math placement test.

Concentration Requirements (15 credits)

- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics
- ECO 305 International Trade
- ECO 306 Monetary Economics
- ECO 310 Development Economics

Concentration Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- ECO 315 Economics of the Middle East
- ECO 325 Public Economics
- ECO 326 Economics and the Law
- ECO 351 Introduction to Econometrics
- ECO 404 Economics of Environmental and Natural Resources
- INS 301 Globalization
- INS 413 Political Economy of the Arab World
- INS 414 Political Economy of the Asia Pacific Region
- POL 302 Law and Diplomacy
- POL 304/SOC 304 International Organizations
- POL 305 Public International Law
- any 300-level or above special topic courses approved by the department

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

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ECO 201	Principles of Microeconomics	3
	MTH 101	Mathematics for Business I	3
	WRI 101	Academic Writing	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**
Spring	ECO 202	Principles of Macroeconomics	3
	INS 205	World Cultures	3
	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3
	HIS 205 or HIS 206	World History I [up to 1500] or World History II [1500 to present]	3
	POL 201	Introduction to Political Studies	3
	MTH 102	Mathematics for Business II	3
	SOC 201	Introduction to Sociology	3
		Total	**15**
Spring	PHI 201 or PHI 202	Introduction to Philosophy or Introduction to Islamic Philosophy	3
	POL 202	Introduction to International Relations	3
	GER-COM	Communication	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ECO 302	Intermediate Macroeconomics	3
	ECO 305	International Trade	3
	CNE	Concentration Elective	3
	GER-Core	Arts and Literature	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	ECO 301	Intermediate Microeconomics	3
	ECO 306	International Monetary Economics	3
	ECO 310	Development Economics	3
	INS 322	Global Political Economy	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	INS 497	Internship in International Studies	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	INS 490	Senior Research Project	3
	CNE	Concentration Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Concentration in Arab Studies in a Global Context (minimum of 21 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 (minimum of 15 credits)

- ARA 303 Classical Arab/Islamic Culture
- HIS 310 Modern Gulf History
- INS 413 Political Economy of the Arab World
- PHI 394/494 Special Topics in Philosophy approved by the department

Concentration Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- ARA 350 Literature of the Arabian Gulf
- ENG 315 East Meets West: Colonial and Post-Colonial Encounters
- HIS 307 Modern Palestinian History
- any 300-level or above special topic courses approved by the department

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

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ECO 201	Principles of Microeconomics	3
	MTH 100 or MTH 101	Fundamentals of Logic and Geometry or Mathematics for Business I	3
	WRI 101	Academic Writing	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**
Spring	ECO 202	Principles of Macroeconomics	3
	INS 205	World Cultures	3
	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 203 or ENG 204	Genre Analysis or Advanced Academic Writing	3
	HIS 205 or HIS 206	World History I [up to 1500] or World History II [1500 to present]	3
	POL 201	Introduction to Political Studies	3
	SOC 201	Introduction to Sociology	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**15**
Spring	HIS 310	Modern Gulf History	3
	PHI 201 or PHI 202	Introduction to Philosophy or Introduction to Islamic Philosophy	3
	PHI 394/494	Special Topics in Philosophy	3
	POL 202	Introduction to International Relations	3
	GER-COM	Communication	3
		Total	**15**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	INS 322	Global Political Economy	3
	PHI 394/494	Special Topics in Philosophy	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
	FRE	Free Electives	3
		Total	**15**
Spring	ARA 303	Classical Arab/Islamic Culture	3
	INS 413	Political Economy of the Arab World	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**15**
Summer	INS 497	Internship in International Studies	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	INS 490	Senior Research Project	3
	CNE	Concentration Elective	3
	CNE	Concentration Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Concentration in Western Studies (minimum of 21 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 (12 credits)

- ENG 315 East Meets West: Colonial and Post-Colonial Encounters
- INS 301 Globalization
- PHI 303 Political Philosophy
- POL 309 The American Political System

Concentration Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following list:

- ECO 305 International Trade
- ECO 306 International Monetary Economics
- HIS 201 Western Cultural Studies I
- HIS 202 Western Cultural Studies II
- HIS 210 The Making of Modern Europe
- HIS 311 America and the Middle East
- PBA 302 Comparative Public Administration Systems
- PHI 306 Philosophy of Law
- POL 302 Law and Diplomacy
- POL 304/SOC 304 International Organizations
- POL 305 Public International Law
- any 300-level or above special topic courses approved by the department

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

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ECO 201	Principles of Microeconomics	3
	MTH 100 or MTH 101	Fundamentals of Logic and Geometry or Mathematics for Business I	3
	WRI 101	Academic Writing	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**
Spring	ECO 202	Principles of Macroeconomics	3
	INS 205	World Cultures	3
	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3
	HIS 205 or HIS 206	World History I [up to 1500] or World History II [1500 to present]	3
	POL 201	Introduction to Political Studies	3
	GER-Core	Culture in a Critical Perspective	3
	GER-Core	Arts and Literature	3
		Total	**15**
Spring	PHI 201 or PHI 202	Introduction to Philosophy or Introduction to Islamic Philosophy	3
	POL 202	Introduction to International Relations	3
	SOC 201	Introduction to Sociology	3
	GER-COM	Communication	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 315	East Meets West: Colonial and Post-Colonial Encounters	3
	POL 309	The American Political System	3
	CNE	Concentration Elective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	INS 301	Globalization	3
	INS 322	Global Political Economy	3
	PHI 303	Political Philosophy	3
	CNE	Concentration Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**15**
Summer	INS 497	Internship in International Studies	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	INS 490	Senior Research Project	3
	CNE	Concentration Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Double Concentration

Students enrolled in the international studies major may pursue a double concentration. Such students must fulfill the course requirements in both concentration areas. Courses used to fulfill the requirements of the first concentration can double count toward the second concentration. Once the degree requirements are met, any shortage of credits may be fulfilled by free electives. Double-concentration students generally require more than 120 credits to meet graduation requirements.

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 240 Introduction to American History
- POL 208 Introduction to American Government
- SOC 220 American Society

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following list:

- ENG 314 Twentieth Century American Literature
- ENG 410 The American Novel
- HIS 311 America and the Middle East
- POL 308 American Foreign Policy
- POL 309 The American Political System
- any 300-level or above special topic courses approved by the department

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

Students seeking a minor in governmental 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)

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

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following list:

- INS 301 Globalization
- INS 322 Global Political Economy
- INS 495 Senior Seminar
- PHI 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 309 The American Political System
- any 300-level or above special topic courses approved by the department

Minor in History

The minor in history enables students to encounter the academic exploration of humanity's past. Students are introduced to both ancient and modern history, and they will also investigate both global and regional history. The minor also provides students with basic comprehension of historical method by exposing them to the sustained study of primary sources and theories of historical interpretation and by requiring them to become cognizant of independent historical research.

Students enrolling in the history 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (9 credits)

- HIS 205 World History I [up to 1500]
- HIS 206 World History II [1500 to present]
- Students will take one of the following regional options:
  - HIS 204 Modern Arab History
  - HIS 210 The Making of Modern Europe
  - HIS 240 Introduction to American History

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following list:

- any HIS courses at the 300 level or above
- INS 325 Imperialism
- INS 415 War and Peace in the Middle East
- any 300-level or above special topic courses approved by the department

Minor in International Studies

The minor in international studies 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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)

- INS 205 World Cultures or GEO 201 World Cultural Geography or SOC 201 Introduction to Sociology
- HIS 205 World History I [up to 1500] or HIS 206 World History II [1500 to present] or PHI 201 Introduction to Philosophy
- POL 201 Introduction to Political Studies

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following list:

- INS 301 Globalization
- INS 310 The Middle East Meets the West
- INS 322 Global Political Economy
- 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
- any 300-level or above special topic courses approved by the department

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

Students seeking a minor in philosophy 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 Introduction to Islamic Philosophy
- one of the following:
  - PHI 204 Ethics for Professionals
  - PHI 206 Ethics and Information Technology
  - CMP 235 Ethics for Computing and Information Technology

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following list:

- ARA 402 Qur'anic Studies
- PHI 207 Existentialism
- PHI 303 Political Philosophy
- PHI 304 Themes in Western Thought
- PHI 305 Advanced Social Political Philosophy
- PHI 306 Philosophy of Law
- PHI 309 Ethics and the Environment
- PSY 305 Cognitive Psychology
- any 300-level or above special topic courses approved by the department

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 210 Scientific Method in Psychology
- one of the following:
  - STA 201 Introduction to Statistics for Engineering and Natural Sciences
  - STA 202 Introduction to Statistics for Social Sciences
  - QBA 201 Quantitative Business Analysis
  - NGN 111 Introduction to Statistical Analysis plus one to three credits in PSY courses

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in PSY courses at the 300 level or above.

Minor in Women's Studies

Nawar Al-Hassan Golley, Coordinator

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 in courses at or above the 300 level.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 (minimum of 9 credits)

Students must complete a minimum of nine credits in courses selected from the following:

- ENG 385 Language and Gender
- HIS 340 History of the Family
- MCM 392 Women and Film
- any WST course at the 300 level or above
- any 300-level or above special topic course approved by the department

Department of Mass Communication

Mahboub Hashem, Interim Head

Faculty

Ilhem Allagui
Abeer Al-Najjar
Muhammed Ayish
Ralph Berenger
Peggy Bieber-Roberts
Harris Breslow
Ana Milena Gavassa
Joseph Gibbs
Mohammed Ibahrine
Hania Nashef
Susan Smith
Mustafa Taha

Bachelor of Arts in Mass Communication (BAMC)

The Bachelor of Arts in Mass Communication fulfills the AUS mission by providing students with state-of-the-art knowledge in their areas of concentration and the discipline of mass communication in general in order to serve the needs of the region and to encourage students' personal and professional growth and development. The Bachelor of Arts in Mass Communication is modeled on similar degree programs found in the United States and is adapted to the specific pedagogic challenges and requirements of the GCC region. Additionally, the Department of Mass Communication strives to maintain close contact with its students and alumni in order to foster their personal and professional growth, their maturity and their sense of social responsibility with particular reference to the profound social and cultural influence they will have as members of the mass media industry.

Program Mission

The mission of the Department of Mass Communication is to provide students with a balanced foundation of both technical and academic knowledge of the discipline of mass communication in general and the specific professional concentrations offered by the department: advertising, journalism and public relations. By offering academic and practical knowledge, the department's curriculum aims to facilitate the development of professionally skilled students who bring a critically informed perspective to their future careers.

Program Goals

The Bachelor of Arts in Mass Communication program strives to:

- provide students with a thorough grounding in the variety of perspectives found in the academic discipline of mass communication, thus fostering students' critical and analytical faculties with respect to the mass media
- furnish students with the requisite theoretical and strategic knowledge required of professionals in the mass media industry
- prepare students for positions in the mass media industry requiring a high degree of technical proficiency
- equip graduates with the required competencies to assume entry-level positions in their chosen fields of endeavor in the mass media industry

The Bachelor of Arts in Mass Communication program's concentration in advertising strives to facilitate the development of professionally skilled students for positions in the field of advertising.

The Bachelor of Arts in Mass Communication program's concentration in journalism strives to facilitate the development of professionally skilled students for positions in the fields of print and broadcast journalism.

The Bachelor of Arts in Mass Communication program's concentration in public relations strives to facilitate the development of professionally skilled students for positions in the field of public relations.

Program Outcomes

Bachelor of Arts in Mass Communication

Upon graduation from the Bachelor of Arts in Mass Communication program, students should be able to:

- differentiate, articulate and critically analyze the dominant quantitative and qualitative research methods and paradigms found in the discipline of mass communication and to employ these research methods in their professional careers
- understand and articulate the role that the mass media play in the production of everyday experience, culture and belief, and critically analyze the content of the mass media by explaining the nature of its production, meaning and effects
- employ digital technology in the production of mass media content for print, web and/or broadcast media

Concentration in Advertising

Upon graduation from the Bachelor of Arts in Mass Communication program, students with a concentration in advertising should also be able to:

- demonstrate knowledge of the latest institutional, methodological and

professional developments in the field of advertising

- skillfully employ best practices found in the field of advertising

Concentration in Journalism

Upon graduation from the Bachelor of Arts in Mass Communication program, students with a concentration in journalism should also be able to:

- demonstrate knowledge of the latest institutional, methodological and professional developments in the fields of print and broadcast journalism
- skillfully employ best practices found in the fields of print and broadcast journalism

Concentration in Public Relations

Upon graduation from the Bachelor of Arts in Mass Communication program, students with a concentration in public relations should also be able to:

- demonstrate knowledge of the latest institutional, methodological and professional developments in the field of public relations
- skillfully employ best practices found in the field of public relations

Achievement of Outcomes

The outcomes of the Bachelor of Arts in Mass Communication program are achieved through a combination of:

- coursework related to the academic discipline of mass communication
- practicum-based courses related to the students' chosen professional concentrations
- capstone courses that function as tests of students' cumulative knowledge in their chosen professional concentrations and/or academic interests
- internships/field work in students' chosen professional concentrations and/or academic interests in fulfillment of students' university internship requirements

Curriculum

The Department of Mass Communication offers students the opportunity to specialize in one of three professional concentrations—advertising, journalism and public relations—as well as the option of a general mass communication program. Students can also choose to specialize in a combination of any two of the professional concentrations.

Advertising

Students selecting the advertising concentration 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 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 concentration receive exposure to a wide range of integrated communication methods and practices. Students are also led through an 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 undergraduate admission requirements.

AUS students transferring into the program should have a cumulative GPA of 2.5. At the discretion of the department, students who do not meet this requirement may be allowed to register for MCM 150, MCM 225 and MCM 231. Students who successfully complete MCM 150, MCM 225 and MCM 231 with a combined average GPA of 2.5 will be admitted into the program. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

A minimum of 120 credits, including the following, is required:

- a minimum of 42 credits of general education requirements
- a minimum of 33 credits of MCM major requirements and major electives
- a minimum of 27 credits of concentration requirements and concentration electives for students selecting a concentration or a minimum of 27 credits of general mass communication requirements for students who select the general mass communication program
- six weeks or 240 hours of on-the-job training (MCM 497) with a professional firm
- a minimum of 18 credits of free electives from courses at the 100 level or above
- a minimum CGPA of 2.00

General Education Requirements (minimum of 42 credits)

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

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: a minimum of six credits taken from the natural and physical sciences area
- mathematics requirement: MTH 100 or MTH 101
- statistics requirement: STA 202
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 203 or ENG 204, and ENG 208 or MCM 241
- ethical understanding requirement: satisfied through MCM 321
- discipline-specific writing intensive course requirement: satisfied through MCM 231
- oral proficiency requirement: satisfied through ENG 208 or MCM 241
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through MCM 100

Major Requirements (15 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 Methods
- MCM 321 Mass Communication Law and Ethics
- MCM 497 Mass Communication Internship (0 credit)

Mass Communication Internship (MCM 497)

The internship comprises six weeks or 240 hours of on-the-job training with a professional firm. All students in the Department of Mass Communication must fulfill the internship requirement. Depending on their program concentrations, students will choose to do their internship in media companies, advertising agencies or in public relations companies to add practical training to their academic learning.

For details on internship eligibility and registration, please refer to Internship Registration in the Academic Policies and Regulations section earlier in this catalog.

Major Electives (minimum of 18 credits)

Students must complete six courses, for a minimum of 18 credits, at the 200 level or above from any courses in DES, ECO, ENG, INS, MCM, MGT, MKT, MUM, POL, TRA or VIS.

Concentration in Advertising (minimum of 27 credits)

Concentration Requirements (21 credits)

- MCM 100 Introduction to Digital Media Design
- MCM 255 Principles of Advertising
- MCM 351 Advertising Copy and Layout
- MCM 431 Strategic Communications Research
- MCM 453 Advertising Media Planning
- MCM 455 Advertising Campaigns or MCM 485 Integrated Marketing Communication Campaigns
- MKT 201 Fundamentals of Marketing

Concentration Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- MCM 200 Intermediate Digital Media Design for Mass Communication
- MCM 265 Principles of Public Relations
- MCM 325 Cyberspace and Arab Media
- MCM 353 Direct Response Advertising
- MCM 394/494 Special Topics in Mass Communication approved by the department
- MCM 401 Media Publications
- MCM 454 Case Studies in Advertising
- MCM 463 International Public Relations
- MCM 465 Public Relations Campaigns
- MCM 490 Senior Project
- MKT 301 Consumer Behavior
- MKT 302 Marketing Research
- MKT 303 E-Commerce

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

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MCM 100	Introduction to Digital Media Design	3
	MTH 100	Fundamentals of Logic and Geometry	3
	WRI 101	Academic Writing	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**
Spring	ECO 201	Principles of Microeconomics	3
	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	Culture in a Critical Perspective	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 203 or ENG 204	Writing About Literature or Advanced Academic Writing	3
	MCM 150	Introduction to Mass Communication Studies	3
	MKT 201	Fundamentals of Marketing	3
	GER-Core	Arts and Literature	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	MCM 225	Theories of Mass Communication	3
	MCM 231	Writing for Mass Communication	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective 3	3
		Total	**15**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 208 or MCM 241	Public Speaking or Media and Professional Presentations	3
	MCM 255	Principles of Advertising	3
	MCM 300	Mass Communication Research Methods	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MCM 321	Mass Communication Law and Ethics	3
	MCM 351	Advertising Copy and Layout	3
	CNE	Concentration Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Summer	MCM 497	Mass Communication Internship	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MCM 431	Strategic Communications Research	3
	MCM 453	Advertising Media Planning	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MCM 455 or MCM 485	Advertising Campaigns or Integrated Marketing Communication Campaigns	3
	CNE	Concentration Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Concentration in Journalism (minimum of 27 credits)

Concentration Requirements (21 credits)

- MCM 100 Introduction to Digital Media Design
- MCM 275 Principles of Journalism
- MCM 370 Broadcast Journalism
- MCM 371 News Writing
- MCM 470 Writing and Reporting for Broadcast News
- MCM 471 Advanced News Writing
- MCM 472 Editorial and Critical Writing

Concentration Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- MCM 200 Intermediate Digital Media Design for Mass Communication
- MCM 277 Video Editing for Journalism
- MCM 281 Principles of Media Production and Performance
- MCM 325 Cyberspace and Arab Media
- MCM 374 Feature Writing
- MCM 375 Editing for the Print Media
- MCM 377 Photojournalism
- MCM 379 Journalism in the Arab Countries
- MCM 393/ENG 393 Shakespeare on Film
- MCM 394/494 Special Topics in Mass Communication approved by the department
- MCM 401 Media Publications
- MCM 410 Media Producing and Project Management
- MCM 411 Multiple Camera Studio Production
- MCM 473 Writing for Multimedia
- MCM 475 Writing and Producing for Documentaries
- MCM 480 Critical Analysis of the Mass Media
- MCM 481 International Mass Communication
- MCM 491 Print Media Project

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

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MCM 100	Introduction to Digital Media Design	3
	MTH 100	Fundamentals of Logic and Geometry	3
	WRI 101	Academic Writing	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**
Spring	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	Culture in a Critical Perspective	3
	GER-Core	Arts and Literature	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 203 or ENG 204	Writing About Literature or Advanced Academic Writing	3
	MCM 150	Introduction to Mass Communication Studies	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	MCM 225	Theories of Mass Communication	3
	MCM 231	Writing for Mass Communication	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 208 or MCM 241	Public Speaking or Media and Professional Presentations	3
	MCM 275	Principles of Journalism	3
	MCM 300	Mass Communication Research Methods	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MCM 321	Mass Communication Law and Ethics	3
	MCM 370	Broadcast Journalism	3
	MCM 371	News Writing	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Summer	MCM 497	Mass Communication Internship	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MCM 470	Writing and Reporting for Broadcast News	3
	MCM 471	Advanced News Writing	3
	CNE	Concentration Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MCM 472	Editorial and Critical Writing	3
	CNE	Concentration Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Concentration in Public Relations (minimum of 27 credits)

Concentration Requirements (21 credits)

- MCM 100 Introduction to Digital Media Design
- MCM 265 Principles of Public Relations
- MCM 361 Case Studies in Public Relations
- MCM 369 Public Relations Writing
- MCM 431 Strategic Communications Research
- MCM 465 Public Relations Campaigns or MCM 485 Integrated Marketing Communication Campaigns
- MCM 469 Advanced Public Relations Writing

Concentration Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- INS 301 Globalization
- MCM 200 Intermediate Digital Media Design for Mass Communication
- MCM 255 Principles of Advertising
- MCM 275 Principles of Journalism
- MCM 325 Cyberspace and Arab Media
- MCM 329 Mass Communication and Society
- MCM 360 Crisis and Conflict Management
- MCM 371 News Writing
- MCM 377 Photojournalism
- MCM 380 Persuasive Communication
- MCM 394/494 Special Topics in Mass Communication approved by the department
- MCM 401 Media Publications
- MCM 455 Advertising Campaigns
- MCM 463 International Public Relations
- MCM 467 Public Relations for Non-Profit Organizations
- MCM 490 Senior Project
- MGT 201 Fundamentals of Management
- MKT 201 Fundamentals of Marketing

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

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MCM 100	Introduction to Digital Media Design	3
	MTH 100	Fundamentals of Logic and Geometry	3
	WRI 101	Academic Writing	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**
Spring	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	Culture in a Critical Perspective	3
	GER-Core	Arts and Literature	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 203 or ENG 204	Writing About Literature or Advanced Academic Writing	3
	MCM 150	Introduction to Mass Communication Studies	3
	CNE	Concentration Elective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	MCM 225	Theories of Mass Communication	3
	MCM 231	Writing for Mass Communication	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 208 or MCM 241	Public Speaking or Media and Professional Presentations	3
	MCM 265	Principles of Public Relations	3
	MCM 300	Mass Communication Research Methods	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MCM 321	Mass Communication Law and Ethics	3
	MCM 361	Case Studies in Public Relations	3
	MCM 369	Public Relations Writing	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Summer	MCM 497	Mass Communication Internship	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MCM 431	Strategic Communications Research	3
	CNE	Concentration Elective	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MCM 465 or MCM 485	Public Relations Campaigns or Integrated Marketing Communication Campaigns	3
	MCM 469	Advanced Public Relations Writing	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Double Concentration

Students enrolled in the mass communication major may pursue a double concentration. Such students must fulfill the course requirements in both concentration areas. Courses used to fulfill the requirements of the first concentration can double count toward the second concentration. Once the degree requirements are met, any shortage of credits may be fulfilled by free electives. Double-concentration students generally require more than 120 credits to meet graduation requirements.

General Mass Communication Program (minimum of 27 credits)

Students who select the general mass communication program option must complete nine courses for a minimum of 27 credits from any of the mass communication (MCM) courses not listed in the major requirements.

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

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MCM 100	Introduction to Digital Media Design	3
	MTH 100	Fundamentals of Logic and Geometry	3
	WRI 101	Academic Writing	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**
Spring	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	Culture in a Critical Perspective	3
	GER-Core	Arts and Literature	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 203 or ENG 204	Writing About Literature or Advanced Academic Writing	3
	MCM 150	Introduction to Mass Communication Studies	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	MCM 225	Theories of Mass Communication	3
	MCM 231	Writing for Mass Communication	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 208 or MCM 241	Public Speaking or Media and Professional Presentations	3
	MCM 300	Mass Communication Research Methods	3
	CNE	Concentration Elective	3
	CNE	Concentration Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MCM 321	Mass Communication Law and Ethics	3
	CNE	Concentration Elective	3
	CNE	Concentration Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Summer	MCM 497	Mass Communication Internship	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CNE	Concentration Elective	3
	CNE	Concentration Elective	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	CNE	Concentration Elective	3
	CNE	Concentration Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Minor in Mass Communication

Students applying to 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 (minimum of 9 credits)

Students must complete a minimum of nine credits in MCM courses at the 300 level or above.

Department of Mathematics and Statistics

Mahmoud Anabtawi, Head

Faculty

Zayid AbdulHadi
Taher Abualrub
Marwan Abukhaled (on sabbatical Spring 2013)
Yusuf Abu-Muhanna
Ghada Alobaidi (on sabbatical Fall 2012)
Diana Audi
Ayman Badawi
Ibrahim El-Sadek
Dmitri Evtimov
Rim Gouia
James Griffin
Gajath Gunatillake (on leave AY 2012–2013)
Abdul Salam Jarrah
Sadok Kallel
Suheil Khoury
Saadia Khouyibaba
Ismail Kucuk
Guillaume Leduc
Timothy Marshall
Mujo Mesanovic
Gergely Orosi
David Radnell
Ali Saifi
Padmapani Seneviratne
Shou-Hsing Shih
Hana Sulieman (on sabbatical Spring 2013)
Faruk Uygul
Thomas Wunderli

The Department of Mathematics and Statistics seeks to develop, campus-wide, 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. Innovative teaching and learning environments provide opportunities for students to develop critical thinking and general problem-solving strategies. The Department of Mathematics and Statistics specifically strives to ensure success in finding appropriate employment as well as success in graduate work for those desiring to further pursue their formal education.

Bachelor of Science in Mathematics (BSMTH)

The mission of the Bachelor of Science in Mathematics program is to expose students to the theoretical foundations of mathematics, to provide them with understanding of the broad outlines of modern mathematics and its applications in a variety of disciplines, to stimulate their interest in research and to prepare them for the future work.

Program Goals

The Bachelor of Science in Mathematics program seeks to provide students with:

- a strong background in calculus-based courses, including advanced calculus and differential equations
- the skills needed to successfully produce mathematical proofs expected at the undergraduate level
- exposure to diverse areas of mathematics, such as analysis, algebra, applied mathematics, discrete mathematics, and probability and statistics
- an understanding of algorithmic foundation, modeling tools, discrete phenomena and digital information environments
- the ability to think critically and independently about problems to facilitate the development of an aptitude for mathematical reasoning
- the mathematical and computing skills necessary to describe and solve technical problems that arise in business and industry
- a solid foundation in mathematics necessary for future development and/or graduate study

Program Outcomes

Upon completion of the Bachelor of Science in Mathematics program, graduates should be able to:

- demonstrate knowledge and understanding of diverse areas in mathematics such as analysis, algebra, discrete mathematics and applied mathematics
- construct and effectively communicate valid mathematical arguments
- demonstrate a solid grounding in the ideas and techniques of mathematics
- apply mathematical analysis and mathematical skills to problems in other disciplines
- use discrete mathematical concepts in a variety of contexts such as algorithm development, computer programming and network development and implementation
- demonstrate the ability to identify and carry out thoughtful approaches to problem solving
- define and execute simple research tasks, and assist in more complex research tasks as required for professional work
- formulate a problem in mathematical terms from descriptions written in language specific to disciplines associated with engineering, finance and the natural and physical sciences
- obtain the research skills necessary to adapt to change and remain current in the field and continue to learn new information, skills and concepts

Admission to the Program

Admission to the program follows the university's undergraduate admission requirements.

AUS students transferring into the program must be in good academic standing and must meet the minimum cumulative GPA required for transfer into the program. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

A minimum of 122 credits, including the following, is required:

- a minimum of 44 credits of general education requirements
- a minimum of 63 credits of major requirements and major electives
- a minimum of 15 credits of free electives
- a minimum CGPA of 2.00

General Education Requirements (minimum of 44 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: any two courses from BIO 101, BIO 102, CHM 101, CHM 102, PHY 101 and PHY 101L, PHY 102 and PHY 102L
- mathematics requirement: MTH 103
- statistics requirement: STA 201

- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through MTH 490
- discipline-specific writing intensive course requirement: satisfied through MTH 490
- oral proficiency requirement: satisfied through MTH 490
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through MTH 103

Major Requirements (33 credits)

- MTH 104 Calculus II
- MTH 203 Calculus III
- MTH 205 Differential Equations
- MTH 213 Discrete Mathematics
- MTH 221 Linear Algebra
- MTH 311 Intermediate Analysis
- MTH 312 Advanced Calculus
- MTH 320 Abstract Algebra I
- MTH 343 Numerical Analysis
- MTH 350 Introduction to Probability
- MTH 490 Senior Project

Major Electives (minimum of 30 credits)

Math Electives (minimum of 15 credits)

After consulting with their academic advisors, students should complete a minimum of 15 credits of major electives at the 300 level or above, with at least 6 at the 400 level, from any MTH/STA courses not listed as major requirements.

Electives in Related Areas (minimum of 15 credits)

Students must also complete a minimum of 15 credits at the 200 level or above in areas such as sciences, engineering and computer science, accounting, economics and finance, with the approval of their advisors.

Free Electives (minimum of 15 credits)

Students must complete a minimum of 15 credits of free electives from any 100-level courses or above, excluding MTH 101.

Proposed Sequence of Study
Bachelor of Science Degree in Mathematics (BSMTH)

FIRST YEAR (32 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MTH 103	Calculus I	3
	WRI 101	Academic Writing	3
	GER-SCI	Natural and Physical Sciences	4
	GER-Core	History and Culture of the Arab World	3
	FRE	Free Elective	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	Culture in a Critical Perspective	3
	GER-SCI	Natural and Physical Sciences	4
		Total	**16**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 203 or ENG 204	Writing About Literature or Advanced Academic Writing	3
	MTH 203	Calculus II	3
	MTH 213	Discrete Mathematics	3
	MJE	Elective in Related Areas	3
	GER-Core	Arts and Literature	3
		Total	**15**
Spring	MTH 205	Differential Equations	3
	MTH 221	Linear Algebra	3
	MJE	Math Elective	3
	GER-COM	Communication	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MTH 311	Intermediate Analysis	3
	MTH 350	Introduction to Probability	3
	MJE	Math Elective	3
	MJE	Elective in Related Areas	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	MTH 320	Abstract Algebra	3
	MTH 343	Numerical Analysis	3
	MJE	Math Elective	3
	MJE	Elective in Related Areas	3
	FRE	Free Elective	3
		Total	**15**

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MTH 312	Advanced Calculus	3
	MJE	Math Elective	3
	MJE	Elective in Related Areas	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**15**
Spring	MTH 490	Senior Project	3
	MJE	Elective in Related Areas	3
	MJE	Math Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

Minor in Actuarial Mathematics

Students enrolling in the actuarial 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (12 credits)

- MTH 102 Mathematics for Business II
- MTH 304 Mathematics of Finance
- MTH 305 Life Contingencies
- STA 202 Introduction to Statistics for Social Sciences or QBA 201 Quantitative Business Analysis

Minor Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- MTH 307 Theory of Risk
- MTH 360 Probability and Stochastic Processes
- any MTH or STA 394/494 courses in probability for actuarial mathematics, advanced life contingencies and mathematical statistics
- one 400-level course in FIN

Minor in Applied and Computational Mathematics

Students enrolling 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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.

This minor is not open to students majoring in mathematics.

Minor Requirements (12 credits)

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

Minor Electives (minimum of 6 credits)

Students must complete two courses for a minimum of six credits in MTH and/or STA at the 300 level or above with the approval of the department.

Department of Physics

Nidhal Guessoum, Interim Head

Faculty

Ali Alnaser
Rana Assad
Sami El-Khatib
Nasser Hamdan
Asad Hasan Jaidi
Tariq Majeed
Said Sakhi
Yousef Salamin
Raza Syed

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 Bachelor of Science in Environmental Sciences program. 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 head 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 in courses at or above the 300 level.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level 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 physics must complete the following courses or their equivalent. All course prerequisites must be satisfied.

Minor Requirements (6 credits)

- PHY 106 General Physics III
- PHY 201 Modern Physics

Minor Electives (minimum of 12 credits)

Students must complete 12 credits of electives from the following list of courses. At least nine credits must be at the 300 level or above.

- PHY 106L General Physics III Laboratory
- PHY 201L Modern Physics Laboratory
- PHY 232 Properties of Matter
- PHY 251 Meteorology
- PHY 301 Energy Sources
- PHY 303 Atmospheric Physics
- PHY 305 Modern Optics and Lasers
- PHY 313 Satellites and Space Physics
- PHY 401 Physics of Semiconductors

Department of Writing Studies

Terri Storseth, Head

Faculty

Alaanoud Abusalim
Neslihan Bilikozen
Richard Mark Brown
Jerald Cumbus
Laila Dahan
Maria Eleftheriou
Reem El Saadi
Daniel Frederick
Neena Gandhi
Bruce Gatenby
Christopher Horger
Tizreena Ismail
Mary Anne John
Jennifer Malia
Jennifer McArdle
Suzan Munday
Polly Palmer-Baghestani
Patricia Prescott
Zofia Reid
Lynne Ronesi
Grace-Rebecca Sawaya
Sana Sayed
Anne Shine
Lelania Sperrazza
Adrian Zytkoskee

The purpose of the Department of Writing Studies is to provide students with the academic language, critical thinking and rhetorical foundations essential to writing and reading successfully in a university environment.

Students learn the skill of close, analytical reading, and how to compose

effective paragraphs and essays. Instruction combines reading and writing with the grammar, vocabulary and organizational skills necessary to proficiently present academic material in the various rhetorical genres of writing across the curriculum. Enabling students with these abilities not only provides them with the expertise to effectively negotiate academic assignments, but also forms the basis for productive communication in both their lifelong education and their professional lives.

Performing Arts Program

Anthony Tassa, Coordinator

Faculty

Lowell (Dwight) Dickerson
Ken East
Leopoldo Erice
Catherine Moran
John Perkins

Program Mission

The mission of the Performing Arts Program is to examine and promote music and theatre by providing students with opportunities to explore how the performing arts foster creativity and promote inclusiveness, diversity and understanding in an increasingly interdependent world.

Program Goals

The Performing Arts Program seeks to provide students with:

- knowledge of various genres and perspectives of music and music theory
- the ability to distinguish the construction of music
- musicianship skills that can be applied to individual and ensemble performances
- an appreciation for the art and craft of theatre through production and presentation
- a thorough understanding of theatrical elements gained through performance and theoretical studies

Minor in Music

The minor in music aspires to promote an understanding of the role of music in relation to its cultural and social context. Music courses provide students with essential training in the performing arts and contribute to enhancing the program of liberal studies that forms the core of an AUS education.

The following rules apply:

- The minor consists of a minimum of 18 credits in music, including at least nine credits in courses at or above the 300 level.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits, of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

The minor in music offers students the choice between two tracks: piano and voice. Students must choose one track in consultation with the Performing Arts Program faculty.

Depending on their choice of track, students seeking a minor in music must complete the following courses or their equivalent. All course prerequisites must be satisfied. Auditions are required for performance courses.

Minor Requirements (12 credits)

Students must complete 12 credits, as follows:

- six credits from:
  - MUS 101 Fundamentals of Music Theory
  - MUS 200 Introduction to European Classical Music or
    MUS 202 Survey of World Music

Piano Track (6 credits)

- three credits from one of the following options:

  Option 1
  - MUS 171 Introduction to Piano Performance I
  - MUS 271 Introduction to Piano Performance II
  - MUS 276 Introduction to Chamber Music or
    MUS 221 Choral Ensemble for Performance I

  Option 2
  - MUS 370 Applied Piano Lessons I

  Option 3
  - MUS 470 Chamber Music with Piano I
- MUS 377 Piano Literature

Voice Track (6 credits)

- three credits from the Choral Ensemble sequence:
  - MUS 221 Choral Ensemble for Performance I
  - MUS 321 Choral Ensemble for Performance II
  - MUS 421 Choral Ensemble for Performance III
- three credits from the Applied Voice sequence:
  - MUS 231 Applied Voice Lessons for Performance I
  - MUS 331 Applied Voice Lessons for Performance II
  - MUS 431 Applied Voice Lessons for Performance III

Minor Electives (minimum of 6 credits)

Students must complete a minimum of six credits in departmentally approved MUS courses at the 300 level or above.

Minor in Theatre

The minor in theatre aspires to promote an understanding of the role of theatre in relation to its cultural, social and political context. Theatre courses provide students with essential training in the performing arts and related disciplines, and contribute to enhancing the program of liberal studies that forms the core of an AUS education.

The following rules apply:

- The minor consists of a minimum of 18 credits in theatre, including at least nine credits in courses at or above the 300 level.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

Students seeking a minor in theatre must complete the following courses or their equivalent. All course prerequisites must be satisfied. Auditions are required for rehearsal and performance courses.

Minor Requirements (6 credits)

- THE 101 Theatre Appreciation or
  THE 102 Dramatic Process or
  THE 141 Stagecraft
- any combination of the following courses for a total of three credits:
  - THE 251 Rehearsal and Performance (repeatable up to three times)
  - THE 245 Technical Theatre Lab (repeatable up to three times)

Minor Electives (minimum of 12 credits)

Students must complete a minimum of 12 credits as follows:

- one course for a minimum of three credits from the following:

  - THE 242 Elements of Theatrical Design
  - THE 253 Musical Theatre Production
  - THE 255 Voice and Movement I
  - any departmentally approved THE course at the 200 level
- a minimum of nine credits from the following list. At least three credits must be selected from THE courses at the 300 level or above:
  - ENG 303 Shakespeare's Plays
  - ENG 316 Modern Drama and Beyond
  - ENG 393/MCM 393 Shakespeare on Film
  - any departmentally approved course at the 300 level or above

Other Minors Offered by the College of Arts and Sciences

Minor in Middle Eastern Studies

Imed Ben Jemaa Nsiri, Coordinator

The minor in Middle Eastern studies enables students to design their own course of study in an area of Middle Eastern studies that spans the Arab nations and Islamic civilization. The minor requires students to satisfy the Arabic heritage requirement and complete a course in Arabic language. Along with this, students, in consultation with the minor advisor, design their course of study from a host of courses across the university's undergraduate catalog.

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (6 credits)

Arabic Language Requirement (3 credits)

- for native and near-native speakers
  - ARA 309 Business Arabic
  - ARA 314 Media Arabic
  - ARA 308 Arabic Grammar in Use
  - ARA 404 Working with MSA Texts
- for non-native speakers
  - ARA 106 Elementary Arabic II
  - ARA 203 Intermediate Arabic I
  - ARA 204 Intermediate Arabic II
  - ARA 220 Composition for Non-Native Speakers of Arabic

Arabic Heritage Requirement (3 credits)

- ARA 101 Introduction to Arabic Heritage I
- ARA 102 Introduction to Arabic Heritage II
- ARA 103 Arabic Music in a Historical Context

Minor Electives (minimum of 12 credits)

Students must complete a minimum of 12 credits from at least two of the following tracks. No more than six credits can be taken in any single track and at least nine of the 12 credits must be at the 300 level or above.

Islamic Architecture and Urbanism Track

- ARC 225 Islamic Art and Architecture
- ARC 424 Evolution of Cities
- ARC 474 Issues in Contemporary Urban Design
- HRM 201 History of Material Culture in the Arabian Gulf I
- HRM 202 History of Material Culture in the Arabian Gulf II
- IDE 223 History and Theory of Interior Design: Global Issues
- any approved special topic course

Arabic Studies Track

Arabic Language

- ARA 340 The Social Context of Arabic

Arabic Literature

- ARA 201 Arabic Literature in Translation
- ARA 209 Modern Arab History Through Literature
- ARA 312 Modern Arabic Literature: Prose and Poetry
- ARA 332 Women Writers from the Gulf
- ARA 350 Literature of the Arabian Gulf
- ARA 403 War and Peace in Arabic Literature and Film
- any approved special topic course

Arab/Islamic Culture and Civilization

- ARA 240 Arab-Islamic Culture and Civilization
- ARA 302 Arab Identity and Thought
- ARA 303 Classical Arab/Islamic Culture
- ARA 380 Sufism: Readings in Islamic Mysticism
- ARA 383 Islamic Law and Jurisprudence
- ARA 385 Islamic Texts in Translation
- ARA 402 Qur'anic Studies
- any approved special topic course

History, Economics and Politics of the Middle East Track

- ECO 315 Economics of the Middle East
- HIS 204 Modern Arab History
- HIS 307 Modern Palestinian History
- HIS 310 Modern Gulf History
- HIS 311 America and the Middle East
- HIS 312 Modern Iranian History
- INS 310 The Middle East Meets the West
- INS 413 Political Economy of the Arab World
- INS 415 War and Peace in the Middle East
- PHI 202 Introduction to Islamic Philosophy
- any approved special topic course

Islamic Finance and Economics Track

- ACC 370 Accounting in Islamic financial institutions
- ECO 315 Economics of the Middle East
- FIN 370 Fundamental of Islamic Finance
- FIN 380 Islamic Markets, Money and Financial Institutions
- FIN 385 Islamic Corporate Finance
- any approved special topic course



College of Engineering

Dean

Yousef Al-Assaf

Associate Dean

Hany El Kadi

The College of Engineering (CEN) 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 College of Engineering graduates are well equipped to face the future. A degree from the AUS College 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.

ABET Accreditation

The bachelor of science degrees in chemical engineering, civil engineering, computer engineering, computer science, electrical engineering and mechanical engineering offered by the College of Engineering are accredited by ABET (http://www.abet.org). ABET is the recognized accreditor for college and university programs in applied science, computing, engineering and technology in the United States. ABET is a federation of 31 professional and technical societies representing these fields. ABET currently accredits some 3,100 programs at more than 660 colleges and universities in 23 countries worldwide and is recognized by the Council for Higher Education Accreditation in Washington, DC.

These six College of Engineering undergraduate programs are the first in the region and the second outside the US to receive this prestigious accreditation. ABET accreditation demonstrates the university's continuing commitment to the quality of its programs so that CEN students are ready to practice once they graduate and employers can count on AUS graduates to meet their needs.

Mission Statement

American University of Sharjah is a dynamic institution of higher education. As such, it offers 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 College of Engineering has the following mission:

The College of Engineering at 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 college's degree programs offer the highest level of professional and technical preparation, global preparedness and leadership development in an environment of English-language instruction 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.

Objectives and Outcomes

In order to help students be successful at AUS, the major educational objectives of the College 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 bachelor of science-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 College 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 lifecycle 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 graduates' chosen fields
- 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

Curriculum

The curriculum for each of the college's degree programs 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. All freshmen pursuing an engineering degree 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.

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. The college'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.

College 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.

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 members 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 College 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 laboratories are provided for students during and after classes and laboratories. The menu of software systems available for design, analysis and synthesis tasks in classes, laboratories, 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.

Assessment and Evaluation of Curriculum

The College 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.

Admission to Second Year

Engineering Programs

The first year, which provides a base in physics, chemistry, engineering and mathematics, is common to all students in the engineering programs. Students with acceptable grades can change majors within the engineering programs with no credit loss during the first year.

Formal admission to a major at the second-year level in all engineering programs requires meeting the following conditions:

- a cumulative grade point average (CGPA) of 2.00
- a minimum grade of C- (1.70) in each of the following courses: NGN 110 Introduction to Engineering and Computing and WRI 101 Academic Writing
- a minimum grade point average of C (2.00) and a minimum grade of C- (1.70) in at least 15 credit hours from the following list of required freshman-level science and mathematics courses: MTH 103, MTH 104, PHY 101, PHY 101L, PHY 102, PHY 102L, CHM 101 and NGN 111

Computer Science Program

Formal admission to the second-year level in computer science requires meeting the following conditions:

- a cumulative grade point average (CGPA) of 2.00
- a minimum grade of C- (1.70) in each of the following courses: NGN 110 Introduction to Engineering and Computing and WRI 101 Academic Writing
- a minimum grade point average of C (2.00) and a minimum grade of C- (1.70) in MTH 103 and a four-credit science course

Graduation Requirements

Engineering Programs

Each engineering program is designed for completion in four years, including two summer terms of study (six weeks each) and a summer internship. Students whose academic backgrounds require 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 program. During the final year, a senior design (capstone) project must be completed over a two-course sequence. Practical training in an engineering environment strengthens the student's preparation for engineering practice; therefore, all students must complete a minimum of five weeks' internship.

- a minimum of 44 credits of general education requirements
- a minimum of 90 credits in major requirements and major electives, which include courses in mathematics, sciences, engineering sciences and engineering design that ensure preparation for professional practice
- a minimum of six credits of free electives
- an internship working in a professional environment for at least five weeks after the third year

Computer Science Program

The computer science program is designed for completion in four years, including one summer internship. Students whose academic backgrounds require the completion of preparatory courses in mathematics, English or physics will require more than four years to complete the program. During the final year, a senior design (capstone) project must be completed over a two-course sequence. Practical training in a computer science professional environment strengthens the student's preparation for professional practice.

To qualify for graduation with the Bachelor of Science in Computer Science, students must complete a minimum of 130 credits with a cumulative GPA of 2.00 or better, including:

- a minimum of 48 credits of general education requirements
- a minimum of 70 credits of major requirements and major electives
- a minimum of 12 credits of free electives
- an internship working in a professional environment for at least five weeks after the third year

Degree Programs

The College of Engineering offers the following undergraduate degree programs:

- 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 Industrial Engineering
- Bachelor of Science in Mechanical Engineering

For details on the College of Engineering graduate programs, please refer to the *AUS Graduate Catalog*.

Minor Offerings

The College of Engineering offers the following minors:

- aerospace engineering
- biomedical engineering
- computer engineering
- computer science
- electrical engineering
- engineering management
- environmental and water engineering
- mechanical engineering
- mechatronics engineering
- petroleum engineering
- renewable energy
- software engineering and security

Details on each minor are provided later in this section.

Department of Chemical Engineering

Naif Darwish, Interim Head

Faculty

Nabil Abdel-Jabbar
Raafat Alnaizy
Rachid Chebbi
Ghaleb Husseini
Taleb Ibrahim
Kevin Loughlin
Zarook Shareefdeen

Bachelor of Science in Chemical Engineering (BSChE)

The Bachelor of Science in Chemical Engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates, as well as the Engineering Accreditation Commission of ABET, http://www.abet.org.

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 economical 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.

Mission Statement

The mission of the chemical engineering program at AUS is to prepare students for a technical career, to be innovative and ethically responsible, and to provide leadership in chemical engineering and related disciplines.

Program Educational Objectives

The objectives of the chemical engineering program are to produce graduates who will:

- succeed in the chemical engineering profession through technical competence, effective communication, teamwork and leadership
- maintain a lifelong interest in learning for personal and professional development
- practice engineering in a manner that is ethically responsible and consistent with regulatory and social concerns

Student Outcomes

Upon graduation, an AUS graduate in chemical engineering should demonstrate:

- an ability to apply knowledge of mathematics, science and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
- an ability to function on multidisciplinary teams
- an ability to identify, formulate and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context
- a recognition of the need for and an ability to engage in lifelong learning
- knowledge of contemporary issues
- an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Admission to the Program

Admission to the program follows the university's undergraduate admission requirements.

AUS students transferring into the program must be in good academic standing and must meet the minimum cumulative GPA required for transfer into the program. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

Students must complete a minimum of 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 over a two-course sequence. All chemical engineering students are required to take the Fundamentals of Engineering (FE) exam administered by the National Council of Examiners for Engineering and Surveying (NCEES) in the USA. 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 (minimum of 44 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: CHM 101, PHY 101 and PHY 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 111
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses, including ENG 204 and ENG 207
- ethical understanding requirement: satisfied through CHE 432
- discipline specific writing intensive course requirement: satisfied through CHE 206
- oral proficiency requirement: satisfied through CHE 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through CHE 240

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
- CHE 332 Engineering Economy
- CHE 342 Separation Processes
- CHE 350 Chemical Engineering Laboratory I
- CHE 397 Professional Training in Chemical Engineering
- CHE 421 Chemical Process Dynamics and Control
- CHE 432 Process Design Safety and Economics
- CHE 451 Chemical Engineering Laboratory II
- CHE 452 Unit Operations and Control Laboratory
- CHE 490 Senior Design Project I
- CHE 491 Senior Design Project II
- CHM 102 General Chemistry II
- CHM 215 Organic Chemistry I
- CHM 217 Organic Chemistry Laboratory I
- 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
- PHY 102L General Physics Laboratory II

In addition, students must complete one chemistry-related course for a minimum of three credits selected from the following list:

- CHM 216 Organic Chemistry II
- CHM 241 Quantitative Analysis
- CHM 350 Biochemistry
- ENV 252 Environmental Chemistry

Major Electives (minimum of 9 credits)

Students must complete a minimum of nine credits from any 300-level or higher CHE courses not listed as major requirements. Students may complete one major elective outside chemical engineering subject to the approval of the department.

Free Electives (minimum of 6 credits)

Students must complete a minimum of six credits from any courses offered at or above the 100 level, excluding MTH 101.

Proposed Sequence of Study
Bachelor of Science in Chemical Engineering (BSChE)

FIRST YEAR (37 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 101	General Chemistry I	4
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	NGN 111	Introduction to Statistical Analysis	2
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Writing and Reading Across the Curriculum	3
	FRE	Free Elective	3
		Total	**15**
Summer	MTH 205	Differential Equations	3
	GER-Core	History and Culture of the Arab World	3
		Total	**6**

SECOND YEAR (40 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHE 205	Principles of Chemical Engineering I	2
	CHE 230	Materials Science	3
	CHM 102	General Chemistry II	4
	CHM 215	Organic Chemistry I	3
	ENG 204	Advanced Academic Writing	3
	MTH 203	Calculus III	3
		Total	**18**
Spring	CHE 206	Principles of Chemical Engineering II	3
	CHE 215	Fluid Flow	3
	CHE 240	Computer Methods in Chemical Engineering	3
	CHM 217	Organic Chemistry Laboratory I	1
	MTH 221	Linear Algebra	3
	CHM/ENV	Chemistry-Related Course*	3
		Total	**16**
Summer	ENG 207	English for Engineering	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**6**

*** See list under Major Requirements**

THIRD YEAR (31 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHE 303	Chemical Engineering Thermodynamics I	3
	CHE 307	Heat Transfer	3
	CHE 329	Mass Transfer	3
	CHE 350	Chemical Engineering Laboratory I	1
	ELE 225	Electric Circuits and Devices	3
	GER-Core	Arts and Literature	3
		Total	**16**
Spring	CHE 304	Chemical Engineering Thermodynamics II	3
	CHE 321	Chemical Reaction Engineering	3
	CHE 332	Engineering Economy	3
	CHE 342	Separation Processes	3
	CHM 331	Physical Chemistry II	3
		Total	**15**
Summer	CHE 397	Professional Training in Chemical Engineering	0

FOURTH YEAR (32 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHE 421	Chemical Process Dynamics and Control	3
	CHE 432	Process Design, Safety and Economics	3
	CHE 451	Chemical Engineering Laboratory II	1
	CHE 490	Senior Design Project I	1
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Human Interaction and Behavior	3
		Total	**17**
Spring	CHE 452	Unit Operations and Control Laboratory	1
	CHE 491	Senior Design Project II	2
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

Department of Civil Engineering

Sameh El-Sayegh, Interim Head

Faculty

Jamal Abdalla (on sabbatical Spring 2013)
Akmal Abdelfatah
Farid Abed
Ghassan Abu-Lebdeh
Mohamed AlHamaydeh
Tarig Ali
Adil Al-Tamimi
Serter Atabay
Mousa Attom
Salwa Beheiry
Magdi El-Emam
Kazi Parvez Fattah
Rami Hawileh
Zahid Khan
Maruf Mortula
Sami Tabsh
Sherif Yehia

Bachelor of Science in Civil Engineering (BSCE)

The Bachelor of Science in Civil Engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates, as well as the Engineering Accreditation Commission of ABET, http://www.abet.org.

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.

Mission Statement

The mission of the Department of Civil Engineering at AUS is to provide students with the highest level of technical preparation, social responsibility, leadership and lifelong learning skills for successful careers in civil engineering. The department offers quality education based on a nationally and internationally recognized curriculum supported by well-equipped laboratories and state-of-the-art educational tools. The department provides a professional environment that fosters fairness, ethics, diversity, faculty development, quality research, and outreach with industry and public agencies.

Program Educational Objectives

The objectives of the civil engineering program are to produce graduates who will:

- have successful careers in civil engineering and become independent thinkers, effective communicators, team members, decision makers and leaders in industry and public sectors
- understand the global, ethical and social implications of the civil engineering profession and promote public safety and environmental protection
- pursue advanced studies successfully and engage in continuing education and lifelong learning

Student Outcomes

Upon graduation, an AUS graduate in civil engineering should demonstrate:

- an ability to apply knowledge of mathematics, science and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
- an ability to function on multidisciplinary teams
- an ability to identify, formulate and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context
- a recognition of the need for and an ability to engage in lifelong learning
- knowledge of contemporary issues
- an ability to use the techniques, skills and modern engineering tools necessary for engineering practice
- an ability to explain basic concepts in management, business, public policy and leadership, and the importance of professional licensure

Admission to the Program

Admission to the program follows the university's undergraduate admission requirements.

AUS students transferring into the program must be in good academic standing and must meet the minimum cumulative GPA required for transfer into the program. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

Students must complete a minimum of 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 over a two-course sequence. All civil engineering students are required to take the Fundamentals of Engineering (FE) exam administered by the National Council of Examiners for Engineering and Surveying (NCEES) in the USA.

Students seeking the BSCE degree must satisfy the following requirements:

General Education Requirements (minimum of 44 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: CHM 101, PHY 101 and PHY 101L

- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 111
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses, including ENG 204 and ENG 207
- ethical understanding requirement: satisfied through CVE 490
- discipline specific writing intensive course requirement: satisfied through CVE 491
- oral proficiency requirement: satisfied through CVE 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through CVE 211

Major Requirements (84 credits)

- CVE 202 Construction Materials Laboratory
- CVE 211 Fundamentals of Graphics and Programming
- CVE 220 Statics
- CVE 221 Construction Materials and Quality Control
- CVE 223 Mechanics of Materials
- CVE 231 Geology
- 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 Laboratory
- CVE 304 Environmental and Water Engineering Laboratory
- CVE 310 Fundamentals of Structural Dynamics
- CVE 312 Structural Steel Design
- CVE 313 Reinforced Concrete Design
- CVE 325 Numerical Methods in Engineering
- 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
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- CVE 410 Computer Methods in Structural Analysis
- CVE 411 Structural Concrete Design
- CVE 414 Prestressed Concrete Design
- CVE 431 Fundamentals of Earthquake Engineering
- CVE 437 Advanced Concrete Technology
- CVE 441 Coastal Engineering
- CVE 442 Advanced Foundation Engineering
- CVE 446 Geotechnical Dam Engineering
- CVE 450 Physical and Chemical Processes in Environmental Engineering
- CVE 451 Urban Water Infrastructure Management
- CVE 456 Traffic Engineering
- CVE 457 Airport Planning and Design
- CVE 463 Construction Management
- CVE 467 Building Construction Materials and Methods
- CVE 468 Systems Construction Management, Scheduling and Control
- CVE 472 Geographic Information Systems
- CVE 494 Special Topics in Civil Engineering

Free Electives (minimum of 6 credits)

Student must complete a minimum of six credits from any courses offered at or above the 100 level, excluding MTH 101.

Proposed Sequence of Study
Bachelor of Science in Civil Engineering (BSCE)

FIRST YEAR (37 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 101	General Chemistry I	4
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	NGN 111	Introduction to Statistical Analysis	2
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Writing and Reading Across the Curriculum	3
	FRE	Free Elective	3
		Total	**15**
Summer	MTH 205	Differential Equations	3
	GER-Core	History and Culture of the Arab World	3
		Total	**6**

SECOND YEAR (38 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CVE 211	Fundamentals of Graphics and Computer Programming	3
	CVE 220	Statics	3
	CVE 231	Geology	3
	CVE 241	Elementary Surveying	3
	CVE 242	Field Plane Surveying	1
	ENG 204	Advanced Academic Writing	3
		Total	**16**
Spring	CVE 202	Construction Materials Laboratory	1
	CVE 221	Construction Materials and Quality Control	3
	CVE 223	Mechanics of Materials	3
	CVE 240	Fluid Mechanics	3
	CVE 263	Urban Transportation Planning	3
	MTH 221	Linear Algebra	3
		Total	**16**
Summer	CVE 267	Civil Engineering Cost Analysis	3
	ENG 207	English for Engineering	3
		Total	**6**

THIRD YEAR (32 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CVE 301	Theory of Structures	3
	CVE 303	Geotechnical Engineering Laboratory	1
	CVE 331	Geotechnical Engineering Principles	3
	CVE 341	Water Resources Engineering	3
	MTH 203	Calculus III	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**16**
Spring	CVE 304	Environmental and Water Engineering Laboratory	1
	CVE 312	Structural Steel Design	3
	CVE 313	Reinforced Concrete Design	3
	CVE 325	Numerical Methods in Engineering	3
	CVE 351	Environmental Engineering	3
	GER-Core	Arts and Literature	3
		Total	**16**
Summer	CVE 397	Professional Training in Civil Engineering	0

FOURTH YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CVE 333	Geotechnical Engineering Design	3
	CVE 363	Highway Design	3
	CVE 367	Project Estimating, Planning and Control	3
	CVE 490	Civil Engineering Design Project I	1
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**16**
Spring	CVE 310	Fundamentals of Structural Dynamics	3
	CVE 491	Civil Engineering Design Project II	2
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**17**

Department of Computer Science and Engineering

Assim Sagahyroon, Head

Faculty

Rana Ahmed

Abdul-Rahman Al-Ali (on sabbatical Spring 2013)

Fadi Aloul

Gerassimos Barlas (on sabbatical Fall 2012)

Armin Eberlein

Khaled El-Fakih

Taha Landolsi

Tarik Ozkul

Michel Pasquier

Ghassan Qadah

Tamer Shanableh

Imran Zualkernan

Bachelor of Science in Computer Engineering (BSCoE)

The Bachelor of Science in Computer Engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates, as well as the Engineering Accreditation Commission of ABET, http://www.abet.org.

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.

Mission Statement

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.

Program Educational Objectives

The objectives of the computer engineering program are to produce graduates who will:

- have successful careers as computer engineers, and become effective communicators, team members and leaders in industry and public sectors
- continue their professional development through continuing education and advanced studies
- be engaged in the global, ethical and social aspects of the profession and have a positive impact on local, regional and global communities

Student Outcomes

Upon graduation, an AUS graduate in computer engineering should demonstrate:

- an ability to apply knowledge of mathematics, science and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
- an ability to function on multidisciplinary teams
- an ability to identify, formulate and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context
- a recognition of the need for and an ability to engage in lifelong learning
- knowledge of contemporary issues
- an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Admission to the Program

Admission to the program follows the university's undergraduate admission requirements.

AUS students transferring into the program must be in good academic standing and must meet the minimum cumulative GPA required for transfer into the program. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

Students must complete a minimum of 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 over a two-course sequence. All computer engineering students are required to take a comprehensive assessment examination.

Students seeking the BSCoE degree must complete the following requirements:

General Education Requirements (minimum of 44 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: CHM 101, PHY 101 and PHY 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 111
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG)

courses, including ENG 204 and ENG 207

- ethical understanding requirement: satisfied through COE 490
- discipline specific writing intensive course requirement: satisfied through COE 491
- oral proficiency requirement: satisfied through COE 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through COE 210

Major Requirements (78 credits)

- COE 210 Programming I
- COE 211 Programming II
- COE 221 Digital Systems
- COE 241 Microcontrollers: Programming and Interfacing
- COE 311 Data Structures and Algorithms
- COE 312 Software Design for Engineers
- 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 410 Embedded Systems: Design and Applications
- COE 420 Software Engineering
- 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 Laboratory
- ELE 323 Signal Processing
- ELE 341 Electronics II
- MCE 225 Statics and Dynamics for Computer Engineers
- 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
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 12 credits)

Students must complete four three-credit courses from the following list of approved technical elective courses. At least three of the four courses should be in computer engineering.

- CMP 352 Human Computer Interaction
- CMP 433 Artificial Intelligence
- CMP 434 Multimedia Compression
- CMP 450 Object-Oriented Software Engineering
- CMP 451 Formal Specification Methods
- CMP 454 Software Testing and Quality Engineering
- CMP 472 Multimedia Computing
- CMP 494 Special Topics in Computer Science approved by the department
- 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 444 Computer Security
- COE 445 Compiler Design
- COE 481 Real-time Industrial Networks
- COE 482 Soft Computing
- COE 494 Special Topics in Computer Engineering
- ELE 311 Electromagnetics
- ELE 432 Medical Instrumentation I
- ELE 441 Microelectronic Devices
- ELE 455 Digital Image Processing

Free Electives (minimum of 6 credits)

Students must complete a minimum of six credits of any courses offered at or above the 100 level, excluding BIS 101 and MTH 101.

Proposed Sequence of Study
Bachelor of Science in Computer Engineering (BSCoE)

FIRST YEAR (37 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 101	General Chemistry I	4
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	NGN 111	Introduction to Statistical Analysis	2
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Writing and Reading Across the Curriculum	3
	FRE	Free Elective	3
		Total	**15**
Summer	MTH 205	Differential Equations	3
	GER-Core	History and Culture of the Arab World	3
		Total	**6**

SECOND YEAR (38 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	COE 210	Programming I	3
	COE 221	Digital Systems	4
	ELE 211	Electric Circuits I	3
	ENG 204	Advanced Academic Writing	3
	MCE 225	Statics and Dynamics for Computer Engineers	2
		Total	**15**
Spring	COE 211	Programming II	3
	COE 241	Microcontrollers: Programming and Interfacing	4
	MTH 213	Discrete Mathematics	3
	MTH 221	Linear Algebra	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**16**
Summer	ELE 241	Electronics I	3
	ELE 241L	Electronics I Laboratory	1
	ENG 207	English for Engineering	3
		Total	**7**

THIRD YEAR (32 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	COE 311	Data Structures and Algorithms	3
	COE 312	Software Design for Engineers	2
	COE 370	Communications Networks	3
	ELE 323	Signal Processing	3
	ELE 341	Electronics II	3
	GER-Core	Human Interaction and Behavior	3
		Total	**17**
Spring	COE 341	Computer Architecture and Organization	3
	COE 360	Probability and Stochastic Processes	3
	COE 371	Computer Networks I	3
	COE 381	Operating Systems	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	COE 397	Professional Training in Computer Engineering	0

FOURTH YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	COE 410	Embedded Systems: Design and Applications	3
	COE 420	Software Engineering	3
	COE 424	Advanced Digital System Design	3
	COE 490	Design Project I	1
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**16**
Spring	COE 491	Design Project II	2
	MJE	Major Elective	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**17**

Bachelor of Science in Computer Science (BSCS)

The Bachelor of Science in Computer Science program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates, as well as the Computing Accreditation Commission of ABET, http://www.abet.org.

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 completed in close coordination with a faculty advisor over a two-course sequence. A summer internship experience is required.

Mission Statement

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.

Program Educational Objectives

The objectives of the computer science program are to produce graduates who will:

- have successful careers in the field of computer science
- be effective communicators, team members and leaders that add value to employers and businesses regionally and globally
- stay current in emerging technologies through training, self-learning and/or graduate studies
- be engaged in the ethical, legal and social issues faced in their workplace and contribute positively to the community

Student Outcomes

Upon graduation, an AUS graduate in computer science should demonstrate:

- an ability to apply knowledge of computing and mathematics appropriate to the discipline
- an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- an ability to design, implement and evaluate a computer-based system, process, component or program to meet desired needs
- an ability to function effectively on teams to accomplish a common goal
- an understanding of professional, ethical, legal, security and social issues and responsibilities
- an ability to communicate effectively with a range of audiences
- an ability to analyze the local and global impact of computing on individuals, organizations and society
- recognition of the need for and an ability to engage in continuing professional development
- an ability to use current techniques, skills and tools necessary for computing practice

Admission to the Program

Admission to the program follows the university's undergraduate admission requirements.

AUS students transferring into the program must be in good academic standing and must meet the minimum cumulative GPA required for transfer into the program. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

Students must complete a minimum of 130 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 last year, each student is required to complete a senior design project.

Students seeking the BSCS degree must complete the following requirements:

General Education Requirements (minimum of 48 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: a minimum of 12 credits from CHM, BIO, ENV or PHY. Two out of the three courses must be in the same area.
- mathematics requirement: MTH 103
- statistics requirement: STA 201
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses, including ENG 204 and ENG 207
- ethical understanding requirement: satisfied through CMP 235
- discipline specific writing intensive course requirement: satisfied through CMP 490
- oral proficiency requirement: satisfied through CMP 490
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through CMP 120

Major Requirements (58 credits)

- CMP 120 Introduction to Computer Science I
- CMP 210 Digital Systems
- CMP 213 Discrete Structures
- CMP 220 Introduction to Computer Science II
- CMP 235 Ethics for Computing and Information Technology
- CMP 240 Introduction to Computer Systems
- CMP 256 GUI Design and Programming
- CMP 305 Data Structures and Algorithms
- CMP 310 Operating Systems
- CMP 320 Database Systems
- CMP 321 Programming Languages
- CMP 340 Design and Analysis of Algorithms
- CMP 341 Computational Methods
- CMP 350 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 104 Calculus II
- MTH 221 Linear Algebra
- NGN 110 Introduction to Engineering and Computing

Major Electives (minimum of 12 credits)

Students must complete a minimum of 12 credits in courses selected from the following list:

- CMP 352 Human Computer Interaction
- CMP 415 Introduction to Computer Networks
- CMP 433 Artificial Intelligence
- CMP 434 Multimedia Compression
- CMP 435 Computer Security
- CMP 450 Object-oriented Software Engineering
- CMP 451 Formal Specification Methods
- CMP 452 Compiler Construction
- CMP 454 Software Testing and Quality Engineering
- CMP 472 Multimedia Computing
- CMP 494 Special Topics in Computer Science
- COE 341 Computer Architecture and Organization
- COE 370 Communications Networks
- COE 423 Computer Networks II
- COE 482 Soft Computing
- COE 494 Special Topics in Computer Engineering approved by the department

Free Electives (minimum of 12 credits)

Students must complete a minimum of 12 credits of any courses offered at or above the 100 level, excluding BIS 101 and MTH 101.

Proposed Sequence of Study
Bachelor of Science Degree in Computer Science (BSCS)

FIRST YEAR (31 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	WRI 101	Academic Writing	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural and Physical Sciences	4
		Total	**15**
Spring	CMP 120	Introduction to Computer Science I	3
	MTH 104	Calculus II	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	Culture in a Critical Perspective	3
	GER-SCI	Natural and Physical Sciences	4
		Total	**16**

SECOND YEAR (35 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CMP 210	Digital Systems	4
	CMP 213	Discrete Structures	3
	CMP 220	Introduction to Computer Science II	3
	ENG 204	Advanced Academic Writing	3
	MTH 221	Linear Algebra	3
		Total	**16**
Spring	CMP 235	Ethics for Computing and Information Technology	3
	CMP 256	GUI Design and Programming	3
	CMP 305	Data Structures and Algorithms	3
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	GER-Core	Arts and Literature	3
	GER-SCI	Natural and Physical Sciences	4
		Total	**19**

THIRD YEAR (34 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CMP 240	Introduction to Computer Systems	4
	CMP 320	Database Systems	3
	CMP 321	Programming Languages	3
	CMP 340	Design and Analysis of Algorithms	3
	ENG 207	English for Engineering	3
	GER-Core	Human Interaction and Behavior	3
		Total	**19**
Spring	CMP 310	Operating Systems	3
	CMP 341	Computational Methods	3
	CMP 350	Software Engineering	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	CMP 397	Professional Training in Computer Science	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CMP 416	Internet and Network Computing	3
	CMP 490	Project in Computer Science I	1
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**16**
Spring	CMP 491	Project in Computer Science II	2
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**14**

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 the 300 level in computer engineering.
- At least 10 credits of the minor must be taken in residence at AUS.
- At least seven credits of the 10 credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in the courses taken to satisfy the minor.

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

Minor Requirements (11 credits)

- COE 221 Digital Systems
- COE 241 Microcontrollers: Programming and Interfacing
- ELE 341 Electronics II

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credit hours from any 300-level or above COE courses, except COE 490 and COE 491.

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. The computer science minor 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 credits)

- College of Architecture, Art and Design students: CMP 120, CMP 220 and CMP 472
- College of Arts and Sciences students: CMP 220, CMP 305 and CMP 340
- College of Engineering students: CMP 321, CMP 340 and CMP 416
- School of Business and Management students: CMP 220, CMP 305 and CMP 340

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits from any 300-level or above CMP courses, except CMP 490 and CMP 491.

Minor in Software Engineering and Security

The software engineering and security minor exposes students to contemporary topics related to both software 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, including at least nine credits in courses at or above the 300 level.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 305 Data Structures and Algorithms or
  CMP 306 Introduction to Programming and Data Structures
- CMP 350 Software Engineering
- CMP 435 Computer Security
- CMP 454 Software Testing and Quality Engineering

Minor Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- CMP 352 Human Computer Interaction
- CMP 450 Object-Oriented Software Engineering
- CMP 451 Formal Specification Methods
- CMP 494 Special Topics in Computer Science approved by the department

Department of Electrical Engineering

Mohamed El-Tarhuni, Head

Faculty

Yousef Al-Assaf
Lutfi Albasha
Hasan Al-Nashash
Khaled Assaleh
Maher Bakri-Kassem
Rached Dhaouadi (on sabbatical Spring 2013)
Ayman El-Hag
Mohamed Hassan
Hasan Mir
Ahmed Osman-Ahmed
Nasser Qaddoumi
Habib-ur Rehman
Aydin Yesildirek

Bachelor of Science in Electrical Engineering (BSEE)

The Bachelor of Science in Electrical Engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates, as well as the Engineering Accreditation Commission of ABET, http://www.abet.org.

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.

Mission Statement

The mission of the Department of Electrical Engineering is to promote and maintain excellence in teaching and learning to equip students with strong core competencies in electrical engineering and empower them with the skills required for successful professional careers. The electrical engineering program promotes and enhances faculty expertise in research and development towards providing technical solutions for social challenges and community advancement through outreach activities and networking with regional and international organizations.

Program Educational Objectives

The objectives of the electrical engineering program are to produce graduates who will:

- be a successful engineer as a member or a leader of a team that comprises a diverse group of professionals
- possess effective communication skills and continue to improve technical and non-technical competencies through engagement in professional activities, projects and/or graduate studies
- be a holistic citizen demonstrating social, ethical and professional responsibilities

Student Outcomes

Upon graduation, an AUS graduate in electrical engineering should demonstrate:

- an ability to apply knowledge of mathematics, science and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
- an ability to function on multidisciplinary teams
- an ability to identify, formulate and solve engineering problems
- an understanding of professional and ethical responsibilities
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context
- a recognition of the need for and an ability to engage in lifelong learning
- knowledge of contemporary issues
- an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Admission to the Program

Admission to the program follows the university's undergraduate admission requirements.

AUS students transferring into the program must be in good academic standing and must meet the minimum cumulative GPA required for transfer into the program. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

Students must complete a minimum of 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, over a two-course sequence, a senior design project in the fourth year. All electrical engineering students are required to take the Fundamentals of Engineering (FE) exam administered by the National Council of Examiners for Engineering and Surveying (NCEES) in the USA.

Students seeking the BSEE degree must satisfy the following requirements:

General Education Requirements (minimum of 44 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: CHM 101, PHY 101 and PHY 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 111
- communication requirement: a minimum of 12 credits in 100-level or

above writing (WRI)/English (ENG) courses, including ENG 204 and ENG 207

- ethical understanding requirement: satisfied through ELE 490
- discipline specific writing intensive course requirement: satisfied through ELE 491
- oral proficiency requirement: satisfied through ELE 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through COE 210

Major Requirements (77 credits)

- COE 210 Programming I
- COE 221 Digital Systems
- COE 241 Microcontrollers: Programming and Interfacing
- ELE 211 Electric Circuits I
- ELE 212 Electric Circuits II
- ELE 241 Electronics I
- ELE 241L Electronics I Laboratory
- ELE 311 Electromagnetics
- ELE 321 Signals and Systems
- ELE 324 Digital Signal Processing
- ELE 332L Measurements and Instrumentation Laboratory
- ELE 341 Electronics II
- ELE 341L Electronics II Laboratory
- ELE 351 Electrical Energy Conversion
- ELE 353 Control Systems I
- ELE 353L Control Systems I Laboratory
- ELE 360 Probability and Stochastic Processes
- ELE 361 Communications
- ELE 361L Communications Laboratory
- ELE 371 Power Systems Analysis
- ELE 371L Electric Machines and Power Systems Laboratory
- ELE 397 Professional Training in Electrical Engineering
- ELE 490 Electrical Engineering Design Project I
- ELE 491 Electrical Engineering Design Project II
- MCE 224 Engineering Mechanics—Statics and Dynamics
- 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
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 13 credits)

Students must complete a minimum of 13 credits of elective courses, including a one-credit laboratory, from the following approved list of major electives. Students may complete one major engineering elective outside electrical engineering (ELE) from the approved list available in the department.

- ELE 432 Medical Instrumentation
- ELE 439L Medical Electronics Systems Laboratory
- ELE 441 Microelectronic Devices
- ELE 444 Control Systems II
- ELE 451 Wireless Communications
- ELE 452 Digital Communications
- ELE 453 Microwave Engineering
- ELE 454 Antennas and Wave Propagation
- ELE 455 Digital Image Processing
- ELE 456 Pattern Recognition
- ELE 457 Satellite Communications
- ELE 458 Multimedia Communications and Networking
- ELE 458L Communications Systems Laboratory
- ELE 459 Introduction to Radar Systems
- ELE 471 Digital Control Systems
- ELE 473 Industrial Instrumentation and Control
- ELE 476L Instrumentation and Control Systems Laboratory
- ELE 481 Power System Protection
- ELE 482 Electric Power Distribution Systems
- ELE 485 Power Electronics
- ELE 486 Electric Drives
- ELE 487 Power Conversion in Renewable Energy Systems
- ELE 488L Power Engineering Laboratory
- ELE 494 Special Topics in Electrical Engineering

Free Electives (minimum of 6 credits)

Students must complete a minimum of six credits of any courses offered at AUS at or above the 100 level, excluding MTH 101.

Proposed Sequence of Study
Bachelor of Science in Electrical Engineering (BSEE)

FIRST YEAR (37 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 101	General Chemistry I	4
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	NGN 111	Introduction to Statistical Analysis	2
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Writing and Reading Across the Curriculum	3
	FRE	Free Elective	3
		Total	**15**
Summer	MTH 205	Differential Equations	3
	GER-Core	History and Culture of the Arab World	3
		Total	**6**

SECOND YEAR (39 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	COE 210	Programming I	3
	ENG 204	Advanced Academic Writing	3
	ELE 211	Electric Circuits I	3
	MTH 203	Calculus III	3
	MTH 221	Linear Algebra	3
		Total	**15**
Spring	COE 221	Digital Systems	4
	ELE 212	Electric Circuits II	3
	ELE 241	Electronics I	3
	ELE 241L	Electronics I Laboratory	1
	MCE 224	Engineering Mechanics—Statics and Dynamics	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**17**
Summer	COE 241	Microcontrollers: Programming and Interfacing	4
	ENG 207	English for Engineering	3
		Total	**7**

THIRD YEAR (34 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ELE 311	Electromagnetics	3
	ELE 321	Signals and Systems	3
	ELE 341	Electronics II	3
	ELE 341L	Electronics II Laboratory	1
	ELE 351	Electrical Energy Conversion	3
	ELE 353	Control Systems I	3
		Total	**16**
Spring	ELE 324	Digital Signal Processing	3
	ELE 332L	Measurements and Instrumentation Laboratory	1
	ELE 353L	Control Systems I Laboratory	1
	ELE 360	Probability and Stochastic Processes	3
	ELE 361	Communications	3
	ELE 371	Power Systems Analysis	3
	ELE 371L	Electric Machines and Power Systems Laboratory	1
	GER-Core	Arts and Literature	3
		Total	**18**
Summer	ELE 397	Professional Training in Electrical Engineering	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ELE 361L	Communications Laboratory	1
	ELE 490	Electrical Engineering Design Project I	2
	MJE	Major Elective	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	ELE 491	Electrical Engineering Design Project II	2
	MJE	Major Elective	3
	MJE	Major Elective Laboratory	1
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

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.

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 in electrical engineering.
- At least 10 credits of the minor must be taken in residence at AUS.
- At least seven credits of the 10 credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 (10 credits)

- ELE 212 Electric Circuits II
- ELE 241 Electronics I
- ELE 241L Electronics I Laboratory
- ELE 351 Electrical Energy Conversion

Minor Electives (minimum of 10 credits)

Students must complete a minimum of 10 credits as follows:

- three 300-level or above ELE courses, excluding ELE 490 and ELE 491, with at least three credits in a 400-level ELE course
- any 300-level ELE laboratory

Department of Mechanical Engineering

Ibrahim Deiab, Interim Head

Faculty

Mamoun Abdel-Hafez
Saad Ahmed
Basil Darras
Hany El Kadi
Ameen El-Sinawi
Mohamed Gadalla
Mohammad-Ameen Jarrah (on sabbatical AY 2012–2013)
Ali Jhemi
Mehmet Fatih Orhan
Shivakumar Ranganathan
Essam M. Wahba

Bachelor of Science in Mechanical Engineering (BSME)

The Bachelor of Science in Mechanical Engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates, as well as the Engineering Accreditation Commission of ABET, http://www.abet.org.

Mechanical engineering provides an excellent broad education for today's technological world. Mechanical engineers model, analyze, test and manufacture engines that power ground and aerospace vehicles. They also design, operate and modify power plants that convert the energy in fuels, wind and sunlight into electricity and other forms of energy, 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. Mechanical engineers also develop alternative energy sources such as solar, fuel cells, wind and alternative fuels. They are heavily involved in new technologies such as MEMS, nanosystems and biotechnologies. 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.

Mission Statement

The Department of Mechanical Engineering educates the engineers of tomorrow by integrating classroom theory and hands-on experience, emphasizing the process of learning and critical thinking, conducting cutting-edge research, and serving the engineering profession, industry and society at large. The mechanical engineering program fosters lifelong learning, ethics and professional development, and embraces diversity among its faculty and student body.

Program Educational Objectives

The objectives of the mechanical engineering program are to produce graduates who will:

- actively embrace leadership roles in the practice of mechanical engineering, conduct research and development to advance technology and foster innovation, and apply their engineering problem-solving skills as needed in the workplace
- actively participate in on-going professional development, updating and adapting their core knowledge, and acquiring new knowledge and skills to pursue new career opportunities
- serve the engineering profession and support sustainable development

Student Outcomes

Upon graduation, an AUS graduate in mechanical engineering should demonstrate:

- an ability to apply knowledge of mathematics, science and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
- an ability to function on multidisciplinary teams
- an ability to identify, formulate and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context
- a recognition of the need for and an ability to engage in lifelong learning
- knowledge of contemporary issues
- an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Admission to the Program

Admission to the program follows the university's undergraduate admission requirements.

AUS students transferring into the program must be in good academic standing and must meet the minimum cumulative GPA required for transfer into the program. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

Students must complete a minimum of 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 over a two-course sequence. All mechanical engineering students are required to take the Fundamentals of Engineering (FE) exam administered by the National Council of Examiners for Engineering and Surveying (NCEES) in the USA.

Students seeking the BSME degree must satisfy the following requirements:

General Education Requirements (minimum of 44 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: CHM 101, PHY 101 and PHY 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 111
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses, including ENG 204 and ENG 207
- ethical understanding requirement: satisfied through MCE 490
- discipline specific writing intensive course requirement: satisfied through MCE 491
- oral proficiency requirement: satisfied through MCE 490
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through MCE 226L

Major Requirements (78 credits)

- ELE 225 Electric Circuits and Devices
- MCE 216L Introduction to Engineering Drawing and Workshop
- MCE 220 Statics
- MCE 222 Dynamics
- MCE 223 Mechanics of Materials
- MCE 226L Computer Applications in Mechanical Engineering I
- MCE 230 Materials Science
- MCE 236L Solid Modeling
- MCE 240 Fluid Mechanics
- MCE 241 Thermodynamics I
- MCE 311 Engineering Measurements
- MCE 321 Mechanical Design I
- MCE 322 Mechanical Design II
- MCE 325 Numerical Methods in Engineering
- MCE 326L Computer Applications in Mechanical Engineering II
- MCE 328 Dynamic Systems
- MCE 331 Manufacturing Processes
- MCE 332L Materials and Manufacturing Processes Laboratory
- MCE 341 Thermodynamics II
- MCE 344 Heat Transfer
- MCE 345L Thermofluids Laboratory
- MCE 397 Professional Training in Mechanical Engineering
- MCE 410 Control Systems
- MCE 415L Dynamics and Control Systems Laboratory
- 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
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 12 credits)

Students must complete four technical elective courses for a minimum of 12 credits in the major areas of mechanical engineering. Two courses (minimum of six credits) should be from the applied mechanics area and two courses (minimum of six credits) should be from the thermofluids area.

Applied Mechanics

- BME 430 Biomechanics
- MCE 416 Kinematics and Dynamics of Machinery
- MCE 423 Mechanical Vibrations
- MCE 434 Fundamentals of Computer-Aided Design and Manufacturing
- MCE 435 Advanced Mechanics of Materials
- 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 approved by the department

Thermofluids

- MCE 445 Energy Systems
- MCE 446 Refrigeration and Air Conditioning
- MCE 447 Internal Combustion Engines
- MCE 448 Renewable Energy Systems and Sustainability II
- MCE 450 Energy Conservation and Management
- MCE 473 Applied Finite Elements Analysis
- MCE 485 Hydraulics of Pipeline Systems
- MCE 487 Turbomachines
- MCE 488 Introduction to Computational Fluid Dynamics
- MCE 494 Special Topics in Mechanical Engineering approved by the department

Free Electives (minimum of 6 credits)

Students must complete a minimum of six credits of any courses offered at or above the 100 level, excluding MTH 101.

Proposed Sequence of Study
Bachelor of Science in Mechanical Engineering (BSME)

FIRST YEAR (37 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 101	General Chemistry I	4
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	NGN 111	Introduction to Statistical Analysis	2
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Writing and Reading Across the Curriculum	3
	FRE	Free Elective	3
		Total	**15**
Summer	MTH 205	Differential Equations	3
	GER-Core	History and Culture of the Arab World	3
		Total	**6**

SECOND YEAR (39 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ENG 204	Advanced Academic Writing	3
	MCE 216L	Introduction to Engineering Drawing and Workshop	1
	MCE 220	Statics	3
	MCE 230	Materials Science	3
	MCE 241	Thermodynamics I	3
	MTH 221	Linear Algebra	3
		Total	**16**
Spring	ELE 225	Electric Circuits and Devices	3
	MCE 222	Dynamics	3
	MCE 223	Mechanics of Materials	3
	MCE 226L	Computer Applications in Mechanical Engineering I	1
	MCE 236L	Solid Modeling	1
	MCE 240	Fluid Mechanics	3
	MTH 203	Calculus III	3
		Total	**17**
Summer	ENG 207	English for Engineering	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**6**

THIRD YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MCE 311	Engineering Measurements	3
	MCE 321	Mechanical Design I	3
	MCE 326L	Computer Applications in Mechanical Engineering II	1
	MCE 331	Manufacturing Processes	3
	MCE 332L	Materials and Manufacturing Processes Laboratory	1
	MCE 341	Thermodynamics II	3
	GER-Core	Arts and Literature	3
		Total	**17**
Spring	MCE 322	Mechanical Design II	3
	MCE 325	Numerical Methods in Engineering	3
	MCE 328	Dynamic Systems	3
	MCE 344	Heat Transfer	3
	MCE 345L	Thermofluids Laboratory	1
	FRE	Free Elective	3
		Total	**16**
Summer	MCE 397	Professional Training in Mechanical Engineering	0

FOURTH YEAR (31 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MCE 410	Control Systems	3
	MCE 482	Intermediate Fluid Mechanics	3
	MCE 490	Design Project I	1
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**16**
Spring	MCE 415L	Dynamics and Control Systems Laboratory	1
	MCE 491	Design Project II	2
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**15**

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.

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and an average GPA of at least 2.00 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 prerequisites must be satisfied.

Minor Requirements (9 credits)

Student must complete the requirements of one of the following two options:

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 (minimum of 9 credits)

Students must complete any three 300-level or above MCE courses, excluding MCE 490 and MCE 491.

Other Programs Offered by the College of Engineering

Bachelor of Science in Industrial Engineering (BSIE)

Moncer Hariga, Director

Faculty

Ibrahim Al-Kattan

Hazim El-Baz

The Industrial Engineering Program is initially accredited by the UAE Ministry of Higher Education and Scientific Research.

The industrial engineering curriculum is a four-year program leading to a Bachelor of Science in Industrial Engineering (BSIE). The program is designed with the aim of graduating engineers with the knowledge and skills necessary to function as professional engineers in a working environment where cost effectiveness, high productivity, continuous quality and reliability improvements, waste reduction, and efficient resource utilization are critical success factors for organizations. These skills will help industrial engineering graduates to build successful careers in several engineering professions such as facility design and planning; production planning, scheduling and control; quality control; warehousing and inventory control; supply chain and logistics engineering; and maintenance engineering. Furthermore, industrial engineering graduates have the abilities to work in manufacturing as well service-oriented organizations such as banks, health care, utilities and transportation services. They are able to immediately deliver significant business improvements and economic savings to their company of employment.

Mission Statement

The mission of the Industrial Engineering Program is to promote and maintain excellence in teaching and learning to equip students with strong core competencies in industrial engineering and empower them with the skills required for successful professional careers. The Industrial Engineering Program promotes and enhances faculty expertise in research and development toward providing technical solutions for social challenges and community advancement through outreach activities and networking with regional and international organizations.

Program Educational Objectives

The objectives of the Industrial Engineering Program are to produce graduates who will:

- have successful careers as industrial engineers, especially in the fields of logistics and supply chain engineering, as well as quality and maintenance engineering
- think independently and communicate effectively as team members and team leaders
- practice engineering considering global, ethical and social factors
- continue their professional development through further education and advanced studies

Student Outcomes

Upon graduation, an AUS graduate in industrial engineering should demonstrate:

- an ability to apply knowledge of mathematics, science and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
- an ability to function on multidisciplinary teams
- an ability to identify, formulate and solve engineering problems
- an understanding of professional and ethical responsibilities
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context
- a recognition of the need for and an ability to engage in lifelong learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Admission to the Program

Admission to the program follows the university's undergraduate admission requirements.

AUS students transferring into the program must be in good academic standing and must meet the minimum cumulative GPA required for transfer into the program. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the program director or the college associate dean. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

Students must complete a minimum of 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, over a two-course sequence, a senior design project in the fourth year. All industrial engineering students are required to take a comprehensive assessment examination during their senior year.

Students seeking the BSIE degree must satisfy the following requirements:

General Education Requirements (minimum of 44 credits)

- a minimum of 18 credits in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: CHM 101, PHY 101 and PHY 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 111
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses, including ENG 204 and ENG 207
- ethical understanding requirement: satisfied through INE 490
- discipline-specific writing intensive course requirement: satisfied through INE 491
- oral proficiency requirement: satisfied through INE 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through COE 210

Major Requirements (78 credits)

- CHE 205 Principles of Chemical Engineering I
- COE 210 Programming I
- EGM 361 Management for Engineers
- EGM 364 Engineering Economy
- ELE 225 Electric Circuit and Devices
- INE 222 Operations Research I
- INE 310 Manufacturing Processes for Industrial Engineers
- INE 311 Quality Engineering
- INE 322 Operations Research II
- INE 323 Stochastic Processes and Simulation
- INE 331 Analysis of Production Systems
- INE 332 Analysis of Supply Chains
- INE 333 Facility Design and Operations
- INE 397 Professional Training in Industrial Engineering
- INE 413 Maintenance Engineering
- INE 431 Industrial Scheduling
- INE 490 Senior Design Project I
- INE 491 Senior Design Project II
- MCE 216L Introduction to Engineering Drawing and Workshop
- MCE 224 Engineering Mechanics–Statics and Dynamics
- MCE 236L Solid Modeling
- MCE 439 Computer Integrated Manufacturing
- MGT 403 Entrepreneurship
- MIS 201 Fundamentals of Management Information Systems
- 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
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 12 credits)

Four three-credit courses from the following list of approved technical elective courses must be completed. At least three of the four courses should be in industrial engineering.

- FIN 430 Financial Forecasting
- INE 415 Design of Experiments
- INE 416 Reliability Engineering
- INE 417 Six Sigma Methodology
- INE 425 Decision Analysis
- INE 433 Logistics Engineering
- INE 435 Warehousing Systems
- INE 450 Safety Engineering
- INE 494 Special Topics in Industrial Engineering

Free Electives (minimum of 6 credits)

Students must complete a minimum of six credits of any courses offered at AUS at or above the 100 level, excluding MTH 101.

Proposed Sequence of Study
Bachelor of Science in Industrial Engineering (BSIE)

FIRST YEAR (37 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	CHM 101	General Chemistry I	4
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	NGN 111	Introduction to Statistical Analysis	2
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	History and Culture of the Arab World	3
		Total	**15**
Summer	MTH 205	Differential Equations	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**6**

SECOND YEAR (37 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	COE 210	Programming I	3
	ELE 225	Electric Circuit and Devices	3
	ENG 204	Advanced Academic Writing	3
	MCE 216L	Introduction to Engineering Drawing and Workshop	1
	MCE 224	Engineering Mechanics – Statics and Dynamics	3
	MTH 221	Linear Algebra	3
		Total	**16**
Spring	CHE 205	Principles of Chemical Engineering I	2
	EGM 361	Management for Engineers	3
	INE 222	Operations Research I	3
	MCE 236L	Solid Modeling	1
	MIS 201	Fundamentals of Management Information Systems	3
	MTH 203	Calculus III	3
		Total	**15**
Summer	ENG 207	English for Engineering	3
	GER-Core	Arts and Literature	3
		Total	**6**

THIRD YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	EGM 364	Engineering Economy	3
	INE 310	Manufacturing Processes for Industrial Engineers	3
	INE 322	Operations Research II	3
	INE 331	Analysis of Production Systems	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**18**
Spring	INE 311	Quality Engineering	3
	INE 323	Stochastic Processes and Simulation	3
	INE 332	Analysis of Supply Chains	3
	INE 333	Facility Design and Operations	3
	MCE 439	Computer Integrated Manufacturing	3
		Total	**15**
Summer	INE 397	Professional Training in Industrial Engineering	0

FOURTH YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	INE 413	Maintenance Engineering	3
	INE 431	Industrial Scheduling	3
	INE 490	Senior Design Project I	1
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**16**
Spring	INE 491	Senior Design Project II	2
	MGT 403	Entrepreneurship	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**17**

Other Minors Offered by the College of Engineering

Minor in Aerospace Engineering

Saad Ahmed, Coordinator

Aerospace engineering deals with the analysis, design and performance of flight vehicles such as transport and military aircraft, helicopters, missiles and launch vehicles (rockets), and spacecraft such as the space shuttle. Aerospace engineering comprises several disciplines, namely aerodynamics, flight dynamics and control, avionics and navigation, aerospace propulsion, aerospace structures and materials, and aerospace manufacturing among others. Aerospace engineers apply their knowledge and skills to the design of aircraft components (e.g., wings and fuselages), systems (e.g., control systems) or spacecraft components and systems. This minor focuses on aeronautical engineering.

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (12 credits)

- ASE 350 Introduction to Aerospace Engineering
- ASE 415 Aircraft Stability and Control
- MCE 435 Advanced Mechanics of Materials or
  MCE 477 Composite Materials
- MCE 482 Intermediate Fluid Mechanics

Minor Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- ASE 454 Thermal Design Issues for Aerospace Systems
- ASE 470 Aircraft Structure
- ASE 475 Aircraft Design
- ASE 486 Compressible Flow
- ASE 494 Special Topics in Aerospace Engineering
- MCE 473 Applied Finite Element Analysis
- MCE 487 Turbomachines
- MCE 488 Introduction to Computational Fluid Dynamics
- either of the following two courses not used as a minor requirement:
  - MCE 435 Advanced Mechanics of Materials
  - MCE 477 Composite Materials

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, including at least nine credits in courses at or above the 300 level.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 Introduction to Anatomy and Physiology
- BME 210 Biomedical Ethics

Two of the following three courses:

- BME 410 Biomedical Systems Modeling I or
  CHE 481 Fundamentals of Biomedical Engineering
- BME 420 Biomedical Electronics I or
  ELE 432 Medical Instrumentation I
- BME 430 Biomechanics

Minor Electives (minimum of 4 credits)

Students must complete a minimum of four credits in courses selected from the following list:

- BME 411 Biomedical Systems Modeling II
- BME 421 Biomedical Electronics II
- BME 422 Biomedical Imaging
- BME 431 Biomaterials
- BME 432 Biothermofluids
- BME 440 Bioinformatics
- BME 494 Special Topics in Biomedical Engineering
- COE 410 Embedded Systems: Design and Applications
- ELE 455 Digital Image Processing
- ELE 456 Pattern Recognition
- any of the following three courses not used as a minor requirement:
  - BME 410 Biomedical Systems Modeling I or
    CHE 481 Fundamentals of Biomedical Engineering
  - BME 420 Biomedical Electronics I or
    ELE 432 Medical Instrumentation I
  - BME 430 Biomechanics

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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and an average GPA of at least 2.00 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 must be satisfied.

Minor Requirements (12 credits)

- ECO 201 Principles of Microeconomics
- EGM 361 Management for Engineers
- EGM 362 Engineering Project Management
- EGM 364 Engineering Economy (for non-chemical and civil engineering students) or
  CHE 332 Engineering Economy or
  CVE 367 Project Estimating, Planning and Control

Minor Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- ACC 201 Fundamentals of Financial Accounting
- CHE 470 Waste Management and Control in Chemical Engineering
- COE 420 Software Engineering
- CVE 463 Construction Management
- ECO 202 Principles of Macroeconomics
- EGM 494 Special Topics in Engineering Management
- FIN 201 Fundamentals of Financial Management
- MCE 450 Energy Conservation and Management

Minor in Environmental and Water Engineering

Md. Maruf Mortula, Coordinator

Environmental and water engineering is an interdisciplinary field that combines principles of chemistry and biology with engineering science to study the engineered approaches to protecting water and environment. Environmental and water engineering can include water supply and sewerage systems, water and wastewater treatment, waste management, water quality in coastal areas and environmental resources management. The main objective of an environmental and water engineer is to learn the skills and technologies needed to protect our water and environmental resources.

Students enrolling in the environmental and water engineering minor should have normally completed a minimum of 60 credits and be in good academic standing.

The following rules will apply:

- The minor consists of a minimum of 18 credits, including at least 12 credits in courses at or above the 300 level.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the 12 credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (12 credits)

- EWE 331 Introduction to Water and Environmental Engineering
- EWE 333 Water Quality and Treatment
- any two courses from the following list:
  - CHE 472 Water and Wastewater Treatment Design
  - CVE 341 Water Resources Engineering
  - CVE 351 Environmental Engineering
  - ENV 252 Environmental Chemistry

Minor Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- CHE 461 Air Pollution
- CHE 470 Waste Management and Control in Chemical Engineering
- CVE 441 Coastal Engineering
- CVE 450 Physical and Chemical Processes in Environmental Engineering
- CVE 451 Urban Water Infrastructure Management
- CVE 472 Geographic Information Systems
- ENV 352 Environmental Toxicology
- ENV 451 Waste Treatment
- ENV 452 Soil and Water Chemistry
- MCE 482 Intermediate Fluid Mechanics
- MCE 485 Hydraulics of Pipeline Systems
- MCE 488 Introduction to Computational Fluid Dynamics
- any approved 300-level or 400-level special topics course

Minor in Mechatronics Engineering

Rached Dhaouadi, Coordinator

Mechatronics is the synergistic combination of mechanical engineering, electronics and electrical engineering with computer science and control systems engineering. Modern devices contain mechanical, electrical and computer systems working in harmony to achieve higher levels of functionality than previously imaginable. For example, the automobile has evolved beyond a mechanical system with electrical components to an integrated system of electro-mechanical devices, embedded microprocessors, network communications and intelligent software. To develop these advanced systems, a new breed of engineer is needed who not only has a strong foundation in engineering design, but also feels comfortable working across the traditional engineering disciplines of manufacturing, mechanical, electrical and computer engineering.

Students enrolling in the mechatronics engineering minor should have normally completed a minimum of 60 credits of course work and be in good academic standing.

The mechatronics minor is restricted to computer, electrical and mechanical engineering students. Students in other majors interested in this minor should contact the College of Engineering Associate Dean to investigate the possibility of pursuing this minor.

The following rules apply:

- The minor consists of a minimum of 18 credits for electrical engineering and computer engineering students and 20 credits for mechanical engineering students, including at least nine and 10 credits respectively in courses at or above the 300 level.
- At least nine credits of the 18 credits (or 10 credits out of the 20 credits, as applicable) required for the minor must be taken in residence at AUS.
- At least six credits of the credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and an average GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (15/17 credits)

- Computer engineering students: ELE 212, ELE 351, ELE 353, MCE 223 or MCE 300, and MCE 464
- Electrical engineering students: COE 410, ELE 476L, ELE 473 or ELE 486, MCE 216L, MCE 223, MCE 236L, MCE 300 and MCE 464
- Mechanical engineering students: COE 221, COE 241, ELE 341, ELE 351 and MCE 466

Minor Electives (minimum of 3 credits)

Students must complete a minimum of three credits in courses selected from the following list:

- COE 431 Industrial Computer Systems
- COE 482 Soft Computing
- ELE 444 Control Systems II
- ELE 473 Industrial Instrumentation and Control
- ELE 486 Electric Drives
- MCE 416 Kinematics and Dynamics of Machinery
- MCE 466 Introduction to Mechatronics

Minor in Petroleum Engineering

Rachid Chebbi, Coordinator

Petroleum engineering is a field that develops the means to extract oil and gas from underground reservoirs. The petroleum engineering minor prepares chemical, mechanical, civil and other engineering students for employment in the upstream petroleum industry. The petroleum engineering minor provides students with knowledge of drilling, production and reservoir engineering areas including formation evaluation and enhanced oil recovery methods.

Students enrolling in the petroleum engineering minor should have normally completed a minimum of 60 credits 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.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

Students seeking a minor in petroleum engineering must complete the following courses or their equivalent. All course prerequisites must be satisfied. Students pursuing a minor in petroleum engineering are encouraged to take

their summer internship in the petroleum industry.

Minor Requirements (12 credits)

Students minoring in petroleum engineering must complete four out of the following five courses, for a minimum of 12 credits:

- PET 305 Fundamentals of Petroleum Operations
- PET 365 Petroleum Reservoir Engineering
- PET 375 Petroleum Drilling and Production
- PET 385 Formation Evaluation
- PET 414 Enhanced Oil Recovery

Minor Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list:

- CHE 434 Petroleum Refining Processes
- CHE 436 Natural Gas Processing
- CHE 467 Corrosion
- CVE 331 Geotechnical Engineering Principles
- CVE 341 Water Resources Engineering
- MCE 485 Hydraulics of Pipeline Systems
- MCE 487 Turbomachines
- PET 494 Special Topics in Petroleum Engineering

Minor in Renewable Energy

Mohamed Gadalla, Coordinator

Renewable energy is a multidisciplinary area that integrates different fields including electrical engineering and mechanical engineering. The minor provides students with an opportunity to acquire skills that would enhance their preparation for joining the related industry. The renewable energy minor will expose students to solar and wind energy sources and electrical energy conversion.

Students enrolling in the renewable energy 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 21 credits, including at least 18 credits in courses at or above the 300 level.
- At least 12 credits of the 21 credits required for the minor must be taken in residence at AUS.
- At least 12 credits of the 18 credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (15 credits)

Students are required to complete 15 credits as follows:

- ELE 342 Photovoltaic Semiconductors
- ELE 351 Electrical Energy Conversion
- ELE 487 Power Conversion in Renewable Energy Systems (for electrical engineering majors)
- MCE 241 Thermodynamics I
- MCE 348 Renewable Energy Systems and Sustainability I
- MCE 448 Renewable Energy Systems and Sustainability II (for mechanical engineering majors)

Minor Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the following list, with a minimum of three credits outside their major:

- ELE 482 Electric Power Distribution
- ELE 485 Power Electronics
- ELE 486 Electric Drives
- ELE 487 Power Conversion in Renewable Energy Systems (for non-electrical engineering majors)
- MCE 445 Energy Systems
- MCE 448 Renewable Energy Systems and Sustainability II (for non-mechanical engineering majors)
- MCE 450 Energy Conservation and Management
- any approved 400-level special topics course in ELE, MCE or NGN

Cisco Regional Networking Academy

The Cisco Regional Networking Academy in the College of Engineering is responsible for establishing local academies with other institutions in the UAE and across the region. The academy follows an e-learning model that delivers web-based educational content, online testing and performance tracking combined with comprehensive practical training on actual networks. The program is a comprehensive course that trains participants to design, build and maintain computer networks and prepares them for industry-standard certifications, including Cisco Certified Network Associate (CCNA™) and Cisco Certified Network Professional (CCNP™). Furthermore, the academy offers courses in fundamentals of network security and IT essentials. For more details, please visit www.aus.edu/engr/cisco/ or email ciscoacademy@aus.edu.



School of Business and Management

Dean

Hashem Dezhbakhsh

Associate Dean

A. Paul Williams

As its mission, American University of Sharjah's School of Business and Management (SBM) prepares tomorrow's global business leaders and contributes to lifelong learning by offering high-quality educational programs patterned after the American model. The school embraces multicultural diversity and seeks to provide regional and global perspectives through programs focused on building core competencies to serve the needs of students, the business community and society. Backed by a faculty committed to discipline-based, applied and pedagogical scholarship, SBM's programs promote critical thinking, creativity, ethical behavior and social responsibility in the development of management and leadership skills.

Today's business professionals 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, SBM students must be effective leaders who can organize and motivate people to serve the goals of their organizations. Effectively adapting business practices to emerging conditions, such as the accelerating growth of technology, communications and the globalization 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 governments in the UAE, the Gulf States and throughout the world
- develops individuals who can lead organizations toward economic success with an awareness of 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 current 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 business education core 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

AACSB Accreditation

The Bachelor of Science in Business Administration (BSBA) offered by the School of Business and Management is accredited by the Association to Advance Collegiate Schools of Business (AACSB). AACSB accreditation is an internationally recognized professional designation for business and accounting programs and is the hallmark of excellence in business education.

Degree Programs

SBM offers the following undergraduate degrees:

- Bachelor of Arts in Economics
- Bachelor of Science in Business Administration (BSBA) with majors in
  - accounting
  - economics
  - finance
  - management
  - management information systems
  - marketing

For details on the graduate programs, please refer to the *AUS Graduate Catalog*.

Minor Offerings

SBM offers the following minors:

- accounting
- economics
- finance
- international business
- Islamic banking and finance
- management
- management information systems
- marketing
- operations management
- public administration

Details on each minor are provided in the catalog section of the department offering the minor.

Minors are open to students from outside SBM and to SBM students pursuing majors in disciplines other than the discipline of the minor. SBM students may pursue only one minor offered within SBM.

To apply to an SBM minor program, students should have completed a minimum of 60 credits and be in good academic standing. Interested students must obtain approval from the head of the department housing the minor and request a meeting with an advisor to review specific program requirements.

Special Notes

To ensure active and well-supported student participation in its e-learning programs, SBM requires students entering the Bachelor of Science in Business Administration (BSBA) program to purchase and use laptops specified by the university.

Students taking any course in SBM may be required to use the Texas Instrument BAII Plus calculator or any non-programmable calculator 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.

Additional fees may be charged for certain courses that require supplementary materials or support by the school.

Bachelor of Science in Business Administration (BSBA)

The Bachelor of Science in Business Administration program provides students with a 36-credit-hour core curriculum that offers a broad knowledge of business functions while emphasizing their application in a global business environment. In addition to the business core, the student must complete a minimum of 24 credits in a professional area constituting a major. The major allows each student to obtain in-depth knowledge in accounting, economics, finance, management, management information systems or marketing. Students must also meet the minimum university requirement in general education courses. In addition, students must complete a minimum of 18 credits in free electives. With an appropriate choice of courses, students can benefit from their free electives to complete a minor.

Before matriculation into their major of choice, students in the BSBA program complete a common two-year program in which they fulfill most of the general education and essential core courses requirements.

To qualify for graduation from the BSBA program, students must complete a minimum of 123 credits, as well as an SBM-approved, six-week, 240-hour internship.

Program Objectives and Outcomes

SBM prepares undergraduate students for careers in business and for further education by providing an American-style curriculum that applies global business perspectives to the historical and cultural context of the Gulf Region. Graduates from the BSBA program are expected to accomplish the following objectives:

- *Breadth of knowledge across business functions*

  Students will be able to apply the basic principles of economics, accounting and finance, management, information systems, marketing and operations in the context of a global economy.

- *Understanding of ethical and social responsibility*

  Students will apply concepts and theories of ethics and social responsibility to practical business dilemmas, recognizing the implications of management decisions for the interests of key internal and external stakeholders.

- *Teamwork, interpersonal communication and leadership skills*

  Students will demonstrate competency in teamwork, presentation, writing and leadership skills through participation in group projects requiring industry analysis and using the latest business communication tools.

- *Critical thinking, analytical and problem-solving skills*

  Students will evaluate business situations and critique managerial decisions, using financial statements, statistical tools, and other appropriate methods to organize, analyze and present data.

- *Proficiency in a chosen business discipline*

  Students will use broad knowledge of a specific business discipline, applying concepts, theories and models appropriate to their fields of study.

Admission to the Program

Admission to the BSBA program follows the university's undergraduate admission requirements. Due to the quantitative emphasis of the business program, new students are required to take the business school mathematics placement examination, in addition to the English language placement test.

AUS students transferring into the program must have a cumulative GPA of 2.00 or higher and permission of the associate dean. Further conditions could apply. For information, please check with the head of the department housing the major.

Degree Requirements

To qualify for graduation with a Bachelor of Science in Business Administration degree, students must complete a minimum of 123 credits with a cumulative GPA of 2.00 or better, including:

- a minimum of 45 credits of general education requirements
- 36 credits of core requirements
- a minimum of 24 credits of major requirements and major electives with a minimum GPA of 2.00
- a minimum of 18 credits of free electives
- satisfaction of the internship requirement

General Education Requirements (minimum of 45 credits)

Students in the BSBA program must satisfy the following general education requirements:

- a minimum of 18 credits in courses meeting the following requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits, including ECO 201 and ECO 202
- natural and physical sciences requirement: a minimum of six credits taken from the natural and physical sciences area
- mathematics requirement: MTH 101 and MTH 102
- statistics requirement: satisfied through QBA 201
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 204 and ENG 208
- ethical understanding requirement: satisfied through MGT 360
- discipline-specific writing intensive course requirement: satisfied through MGT 406
- oral proficiency requirement: satisfied through MGT 406
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: BIS 101

Core Requirements (36 credits)

Students in the BSBA program must complete the following business core courses with a grade of C- or better:

- ACC 201 Fundamentals of Financial Accounting
- ACC 202 Fundamentals of Managerial Accounting
- BLW 301 Business Law
- ENG 225 Writing for Business
- 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

Major Requirements and Major Electives (minimum of 24 credits)

A total of 24 credits of course work must be completed in one of the following majors: accounting, economics, finance, management, management information systems or marketing. Required and elective courses for each major are listed within the corresponding major sections that follow. Students must successfully complete these courses with a minimum combined GPA of 2.00.

Free Electives (minimum of 18 credits)

BSBA students must complete a minimum of 18 credits of free electives, excluding MTH 100. With a proper selection of courses, students can benefit from the free electives to complete a minor.

Internship

Students in the BSBA program must complete a six-week internship approved by SBM normally in the summer preceding their senior year. The internship will be graded as Pass/Fail. BUS 397 fulfills this requirement. For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of the catalog.

Proposed Sequence of Study

Newly admitted BSBA students are expected to follow the recommended sequence of study for their chosen major. Students who do not follow the recommended sequence of study should expect that their program will require more than four years to complete.

All BSBA students complete a common first-year and common second-year program, followed by the sequence of study for their chosen major in their third and fourth years. The program is structured so that most general education requirements are completed in the freshman year, and the essential courses of the business core are completed in the sophomore year. Major courses and elective/minor courses are completed in the junior year and senior year of study. Students are expected to complete all the general education and business core requirements (except for MGT 406) before they progress into their senior year.

Proposed Sequence of Study
Bachelor of Science in Business Administration (BSBA)
Common Two Years

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BIS 101	Business Information Systems	3
	ECO 201	Principles of Microeconomics	3
	MTH 101	Mathematics for Business I	3
	WRI 101	Academic Writing	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**
Spring	ECO 202	Principles of Macroeconomics	3
	MTH 102	Mathematics for Business II	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ACC 201	Fundamentals of Financial Accounting	3
	ENG 204	Advanced Academic Writing	3
	MGT 201	Fundamentals of Management	3
	QBA 201	Quantitative Business Analysis	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**15**
Spring	ACC 202	Fundamentals of Managerial Accounting	3
	FIN 201	Fundamentals of Financial Management	3
	MIS 201	Fundamentals of Management Information Systems	3
	MKT 201	Fundamentals of Marketing	3
	GER-Core	Arts and Literature	3
		Total	**15**

Choice of Major

Prior to starting their major courses, BSBA students must declare their choice of major. A Change of Major Form must be submitted to the office of the SBM associate dean for approval by the last day of the 12th week of classes of the semester in which the student will complete 60 credits. The approved form must be filed with the Office of the Registrar by the end of the add and drop period of the semester in which it will be effective. Students must meet all of the following minimum requirements:

- a cumulative GPA of 2.00 or above
- completed at least 60 credits at the end of the semester in which the major is declared
- from the 60 credits, 39 credits must be from the designated general education courses and 21 credits must be from the business core
- credits may not include preparatory 00X courses or Achievement Academy/Bridge Program courses

Further conditions could be required by the different departments.

Students are strongly advised to register for 300- and 400-level courses in their major and minor fields after having completed the above requirements.

Major in Accounting

This major prepares its graduates for positions in industry, public accounting, government and not-for-profit organizations, as well as for graduate study. The program provides students with a foundation in the primary areas of the accounting discipline including cost accounting, financial accounting, accounting information systems, assurance services, federal income taxes and related business areas. Students are also provided with an opportunity to develop their communication skills, integrate and advance their technological skills, and to use critical thinking to analyze ambiguous situations and provide relevant business alternatives. In addition, the accounting major helps prepare students to obtain professional certifications such as Certified Public Accountant (CPA), Certified Management Accountant (CMA) and Certified Internal Auditor (CIA).

Students must successfully complete ACC courses taken as major requirements and major electives with a minimum combined GPA of 2.00.

Major Requirements (18 credits)

- ACC 301 Intermediate Financial Accounting I
- ACC 302 Intermediate Financial Accounting II
- ACC 303 Cost Accounting
- ACC 305 Income Tax I
- ACC 360 Accounting Information Systems
- ACC 410 Auditing

Major Electives (minimum of 6 credits)

Students majoring in accounting must complete a minimum of six credits in 300-level or above ACC courses not listed as major requirements and that require at a minimum ACC 301 as a prerequisite

.

Proposed Sequence of Study (third year and above)
Bachelor of Science in Business Administration (BSBA)
Accounting Major

THIRD YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ACC 301	Intermediate Financial Accounting I	3
	BLW 301	Business Law	3
	ENG 208	Public Speaking	3
	QBA 202	Operations Management	3
	FRE	Free Elective/Minor	3
		Total	**15**
Spring	ACC 302	Intermediate Financial Accounting II	3
	ACC 303	Cost Accounting	3
	ENG 225	Writing for Business	3
	MGT 360	Business Ethics and Social Responsibility	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective/Minor	3
		Total	**18**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ACC 305	Income Tax I	3
	ACC 360	Accounting Information Systems	3
	MJE	Major Elective	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**
Spring	ACC 410	Auditing	3
	MGT 406	Business Policy and Strategy	3
	MJE	Major Elective	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**

Notes on course selection and progress

- Students are expected to complete all the general education and business core requirements (except for MGT 406) before they progress into their senior year.
- Students who do not follow the recommended sequence of study should expect that their program will require more than four years to complete.

Major in Economics

This major provides students with the theoretical foundation to apply economics to decision making and public policy in businesses 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 pursue more advanced courses (such as managerial economics, econometrics or the senior economics seminar).

Students must successfully complete ECO courses taken as major requirements and major electives with a minimum combined GPA of 2.00.

Major Requirements (15 credits)

- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics
- ECO 327 Industrial Organization
- ECO 351 Introduction to Econometrics
- ECO 401 Managerial Economics

Major Electives (minimum of 9 credits)

Students must complete any three 300-level or above ECO courses not listed as major requirements, for a minimum of nine credits.

Proposed Sequence of Study (third year and above)
Bachelor of Science in Business Administration (BSBA)
Economics Major

THIRD YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BLW 301	Business Law	3
	ECO 301	Intermediate Microeconomics	3
	ENG 208	Public Speaking	3
	QBA 202	Operations Management	3
	FRE	Free Elective/Minor	3
		Total	**15**
Spring	ECO 302	Intermediate Macroeconomics	3
	ECO 351	Introduction to Econometrics	3
	ENG 225	Writing for Business	3
	MGT 360	Business Ethics and Social Responsibility	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective/Minor	3
		Total	**18**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ECO 327	Industrial Organization	3
	ECO 401	Managerial Economics	3
	MJE	Major Elective	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**
Spring	MGT 406	Business Policy and Strategy	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**

Notes on course selection and progress
- Students are expected to complete all the general education and business core requirements (except for MGT 406) before they progress into their senior year.
- Students who do not follow the recommended sequence of study should expect that their program will require more than four years to complete.

Major in Finance

This major offers students an integrative approach to the fields of banking and finance. Students will develop the analytical skills and theoretical framework necessary to analyze and understand the financial and banking sectors. Furthermore, this major provides the essential tools for understanding investments, capital markets, financial management and financial institutions. Students majoring in finance can structure their program to obtain the knowledge needed to take the first level of the CFA exam upon graduation. The Department of Finance is an educational partner with the Chartered Financial Analysts (CFA) organization in the US. Students must successfully complete FIN courses taken as major requirements and major electives with a minimum combined GPA of 2.00.

Major Requirements (15 credits)

- FIN 310 Analysis of Financial Statements
- FIN 320 Banking
- FIN 330 Investments
- FIN 401 International Finance
- FIN 450 Case Studies in Corporate Finance

Major Electives (minimum of 9 credits)

Students majoring in finance must complete a minimum of nine credits in 300-level or above FIN courses not listed as major requirements. Students may also take MTH 307 to meet this requirement. Students who wish to pursue a CFA designation after graduation should take FIN 402 as a major elective.

Proposed Sequence of Study (third year and above)
Bachelor of Science in Business Administration (BSBA)
Finance Major

THIRD YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BLW 301	Business Law	3
	ENG 208	Public Speaking	3
	FIN 310	Analysis of Financial Statements	3
	FIN 330	Investments	3
	QBA 202	Operations Management	3
		Total	**15**
Spring	ENG 225	Writing for Business	3
	FIN 320	Banking	3
	FIN 402	Futures and Options (recommended)	3
	MGT 360	Business Ethics and Social Responsibility	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective/Minor	3
		Total	**18**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	FIN 401	International Finance	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**
Spring	FIN 450	Case Studies in Corporate Finance	3
	MGT 406	Business Policy and Strategy	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**

Notes on course selection and progress
- Students are expected to complete all the general education and business core requirements (except for MGT 406) before they progress into their senior year.
- Students who do not follow the recommended sequence of study should expect that their program will require more than four years to complete.

Major in Management

This major is designed to prepare students for positions of leadership and responsibility in modern organizations. Management is approached as a professional career that embodies knowledge and concern for the ethical, human and global aspects of organizations, emphasizing a thorough grounding in a common body of knowledge as the basis for making sound decisions and meeting future challenges. The curriculum explicitly focuses on developing communication, leadership and problem-solving skills. In addition, management majors are required to complete an internship to develop insight and experience in the real world of business. Equipped with the intellectual tools and practical experience necessary to diagnose and resolve organizational challenges, and with effective communication skills, management students will be ready to excel in a wide variety of business settings.

Students must successfully complete courses taken as major requirements and major electives with a minimum combined GPA of 2.00.

Major Requirements (15 credits)

- MGT 301 Organizational Behavior
- MGT 302 Managing Human Resources
- MGT 303 Management and Leadership Development
- MGT 305 International Business
- MGT 380 Project Management

Major Electives (minimum of 9 credits)

Students majoring in management must complete a minimum of nine credits in 300-level or above MGT courses not listed as major requirements or any 300-level or above PBA courses approved by the department. Students may also take BLW 302, QBA 310 and QBA 311 to meet this requirement.

Proposed Sequence of Study (third year and above)
Bachelor of Science in Business Administration (BSBA)
Management Major

THIRD YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BLW 301	Business Law	3
	ENG 208	Public Speaking	3
	MGT 301	Organizational Behavior	3
	QBA 202	Operations Management	3
	FRE	Free Elective/Minor	3
		Total	**15**
Spring	ENG 225	Writing for Business	3
	MGT 303	Business Ethics and Social Responsibility	3
	MGT 360	Management and Leadership Development	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective/Minor	3
		Total	**18**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MGT 302	Managing Human Resources	3
	MGT 305	International Business	3
	MJE	Major Elective	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**
Spring	MGT 380	Project Management	3
	MGT 406	Business Policy and Strategy	3
	MJE	Major Elective	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**

Notes on course selection and progress

- Students are expected to complete all the general education and business core requirements (except for MGT 406) before they progress into their senior year.
- Students who do not follow the recommended sequence of study should expect that their program will require more than four years to complete.

Major in Management Information Systems

Managers and non-managers alike depend upon information for enhancing their business processes and decision making. To be useful, information must be understandable, timely, accurate, thorough, focused, secure and distributed to the appropriate individuals. Accomplishing all these tasks is the challenge of managers of information systems. In this major, students will acquire professional skills in the areas of hardware and software, databases, business operations, decision-making management, systems development and operation, networks, communications and other skills needed by professionals working in the expanding field of information technology management.

Students must successfully complete MIS courses (and MGT 380) taken as major requirements and major electives with a minimum combined GPA of 2.00.

Major Requirements (15 credits)

- MGT 380 Project Management
- MIS 301 Fundamentals of Database Management
- MIS 303 Introduction to Systems Analysis and Design
- MIS 404 Internet Business Applications
- MIS 405 Information Systems Strategy

Major Electives (minimum of 9 credits)

Students majoring in management information systems must complete a minimum of nine credits in 300-level or above MIS courses not listed as major requirements. Students may also take QBA 310, QBA 311 and QBA 320 to meet the major electives requirement.

Proposed Sequence of Study (third year and above)
Bachelor of Science in Business Administration (BSBA)
Management Information Systems Major

THIRD YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BLW 301	Business Law	3
	ENG 208	Public Speaking	3
	QBA 202	Operations Management	3
	MIS 301	Fundamentals of Database Management	3
	FRE	Free Elective/Minor	3
		Total	**15**
Spring	ENG 225	Writing for Business	3
	MGT 360	Business Ethics and Social Responsibility	3
	MIS 303	Introduction to Systems Analysis and Design	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective/Minor	3
		Total	**18**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MGT 380	Project Management	3
	MIS 404	Internet Business Applications	3
	MJE	Major Elective	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**
Spring	MGT 406	Business Policy and Strategy	3
	MIS 405	Information Systems Strategy	3
	MJE	Major Elective	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**

Notes on course selection and progress
- Students are expected to complete all the general education and business core requirements (except for MGT 406) before they progress into their senior year.
- Students who do not follow the recommended sequence of study should expect that their program will require more than four years to complete.

Major in Marketing

Students in this major study the role of marketing in modern organizations. The role of the marketer as the key connection between the product or service provider and the consumer requires a thorough understanding of marketing research and statistical techniques to make informed decisions about the design and development of marketing strategies. These strategies will encompass product and branding concepts, promotion and communication with customers, pricing and distribution. Additionally, the field of study will stress practical applications of marketing concepts in areas such as consumer behavior, sales management and retailing. Students are allowed to custom design their major by choosing from an array of marketing electives.

Students must successfully complete MKT courses taken as major requirements and major electives with a minimum combined GPA of 2.00.

Major Requirements (15 credits)

- MKT 301 Consumer Behavior
- MKT 302 Marketing Research
- MKT 307 Business Marketing
- MKT 309 International Marketing
- MKT 401 Marketing Strategy

Major Electives (minimum of 9 credits)

Students majoring in marketing must complete a minimum of nine credits in 300-level or above MKT courses not listed as major requirements. Students may also take QBA 320 to meet the major electives requirement.

Proposed Sequence of Study (third year and above)
Bachelor of Science in Business Administration (BSBA)
Marketing Major

THIRD YEAR (33 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BLW 301	Business Law	3
	ENG 208	Public Speaking	3
	MKT 301	Consumer Behavior	3
	QBA 202	Operations Management	3
	FRE	Free Elective/Minor	3
		Total	**15**
Spring	ENG 225	Writing for Business	3
	MGT 360	Business Ethics and Social Responsibility	3
	MKT 302	Marketing Research	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective/Minor	3
		Total	**18**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	MKT 307	Business Marketing	3
	MKT 309	International Marketing	3
	MJE	Major Elective	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**
Spring	MGT 406	Business Policy and Strategy	3
	MKT 401	Marketing Strategy	3
	MJE	Major Elective	3
	FRE	Free Elective/Minor	3
	FRE	Free Elective/Minor	3
		Total	**15**

Notes on course selection and progress
- Students are expected to complete all the general education and business core requirements (except for MGT 406) before they progress into their senior year.
- Students who do not follow the recommended sequence of study should expect that their program will require more than four years to complete.

Department of Accounting

Taisier Zoubi, Head

Faculty

Abed Al-Nasser Abdallah
Yass Alkafaji
Musa Darayseh
Erich Eischen
Karen Hawwa
Ashraf Khallaf
Marian Mason
Mohamed Feras Salama
Jeannette Vinke
Ronald Williams

The Department of Accounting aims to educate and prepare students for successful careers in the field of accounting. Students learn to compile, present, analyze, interpret and apply accounting and financial data in the decision-making process.

Students pursuing the accounting major learn specific competencies to work in accounting and management in either the private or public sector. AUS accounting graduates have the background needed for further study toward the Certified Public Accountant (CPA), Certified Management Accountant (CMA) and Certified Internal Auditor (CIA) professional designations.

BSBA–Major in Accounting

Faculty members from the Department of Accounting provide instruction in the Bachelor of Science in Business Administration (BSBA) program. For more information on the accounting major within the BSBA program, please see the previous section on the BSBA.

Minor in Accounting

This minor provides graduates with a basic background in financial and managerial accounting. It is a complementary field of study for students majoring in finance or MIS. It is also an attractive choice for other students who wish to obtain the accounting background needed in the business world, or to begin graduate study toward a professional designation such as a CPA or CMA.

Students applying to this minor should have completed a minimum of 60 credits 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 accounting.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (9 credits)

- ACC 301 Intermediate Financial Accounting I
- ACC 302 Intermediate Financial Accounting II
- ACC 303 Cost Accounting

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in 300-level or above ACC courses not listed as requirements for the minor.

Department of Economics

Hugo Toledo, Head

Faculty

Bassam Abu Al-Foul
Mohammad Arzaghi
Hamid Baghestani
Andrew Balthrop
Kim Heng Chen
Liliana Danila
Hashem Dezhbakhsh
Khusrav Gaibulloev
Ismail Genc
Ilker Kaya
Samer Kherfi
Michael Malcolm
Cassia Marchon
George Naufal
Jay Squalli
Joseph Wallis
Javed Younas

The Bachelor of Arts (BA) in Economics is designed to give students an in-depth understanding of how individuals acting as consumers, as business managers, as participating citizens within a society and as government agents make decisions. Students who graduate with a BA degree in economics will have the knowledge and analytical skills required to understand and solve complex business and social problems.

Like the BA in economics, the BSBA in economics is designed to provide students with an understanding of how people make choices in all aspects of human activity. The BSBA, however, provides greater focus on the choices people make in a business context. Students with the BSBA major in economics will acquire the analytical tools required to become successful managers of firms or not-for-profit organizations.

Bachelor of Arts in Economics (BAE)

Economics encompasses a diverse range of fields including international trade, finance, development and growth, urban and regional economics, industrial organization, labor economics, banking and monetary economics, natural resources and environmental economics. All, however, are approached with the same set of analytical tools that characterize the economic way of thinking.

Indeed, 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 incentives, equilibrium and efficiency. From an observation, economists model a real-world situation and test the model empirically to arrive at the model's implications, and use those implications and make recommendations for policy and institutional reform. While economists do not attempt to establish society's goals, they do examine the consequences of different ways of pursuing 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. 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 at internationally recognized universities.

These functions of the economics program unite in a single mission: the delivery of an American-standard undergraduate economics program offering qualifications that are readily recognized and understood internationally by employers and graduate programs.

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 about the economic concerns facing the world today. Students learn to apply a variety of theoretical perspectives to issues of economic efficiency, economic growth, globalization, wealth and poverty, individual freedom, discrimination, cultural values and environmental concerns. The strategic objectives of the economics program are to:

- maintain a high-quality curriculum that remains current as the discipline evolves
- recruit, retain and develop a highly qualified faculty that ranks student learning among its highest priorities
- promote value-added research and intellectual contributions
- 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 Bachelor of Arts in Economics program provides a solid knowledge of economic theory and policy to prepare students for diverse career opportunities in public and private sectors and for future studies in economics and related fields. Upon successful completion of the program, economics majors will be able to:

- identify the role of supply and demand in a market economy, the role of prices, and the necessary conditions for market economies to function effectively
- demonstrate a working understanding of the economic role of government, fiscal and monetary policy, and market structures
- identify policy options and assess the likelihood they would improve economic growth and efficiency
- apply economic theory to a range of economic and social issues
- assess the benefits of international trade and globalization
- assess the significance of national and international events on the economy
- conduct an independent research project including literature review, data gathering, and data analysis
- communicate effectively orally and in writing

Distinctive Features of the Program

Students pursuing the Bachelor of Arts in Economics at AUS learn about contemporary economics and its place within the wider social sphere. Students' understanding of economic principles helps them to analyze economic trends and government 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 the university's undergraduate admission requirements.

AUS students transferring into the program must have a minimum cumulative GPA of 2.00 or higher and permission of the associate dean. Further conditions could apply. For information, please check with the head of the department.

Degree Requirements

To qualify for graduation with a Bachelor of Arts in Economics degree, students must complete a minimum of 120 credits with a cumulative GPA of 2.00 or better, including:

- a minimum of 45 credits of general education requirements
- 30 credits of major requirements with a 2.00 minimum GPA
- a minimum of 33 credits of major electives
- a minimum of 12 credits of free electives

General Education Requirements (minimum of 45 credits)

Students in the BAE program must satisfy the following general education requirements:

- a minimum of 18 credits in courses meeting the following requirements:
  - history and culture of the Arab world requirement: three to six credits
  - culture in a critical perspective requirement: three to six credits
  - arts and literature requirement: three to six credits
  - human interaction and behavior requirement: six to nine credits
- natural and physical sciences requirement: a minimum of six credits taken from the natural and physical sciences area
- mathematics requirement: MTH 101 and MTH 102
- statistics requirement: satisfied through QBA 201
- communication requirement: a minimum of 12 credits in 100-level or above writing (WRI)/English (ENG) courses meeting this requirement, including ENG 204 and ENG 208
- ethical understanding requirement: satisfied through ECO 495
- discipline-specific writing intensive course requirement: satisfied through ECO 495
- oral proficiency requirement: satisfied through ECO 495
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: BIS 101

Major Requirements (30 credits)

Students must complete the following required courses with a 2.00 minimum GPA:

- 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 351 Introduction to Econometrics
- ECO 451 Advanced Econometrics
- ECO 495 Senior Seminar in Economics
- QBA 201 Quantitative Business Analysis

Major Electives (minimum of 33 credits)

Economics Courses (minimum of 18 credits)

Students must complete a minimum of 18 credits from ECO courses at the 300 level or above not listed under the major requirements.

Related Courses (minimum of 15 credits)

Courses may be selected from the fields listed below, subject to approval by the advisor. A student may satisfy part or all of the related courses requirement by completing a minor in one of the related fields listed below. A student

pursuing the Bachelor of Arts in Economics may not minor in economics.

- accounting
- computer science
- economics (any course at the 300 level or above)
- finance
- history (any course at the 200 level or above)
- international studies
- management
- management information systems
- marketing
- mathematics (any course other than MTH 100 or MTH 111)
- political science
- psychology
- statistics (any course other than STA 201 or STA 202)
- quantitative business analysis (any course other than QBA 201)

Free Electives (minimum of 12 credits)

Students must complete a minimum of 12 credits of free electives, excluding MTH 100.

Proposed Sequence of Study
Bachelor of Arts in Economics (BAE)

FIRST YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	BIS 101	Business Information Systems	3
	ECO 201	Principles of Microeconomics	3
	MTH 101	Mathematics for Business I	3
	WRI 101	Academic Writing	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**
Spring	ECO 202	Principles of Macroeconomics	3
	MTH 102	Mathematics for Business II	3
	QBA 201	Quantitative Business Analysis	3
	WRI 102	Writing and Reading Across the Curriculum	3
	GER-SCI	Natural and Physical Sciences	3
		Total	**15**

SECOND YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ECO 302	Intermediate Macroeconomics	3
	ECO 310	Development Economics	3
	ENG 204	Advanced Academic Writing	3
	GER-Core	History and Culture of the Arab World	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**15**
Spring	ECO 301	Intermediate Microeconomics	3
	ENG 208	Public Speaking	3
	MJE	Economics Course	3
	MJE	Related Field Elective	3
	GER-Core	Arts and Literature	3
		Total	**15**

THIRD YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ECO 305	International Trade	3
	ECO 351	Introduction to Econometrics	3
	MJE	Related Field Electiver	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	ECO 451	Advanced Econometrics	3
	MJE	Related Field Elective	3
	MJE	Economics Course	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

FOURTH YEAR (30 credits)			
Term	**Course #**	**Course Title**	**Credit**
Fall	ECO 495	Senior Seminar in Economics	3
	MJE	Economics Course	3
	MJE	Economics Course	3
	MJE	Related Field Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MJE	Economics Course	3
	MJE	Economics Course	3
	MJE	Related Field Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Note: Students who do not follow the recommended sequence of study should expect that their program will require more than four years to complete.

BSBA–Major in Economics

Faculty members from the Department of Economics provide instruction in the Bachelor of Science in Business Administration (BSBA) program. For more information on the economics major within the BSBA program, please see the previous section on the BSBA.

Minor in Economics

This minor complements the program of students in other majors and is designed to help them develop a basic understanding of the principles and applications of economics. By pursuing this minor, students will develop an understanding of microeconomic and macroeconomic theory, the role of markets, and the effects of government regulation and policy on economic behavior.

Students applying to this minor should have completed a minimum of 60 credits and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits at or above the 300 level in economics.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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 (6 credits)

- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics

Minor Electives (minimum of 12 credits)

Students may complete any four 300-level or above ECO courses not listed as a minor requirement, for a minimum of 12 credits. Students should consult with their advisors when choosing their minor electives.

Department of Finance

Boubakri, Narjess, Interim Head

Faculty

Osamah Al Khazali
Jörg Bley
Narjess Boubakri
Abdelaziz Chazi
Gary Eldred
Tatyana Gibbs
Mohsen Saad
Anis Samet
Sam Tibbs
Zaher Zantout

The Department of Finance aims to educate and prepare students for successful careers in the field of finance. Studying finance at AUS provides students with the intellectual tools to succeed in careers in financial management, banking, investments, real estate and other sectors of the global financial world.

The Department of Finance has partnered with the CFA Institute and has incorporated the Chartered Financial Analyst (CFA) Level I curriculum in its course offerings.

BSBA–Major in Finance

Faculty members from the Department of Finance provide instruction in the Bachelor of Science in Business Administration (BSBA) program. For more information on the finance major within the BSBA program, please see the previous section on the BSBA.

Minor in Finance

This minor provides a basic background in the fields of banking and finance. It is a complementary field of study for students majoring in accounting economics or marketing. It is also an attractive choice for other students who wish to obtain the finance background needed in the business world, or to begin graduate study toward a professional designation such as the CFA.

Students applying to this minor should have completed a minimum of 60 credits 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 finance.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C-in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (9 credits)

- FIN 320 Banking
- FIN 330 Investments
- FIN 450 Case Studies in Corporate Finance

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in 300-level or above FIN courses not listed as requirements for the minor. Students may also take MTH 307 to meet this requirement.

Minor in Islamic Banking and Finance

The minor provides a basic understanding of the foundations of Islamic finance and banking. It is a complementary field of study for students majoring in finance, accounting, economics or marketing. It is an attractive choice for students wishing to learn about Islamic finance, pursue graduate studies in Islamic finance, or seeking employment in the financial services industry.

Students applying to this minor should have completed a minimum of 60 credits 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 finance.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

Students seeking a minor in Islamic banking and finance must complete the following courses or their equivalent. All course prerequisites must be satisfied.

Minor Requirements (12 credits)

- ACC 370 Accounting in Islamic Financial Institutions
- FIN 370 Fundamentals of Islamic Finance
- FIN 380 Islamic Markets, Money and Financial Institutions
- FIN 385 Islamic Corporate Finance

Minor Electives (minimum of 6 credits)

Students must complete a minimum of six credits in courses selected from the list below:

- ARA 383 Islamic Law and Jurisprudence
- ECO 333 Islamic Economics
- FIN 320 Banking
- FIN 394/494 Special topic courses in Islamic finance approved by the department

Department of Management

Joseph Wallis, Head

Faculty

Saladin Al-Jurf
Cynthia Baker
Robert E. Bateman II
Omar Belkhodja
Virginia Bodolica
Tor Brodtkorb
Ahmad El-Assadi
Gary Gold
Alaa Hamade
Linzi Kemp
Ali Khawaja
Andrew Klein
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The Department of Management aims to educate and prepare students for successful careers at the managerial level in the private, public and non-profit sectors. Students learn the leadership and management skills and techniques that are essential to help corporations and organizations achieve their goals and objectives, and the methods used by policy makers to

shape and improve communities and people's lives.

The department offers a BSBA major in management. With its balanced emphasis on developing both "hard" and "soft" skills and an appreciation of the challenges posed by cultural diversity and a global marketplace, the courses offered by this department provide a solid foundation for either entry-level managerial positions or graduate study in MBA or business-subject PhD programs.

BSBA–Major in Management

Faculty members from the Department of Management provide instruction in the Bachelor of Science in Business Administration (BSBA) program. For more information on the management major within the BSBA program, please see the previous section on the BSBA.

Minor in International Business

This minor is designed to provide interested students with the tools, theory and practical knowledge required to function in an international business environment and to prepare students for an entry-level position at a multinational corporation. Emphasis is on essential international business knowledge, supplemented by courses from other disciplines such as economics and international relations.

Students applying to this minor should have completed a minimum of 60 credits 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 the international business discipline.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C-in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (9 credits)

- ECO 305 International Trade
- MGT 305 International Business
- MGT 306 Cross-Cultural Management

Minor Electives (minimum of 9 credits)

- One of the following courses:
  - ACC 420 International Accounting Standards
  - ECO 321 Comparative Economic Systems
  - FIN 401 International Finance
  - MKT 309 International Marketing
  - QBA 311 Logistics Management
- any two of the following not already taken:
  - ACC 420 International Accounting Standards
  - ECO 310 Development Economics
  - ECO 315 Economics of the Middle East
  - ECO 321 Comparative Economic Systems
  - ECO 394 Special Topics in Economics approved by the department
  - FIN 401 International Finance
  - MGT 394 Special Topics in Management approved by the department
  - MIS 404 Internet Business Applications
  - MKT 309 International Marketing
  - QBA 311 Logistics Management

Minor in Management

This minor is designed for students outside the major in management or outside the School of Business and Management who desire to increase their networking skills, expand their business knowledge, increase their career opportunities, improve their readiness for corporate life and support their candidacy for an MBA or other graduate programs.

Students applying to this minor should have completed a minimum of 60 credits 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 management.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (9 credits)

- MGT 301 Organizational Behavior
- MGT 303 Management and Leadership Development
- MGT 305 International Business

Minor Electives (minimum of 9 credits)

Students minoring in management must complete a minimum of nine credits from any 300-level or above MGT courses not listed as requirements for the minor.

Students in the BSBA program cannot use MGT 360 and MGT 406 to meet this requirement.

Minor in Public Administration

Students enrolling in the public administration minor must have completed a minimum of 30 credits of course work and be in good academic standing. In rare circumstances, exceptions may be made with the permission of the department head.

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 PBA.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 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.

Minor Requirements (9 credits)

- ECO 325 Public Economics
- MGT 300 Management of Public Organizations
- PBA 395 Seminar in Public Administration

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in 300-level or above PBA courses not listed as minor requirements. Students may also take UPL 201 and 300-level urban planning (UPL) courses approved by the head of the department or by the SBM associate dean.

Department of Marketing

Nicholas Ashill, Head

Faculty

Norita Ahmad
John Allee
Sameh Al-Natour
Jeffrey Baker
Jean Boisvert
Parkash Chathoth
Abdelkader Daghfous
Narasimhaiah Gorla (on leave AY 2012–2013)
Mehmet Gumus
M. Sajid Khan
Linda McLoughlin
Robert Earl Naumann
Rania Semaan
A. Paul Williams
Xiaobo Xu

The Department of Marketing aims to educate and prepare students for successful business careers at the managerial level in the private and public sectors. Students can tailor their education to prepare for a career in marketing, management information systems (MIS) and operations management. The department offers a BSBA major in management information systems and a BSBA major in marketing.

In the marketing major students learn the marketing skills of developing branding, pricing, promotions and distribution channel strategies which are essential to help organizations achieve their goals and objectives. The field of marketing stresses the practical application of concepts in areas such as consumer behavior, organizational buying behavior, service quality and delivery, electronic marketing, retailing, logistics/supply chain, and international marketing.

In the MIS major, students learn about information and communication technologies, business processes, logistics and scientific principles directed to the design, implementation and management of information systems. The field of MIS stresses the practical application of computer technologies in areas such as business programming, software development, data communications and networking, database management, systems analysis and design, knowledge management and e-business. The knowledge gained in this program enable graduates to harness the power of technology as a source of competitive advantage.

With its balanced emphasis on developing both "hard" and "soft" skills and an appreciation of the challenges posed by cultural diversity and a global marketplace, the courses offered by this department provide a solid foundation for either entry-level managerial positions or graduate study in MBA or business-subject PhD programs.

BSBA–Major in Management Information Systems

Faculty members from the Department of Management Information Systems provide instruction in the Bachelor of Science in Business Administration (BSBA) program. For more information on the management information systems major within the BSBA program, please see the previous section on the BSBA.

BSBA–Major in Marketing

Faculty members from the Department of Marketing provide instruction in the Bachelor of Science in Business Administration (BSBA) program. For more information on the marketing major within the BSBA program, please see the previous section on the BSBA.

Minor in Management Information Systems

The minor in management information systems (MIS) prepares graduates for professional careers that rely on the application of information technology to business processes and managerial decision making. An understanding of the principles of data storage, analysis, communication and networking offers students from a variety of business, technical and social science disciplines the skills necessary to stay in step with rapid changes in the role of IT in the world economy

Students applying to this minor should have completed a minimum of 60 credits 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 MIS.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (6 credits)

- MIS 301 Fundamentals of Database Management
- MIS 303 Introduction to Systems Analysis and Design

Minor Electives (minimum of 12 credits)

Students minoring in management information systems must complete a minimum of 12 credits in 300-level or above MIS courses not listed as minor requirements. Students may also take QBA 320 to meet this requirement.

Minor in Marketing

This minor is designed to provide a student with the basic coverage of key marketing concepts. The minor is intended for students whose major discipline involves interaction with customers in some way. The minor will demonstrate how customer feedback can be used in a variety of disciplines and careers.

Students applying to this minor should have completed a minimum of 60 credits 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 marketing.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in courses taken to satisfy the minor.

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

Minor Requirements (9 credits)

- MKT 301 Consumer Behavior
- MKT 302 Marketing Research
- MKT 401 Marketing Strategy

Minor Electives (minimum of 9 credits)

Students should complete a minimum of nine credits in 300-level or above MKT courses not listed as requirements for the minor. Students may also take QBA 320 to meet this requirement.

Minor in Operations Management

The minor in operations management (OM) prepares graduates to pursue careers in the running of a firm's operations to deliver products and services to customers. The minor focuses on management skills that develop timely and effective business operations, and enable firms to capitalize on new technologies. In particular, the minor promotes the integration of information technologies that create strong entrepreneurial opportunities for firms. Operations management entails understanding of how manpower, equipment and other resources need to be organized for a firm to be successful. The minor highlights the importance of multinational supply chains and logistics that are critical to the success of the UAE given its location as a worldwide trade hub. The role of quality and service delivery in operations is incorporated into the minor since they are vital to the success of firms competing in a global marketplace.

Students applying to this minor should have completed a minimum of 60 credits and be in good academic standing.

The following rules apply:

- The minor consists of a minimum of 18 credits including at least six credits in courses at or above the 300 level in the quantitative business analysis (QBA) discipline, and at least three credits in courses at or above the 300 level in other non-QBA business courses offered within SBM.
- At least nine credits of the 18 required for the minor must be taken in residence at AUS.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUS.
- A grade of at least C- in each course and a GPA of at least 2.00 must be earned in course taken to satisfy the minor.

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

Minor Requirements (9 credits)

- MGT 380 Project Management
- QBA 310 Management of Supply Chain
- QBA 311 Logistics Management

Minor Electives (minimum of 9 credits)

Students must complete a minimum of nine credits in 300-level or above MIS and/or MGT courses not listed as requirements for the minor. Courses used toward the student's major may not be used toward meeting the minor electives requirement. Where a course could double count, students must consult with the head of the Department of Marketing or the SBM associate dean for course substitutions approval. Students may also take QBA 320 to meet this requirement.



College of Architecture, Art and Design

ARC Architecture

ARC 201 Architectural Design Studio I (12-0-6). Addresses fundamentals of making architectural form and space with emphasis on design inquiry, exploration and process. Concentrates on classic instances of form sources in architectural design: function, experience, structure, construction and context. Digital media are integral to the studio. Prerequisites: DES 112, DES 121, DES 122, DES 132, MTH 003 or MTH 111 or MTH 103, and WRI 101 or WRI 102. Lab/Tech fee rate B applies.

ARC 202 Architectural Design Studio II (12-0-6). 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. Prerequisite: ARC 201. Lab/Tech fee rate B applies.

ARC 215 Descriptive Geometry (4-0-3). Introduces concepts and practices of the precise description of form in space. Includes 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. Prerequisite/concurrent: ARC 201 or IDE 201-01. Lab/Tech fee rate A applies.

ARC 221 Pre-Modern Architecture and Urban Form (3-0-3). Covers factors influencing the production of architecture and urban form through the study of select buildings and cities within the context of world history from the ancient world to 1850 CE. Focuses on ways in which theoretical knowledge and practical design principles were applied across cultures. Addresses interrelationships between diverse architectural and urban traditions through comparative analyses of historical buildings and cities. Prerequisite: DES 122.

ARC 222 Modern Architecture and Urban Form (3-0-3). Introduces knowledge and design principles fundamental to an understanding of the architecture and urban form from 1850 to 1960. Integrates history and theory focusing on a selection of significant issues proceeding topically rather than chronologically. Considers technological changes and regional influences and contributions, concludes with the debates that gave rise to Postmodern Architecture. Prerequisite: DES 122.

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 Materials and Methods I (3-0-3). Offers an in-depth review of building materials and their properties as they relate to methods of construction and contemporary construction practices used to prepare sites and to erect the building's basic structure. Covers site preparation, foundations, concrete, steel and timber structures, and masonry work. Discusses the basics of producing construction drawings. Prerequisite: ARC 201 or IDE 201-01.

ARC 265 Fundamentals of Digital Design (4-0-3). Introduces the concepts, tools and methods of three-dimensional design. Topics include 3D modeling, rendering and animation. Prerequisite/concurrent: ARC 201 or IDE 201-01 Lab/Tech fee rate A applies.

ARC 271 Introduction to Landscape (3-0-3). Introduces the fundamental cultural, ecological, spatial and technical aspects of landscape design and construction. Includes a range of scales, from the urban and infrastructural to the tactile and botanical, most relevant to the discipline of architecture. Investigates the environmental and climatic forces that impose pragmatic challenges to site construction and occupation. Emphasizes the cultural and vernacular traditions that influence regional and historical land-use patterns and the spatial integration of interior and exterior inhabitation. Prerequisite: DES 101 or DES 131.

ARC 273 Principles of Landscape Architecture (3-0-3). Introduces the interpretation and expression of spatial forms from the unique point of view of landscape architects. Analyzes the work of leading designers in the field of landscape architecture to understand their contribution of new knowledge to the profession. Examines a number of contemporary design issues that help to define the profession, which will be addressed in lecture and lab formats. Prerequisite: ARC 201.

ARC 281 Architectural Principles (3-0-3). Provides an overview of the fundamental formal and environmental issues specific to the discipline of architecture. Emphasizes two- and three-dimensional composition, organizational strategies, and the basic syntax of spatial configuration. Examines the effect of light, air, weather and orientation on spatial experience in the built environment with a focus on building forms that incorporate a passive and site-specific response to environmental conditions. Prerequisites: DES 112, DES 121, DES 122, DES 132, MTH 001 or MTH 003 or MTH 111 or MTH 103, and WRI 101.

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, multilevel, infill buildings with conventional, short-span structural systems. Prerequisites: ARC 202 or IDE 202-01, and PHY 104.

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. Prerequisite: ARC 301.

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. Covers freehand color drawing techniques using markers, color pencils and watercolors. Prerequisite/concurrent: ARC 201 or IDE 201-01.

ARC 316 Photography and Visual Representation (4-0-3). Introduces a broad range of photographic techniques and processes intended to facilitate the representation of architectural concepts. Explores the history, theory and practices related to various techniques. Investigates the roles of narrative and sequence in photography. Experiments with combined, montaged and repeated images. Prerequisite: ARC 201 or VIS 221, or DES 160 and DES 362. 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. Prerequisite: ENG 203 or ENG 204.

ARC 324 History of Landscape Architecture (3-0-3). Presents an introductory survey of the history of landscape design and the interrelationship of architecture and landscape architecture in various cultures throughout history. Prerequisite: ENG 203 or ENG 204.

ARC 331 Materials and Methods II (3-0-3). Offers an in-depth examination of the materials and processes involved in finishing a building. Uses a case study approach to demonstrate the evolution of the building process of the major components that are built following the erection of the building's basic structure. Covers stairs, doors, windows, partitions, ceilings, floors, claddings and joints. Investigates design considerations and construction methods with hands-on experience in producing detailed drawings. Prerequisite: ARC 232.

ARC 342 Structures for Architects (3-0-3). Introduces the classification and behavior of structural elements and systems most relevant to the design of architecture. Includes the fundamentals of structural analysis, types and classifications of structural dynamics, properties and performance capacity of the primary building materials, and structural elements. Individual structural components and topics are presented in relation to system types and classifications. Emphasizes the dynamic relationship between components and systems. Covers the structural design process including the collaborative nature of working with a structural consultant in a professional office environment. Prerequisites: ARC 201 or IDE 201-01, and PHY 104.

ARC 354 Environmental Energies and Building Form (3-0-3). Studies the physical phenomena that make climate (rain, humidity, temperature, wind, sun, etc.) influence buildings. Covers 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. Discusses examples of how these phenomena are used in building design. Prerequisite: PHY 100 or PHY 101 or PHY 104.

ARC 365 Computer-Aided Design (4-0-3). 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. 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 201-01. Lab/Tech fee rate A applies.

ARC 366 Applied Computer-Aided Design (4-0-3). 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. Introduces AutoCAD on PCs running the Windows NT operating system. Extends the topics introduced in ARC 365 to include detailed treatment of tool palettes and inter-platform compatibility. Prerequisite: ARC 201 or IDE 201-01. Lab/Tech fee rate A 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. Covers issues such as demand and supply of energy and water and the generation of waste. Reiterates the principles of reduce, reuse and recycle. Predominant emphasis is on practical strategies directly applicable in design. Material is presented as lectures and seminars, supplemented with readings. Prerequisite/concurrent: PHY 100 or PHY 101 or PHY 104.

ARC 382 Architectural Detailing (4-0-3). Explores the relationship between the design and production of architectural details and the conceptual underpinnings of a project. Introduces technical drawing, construction drawings and industry standards for graphic and written communication. Emphasizes the role of tectonics and material integration beyond pragmatic applications. Incorporates the use of computer technology in drawing production and information coordination. Prerequisite: ARC 202.

ARC 397 Internship in Architecture (0-0-0). Requires a minimum of five weeks (normally 200 hours) of approved professional experience. Requires the work undertaken to be documented in a formal report submitted to the department by the beginning of the following term. Graded as Pass/Fail. Prerequisites: ARC 302 and approval of internship coordinator. Registration fee applies.

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 232 and ARC 302.

ARC 402 Architectural Design Studio VI (12-0-6). Comprises a 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. Prerequisite: ARC 401; prerequisite/concurrent ARC 354.

ARC 421 Architectural Theory (3-0-3). Engages the conceptual basis of the work of specific architects, historical and contemporary architectural historians and theoreticians from the 1960s to the present. Examines schools of thought in architecture with an emphasis on the understanding of both written and visual analysis of built form and design. Prerequisites: ARC 221 or ARC 222, and ENG 203 or ENG 204.

ARC 424 Evolution of Cities (3-0-3). Introduces the origin, growth and development of cities throughout the history. Examines the various socioeconomic, 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: ENG 203 or ENG 204.

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. Emphasizes the use of computer technology in drawing production and information coordination. Prerequisite: ARC 301 or IDE 301.

ARC 451 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, including plumbing, heating, ventilation, air conditioning, electric, lighting, and fire suppression and protection systems. Prerequisite/concurrent: ARC 401.

ARC 461 Project Management (3-0-3). (Cross-listed as 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: senior standing.

ARC 463 Professional Practice (3-0-3). (Cross-listed as IDE 463). Introduces the professional practice of architecture and interior design. Covers the fundamental knowledge of project management, client and consultant relationships, construction administration and the operations of a design business. Introduces the implications of time, budget and economic parameters in relation to the design process, professional ethics, social and political culture, and business management. Prerequisite/concurrent: ARC 302.

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. Applies 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 474 Issues in Contemporary Urban Design (3-0-3). 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: ARC 301.

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 501 Architectural Design Studio VII (12-0-6). Employs advanced design tools to respond to complex architectural projects in a topic, capstone or collaborative studio setting. Focuses on research, experimentation, and specialized techniques leading to comprehensive solutions that address issues of program, context, building technology and/or fabrication. Addresses the discipline of architecture at various scales ranging from conceptual investigations to full-scale fabrication and urban design. Prerequisite: ARC 402.

ARC 502 Architectural Design Studio VIII (12-0-6). Continues the development of advanced design tools in response to complex architectural projects in a topic, capstone or collaborative studio setting. Employs research, experimentation and specialized techniques leading to comprehensive solutions that address issues of program, context, building technology and/or fabrication. Covers various scales ranging from conceptual investigations to full-scale fabrication and urban design. Prerequisite: ARC 501.

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.

ARC 561 Construction Management (3-0-3). 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. Prerequisite: ARC 301 or IDE 301.

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. Provides an overview of what planners do and the tools they use in their practice. Prerequisites: ARC 402 and CGPA of 2.5 or above.

ARC 581 Critical Practice and Contemporary Discourse (3-0-3). Examines the role and application of research methodology and critical thinking in the work of leading practitioners and academics. Investigates a current topic in contemporary discourse with a focus on the articulate application of theory and research in architectural production. Foregrounds the history of ideas that frame and influence contemporary trends in the discipline. Focuses on applying critical thinking skills to the analysis and production of architecture as a mode of inquiry. Prerequisite: ARC 402.

ARC 591 Final Project Research (6-0-3). Requires students to 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 331, ARC 402, ARC 451 and consent of the department.

ARC 592 Final Project Design (12-0-6). Requires 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 502. Prerequisites: ARC 501, ARC 591 and consent of the department.

ART Art and Art History

ART 101 Survey of Art (3-0-3). Explores art's contribution to Western civilization. Introduces personalities, ideas and the cultural context that established major styles in painting, sculpture and architecture. The first part of this two-course sequence covers the time span from Prehistory to the Middle Ages. Not open to students who have taken DES 121. Prerequisite/concurrent: WRI 101.

ART 111 Freehand Drawing (4-0-3). Introduces the basic drawing skills required for freehand drawing and includes freehand perspective, projection systems and design visualization. Not open to CAAD students.

ART 141 Introductory Painting (6-0-3). Introduces the fundamentals and principles of observational painting. Explores various representational strategies, methods, materials and techniques with exercises and assignments designed to develop skills needed to communicate visual information in a painterly context. Lab/tech fee rate B applies.

ART 142 Painting: The Practice of Color (6-0-3). Introduces the basic theories of color and paint application. Covers materials, methods, processes, techniques and the critical skills required to structure form and content into the visual language of painting. Lab/tech fee rate A applies.

ART 203 Da Vinci and the Age of Discovery (3-0-3). Explores the context, themes and personalities that shaped the shift from the Middle Ages to the Renaissance. Traces the role of Christianity and Islam in shaping medieval faith and art. Investigates classical humanism, Leonardo da Vinci, Michelangelo, the Reformation and the impact of scientific and geographic discovery. Prerequisite: WRI 102.

DES Design

DES 101 Design Foundations for Non-Majors (6-0-3). Introduces knowledge, skills and theories comprising design. Focuses on the learning process as a designer. Explores a variety of tools, media and design strategies through ideation, design process, design communication, and

presentation as an experience of generating designed artifacts. Includes workshops and demonstrations in the studio, the materials lab, and the computer lab. Not open to CAAD students. Lab/Tech fee rate B applies.

DES 111 Descriptive Drawing I (6-0-3). Introduces students to the fundamental principles of observational and analytical drawing. Explores various representational and analytical approaches through assignments that encourage the development of skills needed to effectively represent and communicate visual information. Restricted to CAAD students.

DES 112 Descriptive Drawing II (6-0-3). Further introduces the student to the principles of drawing. Emphasizes 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. Restricted to CAAD students. Prerequisite: DES 111.

DES 121 Introduction to Architecture and Design History (3-0-3). Explores a global approach to art, architecture and design. Investigates the technological, religious and social forces that helped to reveal the universality of the human impulse to design. Examines ideas, techniques and design methods thematically within a chronological framework covering the time span from the Stone Age to the Industrial Revolution.

DES 122 Modern Developments in Architecture and Design (3-0-3). Explores the developments in architectural thinking and in all aspects of design during the modern era. Investigates thematically the evolution of ideas and processes that shaped contemporary movements in architecture and design. Discusses contemporary concerns, forms, ideas and attitudes of 20th and 21st century design and architecture.

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 CAAD 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. Restricted to CAAD students. Prerequisite: DES 131.

DES 160 Introduction to Photography (3-0-3). Provides a hands-on introduction to photographic practice. Covers camera control, film processing and printing in a photography darkroom as well as the basics of digital applications. Introduces photographic language and considerations through the study of examples taken from the history of photography. Not open to ARC, IDE, MUM and VIS students. Lab/Tech fee rate A applies.

DES 170 Introduction to Product Design (4-0-3). Surveys the contemporary and historical developments in product design. Develops an understanding of the roles of the product designer and introduces fundamental environmental, cultural and economic issues relevant to the design of products. Introduces the scope and range of product design, including an awareness of product system service design. Explores various stages and processes of product design including design research, concept generation, scenario building, market evaluations, design development and production. Employs case studies, written and verbal presentations, and introduces basic skills through the development of small-scale exercises. Prerequisite: DES 101 or DES 131. Lab/Tech fee rate B applies.

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. Not open to multimedia design and visual communication students. Prerequisite: DES 131 or MCM 100 or NGN 110 or BIS 101 or STA 201 or STA 202. Lab/Tech fee rate A applies.

DES 230 Digital Media in Communication Design (4-0-3). Builds on the development and skills associated with digital design. Helps students gain a more complete understanding of how digital media is used in electronic design, through working with the latest in industry-specific hardware and software, and learn the capabilities available to communication designers. Emphasizes the creation, preparation and presentation of finished digital media projects. Not open to multimedia design and visual communication students. Prerequisite: DES 131 or MCM 100 or NGN 110 or BIS 101 or STA 201 or STA 202. 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/concurrent: WRI 102 and sophomore standing.

DES 232 Research Methodologies for Design (3-0-3). Introduces research processes within design practice and theory. Explores diverse research methods and strategies that inform design decisions while improving process, efficiency and time management. Addresses research demands implicit to design disciplines through readings, discussions, and practical assignments. Prerequisites: DES 101 or DES 131, and ENG 203 or ENG 204.

DES 270 Design as Form (6-0-3). Develops skills in three-dimensional design and form making. Explores relationships of form, perception and visual/sensory phenomenon with specific focus on the application of design principles to the creation of small-scaled objects through methods of modeling and development. Prerequisites: DES 101 or DES 131, and sophomore standing. Lab/Tech fee rate A applies.

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. Not open to multimedia design and visual communication students. Prerequisite: DES 200.

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. Not

open to multimedia design and visual communication students. Lab/Tech fee rate A applies.

DES 331 Entrepreneurship for Design (3-0-3). Examines key concepts of entrepreneurship. Provides an understanding of the entrepreneurial opportunity and of the entrepreneurial process. Covers viability screening to ascertain whether the new venture to the point of investor readiness, gain intellectual property protection, and design the business model for the new venture. Prerequisite: ENG 203 or ENG 204.

DES 340 Materials and Processes for Design (4-0-3). Covers a variety of techniques, materials and processes specific to the fabrication of three-dimensional models and small-scaled forms. Introduces both traditional and digital tools and develops safe working practices. Examines the relationship between the use of digital technology and traditional methods of fabrication. Explores the creative potential of materials and construction methodologies and emphasizes the iterative investigation of form and structure with the integration of multiple design principles. Develops student's skills in producing three-dimensional forms with a high degree of craftsmanship. Prerequisite/concurrent: ARC 202 or DES 270 or IDE 202-01 or MUM 202 or VIS 202. Lab/Tech fee rate B applies.

DES 360 Critical Discourse in Design (3-0-3). (Formerly VIS 260). Examines the relationship between design intention and interpretation. Reviews the application of graphic language in visual media. Requires research on topics related to design communication. Complements studio-based design courses by exploring design considerations and practice from a theoretical perspective. Prerequisite: DES 231.

DES 362 History of Photography: The Portrait (3-0-3). Explores the history of photography as evidenced in the development of the photographic portrait. Covers examples of early photographic practice; the commercialism of photography; and documentary, fine art and contemporary approaches to the photographic portrait genre. Prerequisite: ENG 203 or ENG 204.

DES 363 Principles of Museum and Gallery Management (3-0-3). Introduces the history, purpose and organization of museums. Explores contemporary museum and gallery practices, topics include: the museum and its mission, exhibition development and design, marketing and audience development, organization and financial management as well as the social, economic and political trends that shape museums. Introduces the various aspects of professional work in both museums and galleries. Prerequisite: ENG 203 or ENG 204.

DES 370 Introduction to Prototyping (6-0-3). Develops conceptual and technical skills that represent evolutionary steps in design process and production. Introduces tools, both hand and digital, and develops ideas through the completion of several processes and exercises. Introduces digital rendering and fabrication techniques. Develops critical thinking, problem-solving and concept generation skills, while ideation drawing and rapid prototyping activities help to establish process. Develops visual and communication skills with a focus on the projection and promotion of ideas and products. Prerequisite: DES 270. Lab/Tech fee rate B applies.

DES 374 Package Design (4-0-3). Introduces principles of package design. Focuses on the integration and application of graphic and visual elements to three-dimensional objects through folding, creasing, and simple die cutting. Examines packaging trends in the context of the needs of the region to develop economical, responsible, and sustainable solutions. Covers environmental and social issues related to packaging. Prerequisite: DES 101 or DES 131. Lab/Tech fee rate A applies.

DES 397 Internship in Design Management (0-0-0). Requires a minimum of five weeks (normally 200 hours) of approved professional experience. Requires the work undertaken to be documented in a formal report submitted to the department by the beginning of the following term. Graded as Pass/Fail. Prerequisites: Junior II standing and approval of internship coordinator. Registration fee applies.

DES 461 Project Management (3-0-3). (Cross-listed as ARC 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). Introduces the principles and practices of the economic and commercial aspects of design practice in a global economy. Includes microeconomics theory as it applies to private enterprise: basic business economics, planning and management. Gives attention to the processes and skills required in establishing an independent design office. Prerequisite/concurrent: DES 300.

DES 471 Managing the Design Process (3-0-3). Introduces theoretical aspects of project organization. Involves research and planning an event and exhibition. Offers the opportunity to study the design process and what is necessary within a group to make a large, multifaceted project happen. Includes the following topics: division of responsibilities, utilizing timelines and developing presentation skills. Prerequisite: DES 300.

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 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.

FLM Film

FLM 100 The Art of Film (4-0-3). Introduces the central issues of film aesthetics, including formal and stylistic elements: color, lighting, editing, sound, movement, mise-en-scene, etc. Develops analytical and interpretive skills by providing critical tools required for discussing and writing about film as well as examining relationships between a film and its technological and cultural impact on society. Subjects are treated topically rather than historically, and emphasis is placed on mastering key concepts of film grammar and art. Prerequisite/concurrent: WRI 102.

FLM 201 History of Film to 1945 (4-0-3). (Formerly FLM 101). Examines the influences and impact of pioneer and early silent filmmakers. Covers topics such as the evolution of the comedic form, cinema and society, and the effect of artistic movements such as impressionism and expressionism. Develops students' analytical and interpretive skills by examining relationships between a film and its technological and cultural impact. Prerequisite/concurrent: WRI 102.

FLM 202 History of Film since 1945 (4-0-3). (Formerly FLM 102). Examines the influences and impact of

landmark films and filmmakers since 1945. Covers topics such as the development of new film technologies and techniques as well as approaches that helped to make film a distinct art form. Discusses comparison with other art forms and the use of frame and image to convey emotional content, along with concepts such as montage, genre, auteur and mise-en-scene. Prerequisite/concurrent: WRI 102.

FLM 203 History of Arab Film (4-0-3). Examines the influences and impact of landmark Arab films and filmmakers from 1920 to the present. Covers topics such as the development of new film technologies and techniques as well as approaches that helped to make Arab cinema distinct from other national or regional cinemas. Discusses how cinema has reflected major concerns of Arab culture and society. Prerequisite/concurrent: WRI 102.

FLM 210 Narrative Structure in Film (4-0-3). (Formerly DES 210). Introduces the development of narrative sequential imagery required to communicate an idea or story line, focusing on developing distinctive narrative image-making skills. Projects emphasize idea generation, story concept/structure, storyboards, and narrative writing for film. Examines narrative structure in relation to the languages of design, cinema and interactive story. Prerequisite: ENG 203 or ENG 204. Lab/Tech fee rate A applies.

FLM 310 Film Production I (4-0-3). (Formerly MUM 310). Introduces the process, development, production and post-production of narrative film projects. Provides practical experience including production planning, pre-visualization, storyboarding and location production. Screenings of significant films provide a critical context for the production process. Prerequisite: WRI 102; prerequisite/concurrent: FLM 100 or FLM 201. Lab/Tech fee rate B applies.

FLM 312 Film Production II (4-0-3). (Formerly MUM 312). Continuation of FLM 310. Includes project-based studies in film development, production and non-linear computer-based post-production. Screenings of significant films provide a technical and critical context for the production process. Prerequisite: FLM 310. Lab/Tech fee rate B applies.

FLM 360 Screenwriting (3-0-3). (Formerly FLM 260). Focuses on the craft of writing for film and television. Covers research methods, interviewing techniques, subject treatment, dialogue writing, and the development of basic script formats. Explores the process of transforming story ideas into film or television scripts. Prerequisites: FLM 100, and ENG 203 or ENG 204.

FLM 401 Significant Film Genres (4-0-3). (Formerly DES 415). Serves as the capstone course in film criticism with a particular focus on themes and/or eras in film. Topics covered may include, but are not limited to, the following: films of the 1950s, screwball comedy, musicals, detective, western films, and film noir in cultural context. Specific focus shown by subtitle. Prerequisites: FLM 201 or FLM 202 or FLM 203, and ENG 203 or ENG 204.

FLM 410 Advanced Film Production (4-0-3). (Formerly MUM 411). Offers advanced studies in film development, production and non-linear computer-based post-production for third-and fourth-year students. Screenings of significant films provide a technical and critical context for the production process. Prerequisite: FLM 310. Lab/Tech fee rate B applies.

FLM 412 Documentary Film Production (4-0-3). (Formerly MUM 412). Focuses on the fundamentals of documentary film production. Covers research methods, interviewing techniques, production and editing, as well as studying documentary works that exemplify the theory and practice of this genre. Prerequisite: FLM 310 or MCM 281. Lab/Tech fee rate B applies.

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. Pays specific attention 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. Examines the development of contemporary artistic and architectural expression. Prerequisite: WRI 102.

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.

IDE Interior Design

IDE 201-01 Interior Design Studio I (6-0-3). Investigates the fundamentals of architectural form and interior space with a focus on design inquiry, process and representation. Emphasis on the application of color theory for interior spaces, instances of spatial form sources and making, exploration of spatial definition and organization, and programmatic issues in interior design. Covers software applications that are integral to the development and presentation of studio projects. Not open to ARC students. Prerequisites: DES 112, DES 121, DES 122, DES 132, MTH 001 or MTH 003 or MTH 103 or MTH 111, and WRI 101; prerequisite/concurrent: IDE 211. Lab/Tech fee rate B applies.

IDE 202-01 Interior Design Studio II (6-0-3). Continues the investigation of IDE 201 studio content with additional emphasis on the application of natural and artificial light, interior materials, technical resolutions, and anthropomorphic requirements in the context of space making. Covers software applications that are integral to the development and presentation of studio projects. Not open to ARC students. Prerequisites: IDE 201-01 or ARC 201, IDE 211, IDE 223, and IDE 237; prerequisite/concurrent: IDE 212. Lab/Tech fee rate B applies.

IDE 211 Color (4-0-3). Introduces color history and theory, including perception of color and form, color structure and composition, and the relationship of optical and psychological dynamics, as they relate to applications in interior design. Analyzes how color in natural and built environments is used to explore sensory, emotional and aesthetic concepts. Prerequisites: DES 101 or DES 132, and WRI 101. Lab/Tech fee rate B applies.

IDE 212 Light (4-0-3). Introduces the fundamentals of lighting from a technical, practical and aesthetic perspective as it applies to interior design. Examines the basic principles of natural and artificial lighting, to analyze and define how light is used as a tool in the creation of interior spaces. Prerequisites: DES 101 or DES 132, and WRI 101. Lab/Tech fee rate B applies.

IDE 223 History and Theory of Interior Design: Global Issues (3-0-3). Examines the historical and social movements that established the foundation for the contemporary practice of interior design. Emphasizes design history from the industrial revolution to the present, with a review of important figures in the interior design profession from the 19th and

20th centuries. Prerequisites: DES 101 or DES 132, and WRI 101.

IDE 224 History and Theory of Interior Design: Regional Issues (3-0-3). Examines the development of the decorative arts in the Middle East from both historical and aesthetic perspectives, with an emphasis on the planning, decoration, detailing, and artistic expression within interior environments. Prerequisite: IDE 223.

IDE 237 Interior Materials and Methods I (4-0-3). (Formerly IDE 236). Introduces interior architectural finish and construction materials, available products, performance characteristics, technical attributes and considerations, and methods of application. Explores the physical and psychological qualities of materials, and how they are applied in order to achieve safe, attractive, cost-effective and durable interior environments. Prerequisites: DES 101 or DES 132, and WRI 101. Lab/Tech fee rate B applies.

IDE 238 Interior Materials and Methods II (4-0-3). (Formerly IDE 235). Explores advanced interior finish materials and applications, technical evaluation methods, detail documentation and specification requirements, using standard construction methodology. Introduces furniture and millwork construction and finishes, and interior assemblies- including floor systems, partitions, ceiling systems, stairs and ramps- as they relate to the design of interior environments. Prerequisites: IDE 211 and IDE 237. Lab/Tech fee rate B applies.

IDE 301 Interior Design Studio III (12-0-6). Focuses on advanced spatial concepts relevant to contemporary practices in the field. Investigates the role of precedents and analogue spaces in generating conceptual ideas. Examines the expressive potential of interior elements (floor, wall, stairs, openings, etc.) and materials. Develops an understanding of the relationship between interior elements, materials and the architectural shell. Explores various design scales with a specific focus on how resolved technical details can express formal ideas. Prerequisites: IDE 202-01 or ARC 202, and PHY 104.

IDE 302 Interior Design Studio IV (12-0-6). Continues the intent and purpose of IDE 301. Emphasizes the development of programming strategies within a defined cultural context. Concentrates on the phenomenological aspects of interior environments and explores the spatial and perceptual implications of artificial lighting and materials. Explores the conceptual and spatial implications of furniture layout, selection and design. Prerequisite: IDE 301.

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. Covers freehand color drawing techniques using markers, color pencils and watercolors. Prerequisite/concurrent: IDE 201-01 or ARC 201.

IDE 334 Furniture and Furnishings (4-0-3). Addresses furniture designers, typologies, principles of anthropometrics and ergonomics related to work processes/seating and the human body, materiality, construction and fabrication/production technologies. Explores the form, function, aesthetics and cultural influences through lectures, class discussions, case studies and various media. Culminates in assignments, presentations, and research, and the development of scale models of furniture design projects. Prerequisites: ENG 203 or ENG 204, and IDE 223.

IDE 335 Furniture Design Basics (4-0-3). Explores the basic function and design of furniture as it relates to human factors, such as anthropometrics and ergonomics. Provides a link between historical, theoretical and practical experience. Defines the elements of form, function and aesthetic by exploring experimental concepts and adopting alternative ways of thinking about the objects that surround us. Applies furniture models built to scale, or other presentation techniques, to effectively support the evolution of new concepts. Prerequisite/concurrent: IDE 201-01 or ARC 201.

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. Presents systems as they influence one another and as they constrain interior space planning and design. Prerequisite: PHY 104; prerequisite/concurrent: IDE 201-01 or ARC 201.

IDE 374 Environmentally Sustainable Design (4-0-3). (Cross-listed as ARC 374). Develops a greater focus on holistic and sustainable approaches to design. Covers issues such as demand and supply of energy and water, and the generation of waste. Reiterates principles of reduce, reuse and recycle. Predominant emphasis is on practical strategies directly applicable in design. Material is presented as lectures and seminars, supplemented with readings. Prerequisite/concurrent: PHY 100 or PHY 101 or PHY 104.

IDE 397 Internship in Interior Design (0-0-0). Requires a minimum of five weeks (normally 200 hours) of approved professional experience. Requires the work undertaken to be documented in a formal report submitted to the department by the beginning of the following term. Graded as Pass/Fail. Prerequisites: Junior II standing and approval of internship coordinator. Registration fee applies.

IDE 401 Interior Design Studio V (12-0-6). Requires a 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 402 Interior Design Studio VI (12-0-6). Covers research-directed design focusing on a topic related to some aspect of interior design (history/theory, technology, representation, heritage resource management, etc.). Requires directed research in support of a design investigation. Prerequisites: IDE 397 and IDE 401.

IDE 432 Advanced Detailing (4-0-3). Continues the work of IDE 238 Interior Construction, focusing on advanced levels of detailing, design development, conceptual and technical drawing, specifications and craftsmanship. Prerequisite: IDE 238 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 202-01 or ARC 202.

IDE 463 Professional Practice (3-0-3). (Cross-listed as ARC 463). Introduces the professional practice of architecture and interior design. Covers the fundamental knowledge of project management, client and consultant relationships, construction administration and the operations of a design business. Introduces the implications of time, budget and economic parameters in relation to the design process, professional ethics, social and political culture, and business management. Prerequisite/concurrent: IDE 302.

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). Requires students to 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). Requires 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 402. Prerequisites: IDE 397, IDE 401, IDE 491 and consent of the department.

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: ARC 302 or IDE 302, and consent of department.

MUM Multimedia Design

MUM 201 Multimedia Design Studio I (6-0-3). Introduces fundamental skills in the creation of digital sound and image content. Explores the interrelationship of image, text and sound through formal investigations and basic narrative sequencing. Prerequisites: DES 112, DES 121, DES 122, DES 132, MTH XXX and WRI 101. Lab/Tech fee rate A applies.

MUM 202 Multimedia Design Studio II (6-0-3). Introduces the principles of interaction design by analyzing and creating objects, interfaces and patterns. Emphasizes the creation of functional prototypes using industry standard practices. Prerequisite: MUM 201. Lab/Tech fee rate A applies.

MUM 221 Motion Graphics and Video (4-0-3). Introduces compositing strategies using video, sound and image content. Provides historical overview and conceptual context through case studies and screenings of significant work. Prerequisite: MUM 201. Lab/Tech fee rate A applies.

MUM 301-01 Multimedia Design Studio III (6-0-3). Explores sequential narrative design in linear and interactive media. Emphasizes analysis and deconstruction of significant narrative structures in relationship to form, content and meaning. Prerequisite: MUM 202.

MUM 302-01 Multimedia Design Studio IV (6-0-3). Examines user experience design through the integration of research, prototyping, content creation and media delivery. Emphasizes the development and presentation of functioning prototypes. Prerequisite: MUM 301-01.

MUM 304 Media Systems and Publishing (4-0-3). Explores various methods of distribution through current and future platforms and provides comprehensive understanding of media as a system. Examines the relationship between commerce, design and communication. Prerequisite: MUM 301-01. Lab/Tech fee rate A applies.

MUM 311 Animation (4-0-3). Introduces students to the principles of animation through exploration of traditional animation techniques, concepts and storyboarding. Emphasizes the production of images in motion and expression utilizing traditional or digitally aided processes. Lab/Tech fee rate A applies.

MUM 320 Web Design I (4-0-3). 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: ARC 265 or DES 230, or DES 101 and MCM 200. Lab/Tech fee rate A applies.

MUM 330 Web Design II (4-0-3). 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 3D Animation (4-0-3). Addresses strategies and production pipeline in 3D modeling and animation: non-linear animation strategies, texture mapping, dynamics, lighting and rendering for contemporary professional output. Prerequisite: MUM 201. Lab/Tech fee rate A applies.

MUM 340 Interactive Environments (4-0-3). Focuses on design and implementation of interactive applications and environments. Includes design projects that focus on narrative, content development, information architecture, patterns of interactive structures, interface design, user-orientation and user-engagement. Requires students to define interactive applications through prototyping and progressively work on testing and implementing the design solutions. Includes interactive design projects such as instructional and learning systems, computer games, interactive fiction and multimedia-supported business applications. Prerequisites: ARC 265 or DES 230, or DES 101 and MCM 200. Lab/Tech fee rate A applies.

MUM 360 Multimedia Design History and Theory (3-0-3). Examines the origins and history of multimedia design and its technologies. Surveys critical media culture readings from both the theoretical field of media studies and the creative works of artists, designers, filmmakers and writers. Prerequisite: DES 231.

MUM 397 Internship in Multimedia Design (0-0-0). Requires a minimum of five weeks (normally 200 hours) of approved professional experience. Requires the work undertaken to be documented in a formal report submitted to the department by the beginning of the following term. Graded as Pass/Fail. Prerequisites: MUM 302-01 and approval of internship coordinator. Registration fee applies.

MUM 405 Multimedia Design Studio V (12-0-6). Focuses on the development of topical discipline-specific or inter-/trans-disciplinary design projects. Explores local, regional and/or global themes through individual and/or collaborative projects. Prerequisite: MUM 302.

MUM 406 Multimedia Design Studio VI (12-0-6). Focuses on the development of a comprehensive multimedia design project. Addresses the role of research, analysis and synthesis in professional design practice. Covers aspects of planning, management and production. Requires an approved student-initiated or faculty-directed capstone/topical project. Prerequisite: MUM 405.

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.

UPL Urban Planning

UPL 201 Introduction to Urban Planning (3-0-3). 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 and engineering. Provides an overview of what planners do and the tools they use in their practice. Prerequisite: WRI 102.

VIS Visual Communication

VIS 201 Design Studio I (6-0-3). Introduces principles of visual composition and organization through systems-based approaches to design. Explores formal relationships of varying complexity- from simple abstractions to the articulation of multiple categories of text and image-based information. Presents strategies to manage content. Examines denotation and connotation in visual communication. Addresses the integration of digital media within design projects. Prerequisites: DES 112, DES 121, DES 122, DES 132, MTH XXX, and WRI 101. Lab/Tech fee rate A applies.

VIS 202 Design Studio II (6-0-3). Covers essential typographic, compositional and imaging techniques. Examines strategies of creating, manipulating, and combining text and images to facilitate communication. Explores varied means of visualization for print-or time-based media. Introduces the role of sequencing and transformation in communicating visual and textual information. Prerequisite: VIS 201. Lab/Tech fee rate A applies.

VIS 213 Illustration Drawing (4-0-3). 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. Prerequisite/concurrent: ART 111 or DES 111. Lab/Tech fee rate A applies.

VIS 221 Photography Basics (4-0-3). Introduces basic photographic skills of camera control and photographic practice through the use of digital technology. Introduces and explores topics relating to the history and theory of photographic practice. Prerequisite: DES 101 or DES 131. Lab/Tech fee rate A applies.

VIS 231 Typography I: Normative Typographic Principles (4-0-3). Introduces the fundamental conventions and vocabulary associated with typography. Addresses information hierarchy through the study of visual form and structure. Explores the editorial and expressive potentials of typography. Engages traditional and digital technologies within coursework. Prerequisite/concurrent: ARC 201 or IDE 201-01 or DES 200 or MUM 201 or VIS 201. Lab/Tech fee rate A applies.

VIS 242 Electronic Online Publishing (4-0-3). Introduces fundamental concepts and practical applications of web and electronic publishing. Examines the potential of media authored content through short, basic exercises using relevant technologies. Prerequisite: VIS 201 or DES 200. Lab/Tech fee rate A applies.

VIS 301 Design Studio III (6-0-3). Examines the relationship between visual form and content. Addresses the role of semiotics in visual communication. Emphasizes the application of methods and strategies used in the design of print-based publications for general and/or specific audiences. Prerequisite: VIS 202.

VIS 302 Design Studio IV (6-0-3). Explores representations of abstract ideas in the form of symbols and logotypes. Covers research methods and design strategies associated with the development of visual identity systems. Addresses the role of branding, the development of project briefs, logo design, and the development and application of visual identity standards. Prerequisite: VIS 301.

VIS 311 Illustration Design (4-0-3). Introduces students to various techniques of idea generation by focusing upon illustration as a means of conveying ideas and concepts. Encourages students to arrive at visual equivalents to written and/or oral texts in the contexts of the history of design and illustration. Prerequisite: VIS 213.

VIS 312 Illustration Genres (4-0-3). 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: VIS 213.

VIS 313 Visual Narrative (4-0-3). Explores narrative and storytelling structures in design including storyboarding and sequential drawing. Examines history and current practice in sequential visual arts. Emphasizes research, drawing and rendering skills needed to develop characters in sequential formats such as animation, film, illustration, children's and juvenile books, and graphic novels. Prerequisite/concurrent: VIS 301 or MUM 301-01. Lab/Tech fee rate A applies.

VIS 320 Printmaking: Lithography and Serigraphy Methods (4-0-3). (Formerly VIS 222).Introduces basic concepts and skills in traditional and contemporary lithography, serigraphy and alternative printmaking methods while developing a firm skills base to expand upon in students' continuing studies in their specific disciplines. Investigates traditional mechanical and digital experimental reproductive processes as well as a basic history and theory of the graphic arts. Prerequisite: VIS 213. Lab/Tech fee rate B applies.

VIS 321 Photojournalism (4-0-3). 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, or DES 160 and DES 362. Lab/Tech fee rate A applies.

VIS 322 Printmaking: Relief and Intaglio Methods (4-0-3). Introduces basic concepts and skills in traditional and contemporary relief and intaglio printing and production methods while developing a firm skills base to expand upon in students' continuing studies in their specific disciplines. Examines the role of the relief and intaglio reproduction in material culture. Examines traditional and experimental applications in two- and three-dimensional work across a range of disciplines. Prerequisite: VIS 213. Lab/Tech fee rate B applies.

VIS 323 Photography for Communication (4-0-3). Covers the theory and practice of constructed or stage photography. Examines techniques and processes to develop abilities related to effective visual communication. Focuses on theme work and the development of a portfolio. Prerequisite: VIS 221 or ARC 316, or DES 160 and DES 362. Lab/Tech fee rate A applies.

VIS 325 Creative Studio Photography (4-0-3). Explores the control and manipulation of artificial lighting for creative effect in a photography studio environment. Practical applications of studio flash lighting are introduced and explored via practical assignment work. In addition students will be introduced to significant examples of photographers' work that exploit the controlled use of lighting. Prerequisite: VIS 221 or ARC

316, or DES 160 and DES 362. Lab/Tech fee rate B applies.

VIS 331 Typography II: Complex Typographic Systems (4-0-3). Explores the relationship between content and form in typographic design. Examines the normative and expressive aspects of typography and how they function in micro publications, complex multi-page and or multilingual publications, wayfinding and information systems, and text for exhibitions supported by reference and analysis of contemporary case studies. Focuses on analyzing content, its meaning, and the intended goals and needs of both the information provider and the information user. Prerequisite/concurrent: VIS 301. Lab/Tech fee rate B applies.

VIS 342 Environment, Experience and Interaction Design (4-0-3). Explores the intersection of visual communication and the built environment through lectures, case-study analysis, and studio projects. Covers wayfinding systems, architectural graphics, signage, dynamic environments, and mapping. Prerequisite: VIS 301. Lab/Tech fee rate B applies.

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 internships. Open to Department of Design students only. Prerequisite/concurrent: DES 360 or MUM 360.

VIS 397 Internship in Visual Communication (0-0-0). Requires a minimum of five weeks (normally 200 hours) of approved professional experience. Requires the work undertaken to be documented in a formal report submitted to the department by the beginning of the following term. Graded as Pass/Fail. Prerequisite: VIS 302 and approval of internship coordinator. Registration fee applies.

VIS 405 Design Studio V (12-0-6). Focuses on the development of topical discipline-specific or inter-/trans-disciplinary design projects. Explores local, regional, and/or global themes through individual and/or collaborative projects. Restricted to visual communication major. Prerequisite: VIS 302.

VIS 406 Design Studio VI (12-0-6). Focuses on the development of a comprehensive communication design project. Addresses the role of research, analysis, and synthesis in professional design practice. Covers aspects of planning, management, and production. Requires an approved student-initiated or faculty-directed capstone/topical project. Restricted to visual communication major. Prerequisite: VIS 405.

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.

Independent Study

Independent study is the umbrella term used to label two types of independent work: independent course and directed study.

Students are allowed to take one independent study. A second independent study could be approved by the student's associate dean for graduation purposes only.

Independent Course (1 to 4 credits). A course listed in the catalog but offered in an independent study format. The course is coded using the course number in the catalog.

Students are not allowed to repeat courses in an independent course format.

Directed Study (1 to 4 credits). An investigation under faculty supervision beyond what is offered in existing courses. Prerequisites: minimum CGPA of 3.00, Junior II standing and consent of the instructor.

Directed study courses are numbered as 396 or 496 courses. The three-letter course prefix reflects the field of study of the course (e.g., independent study courses in architecture are coded as ARC 396 or ARC 496).

For more details, please refer to Registration in Independent Study Courses in the Academic Policies and Regulations section of this catalog.

Special Topic Courses

Special Topic (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: topic specific. Lab/Tech fee may apply.

Special topic courses are numbered as 194, 294, 394 or 494 courses. The three-letter course prefix reflects the field of study of the course.

Special topic courses at the 300 level require sophomore standing or above; 400-level special topic courses are restricted to junior standing and above.

Descriptions of particular special topic courses are made available in the college/school offering the course during registration.

Study Abroad Courses

Study Abroad (1 to 3 credits). Features on-site visits offering the opportunity to experience first-hand regional and international design practices or to engage in site-specific design projects, highlighting particular themes relevant to the specific location. Department permission is required for enrollment and credit. Can be repeated for credit. Prerequisites: topic specific. Lab/Tech fee may apply.

Study abroad courses are numbered as 193, 293, 393 or 493 courses. The three-letter course prefix reflects the field of study of the course.

Descriptions of particular study abroad courses are made available in the college during registration.

College of Arts and Sciences

AMS American Studies

AMS X94 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: topic specific. Lab/Tech fee may apply.

Check the Special Topic Courses section at the end of the College of Arts and Sciences course descriptions for more information on special topics.

ARA Arabic

Arabic Language

ARA 105 Elementary Arabic I (3-2-3). Introduces the Arabic script and its phonology and basic vocabulary and grammar. Builds the foundations of the four language skills (listening, speaking, reading and writing). Forms the first part of a two-semester sequence in elementary Arabic. Limited to non-native speakers of Arabic only. Prerequisite: placement test. Lab/Tech fee rate A applies.

ARA 106 Elementary Arabic II (3-2-3). Focuses on further developing the four language skills introduced in Elementary Arabic I. Expands knowledge of Arabic grammar and vocabulary. Fosters cultural awareness of the Arab world through the use of short texts and situational dialogues. Forms the second part of a two-semester sequence in elementary Arabic. Limited to non-native speakers of Arabic only. Prerequisite: placement test. Lab/Tech fee rate A applies.

ARA 203 Intermediate Arabic I (3-2-3). Develops the four basic language skills (listening, speaking, reading and writing) with emphasis on the oral and written skills, as part of a two-term sequence in intermediate Arabic. Introduces Arab culture through the use of authentic reading materials drawn from different genres, such as literature, history, politics and science. Prerequisite: placement test. Lab/Tech fee rate A applies.

ARA 204 Intermediate Arabic II (3-2-3). Develops the four basic language skills—listening, speaking, reading and writing—as the first part of a two-term sequence in intermediate Arabic. Introduces Arab culture through the use of appropriate reading materials from literary, historical, political and scientific genres. Limited to non-native speakers of Arabic. Prerequisite: ARA 203 or permission of instructor. Lab/Tech fee rate A applies.

ARA 205 The Language of the Qur'an (3-0-3). Introduces the language of the Qur'an from a linguistic perspective. Examines the semantic, syntactic, and rhetorical elements that substantially affect comprehension of the Qur'anic text. Prerequisite: permission of the instructor.

ARA 210 Composition for Native Speakers of Arabic (3-0-3). (Formerly ARA 103). 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). 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.

ARA 308 Arabic Grammar in Use (3-0-3). (In Arabic). Covers traditional Arabic rules of grammar such as parts of speech and case (nominative, accusative, genitive, jussive). Combines traditional with modern approaches to Arabic grammar in use. Prerequisite: permission of instructor.

ARA 309 Business Arabic (3-0-3). 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 210.

ARA 314 Media Arabic (3-0-3). Teaches and practices the language skills necessary to comprehend and contribute to a wide range of Arabic-language media. Prerequisite: ARA 210.

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 404 Working with MSA Texts (3-0-3). Builds on the earlier Arabic courses using materials that are more advanced. Uses Modern Standard Arabic texts (political, economic and social) to develop further the grammatical structures and the four skills practiced in earlier courses. Covers advanced language competency and skills such as skimming, summarizing, paraphrasing and extended writing. Prerequisite: permission of advisor. Prerequisite: ARA 210.

Arabic Literature

ARA 101 Introduction to Arabic Heritage I (3-0-3). (In both Arabic and English). Introduces the intellectual, literary, artistic and cultural contributions of the Arabs to world civilization from pre-Islamic times to the fall of Baghdad in 1258 CE.

ARA 102 Introduction to Arabic Heritage II (3-0-3). (In Arabic and English). Introduces the intellectual, literary, artistic and cultural contributions of the Arabs from to world civilization from the fall of Baghdad in 1258 CE to the end of the 19th century.

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 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. Examines the rise of these fundamentally Western literary forms in the Arab world as a result of the Nahda. Prerequisite: ARA 101.

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. Provides, through a study of selected plays by prominent authors, a picture of the influence of Arabic drama on Arabic literature. Prerequisite: ARA 101.

ARA 209 Modern Arab History through Literature (3-0-3). (Formerly HIS 209). (In English). Introduces students to modern Arab history through literature and links literary production to its historical and cultural context. Helps students become

aware of how history and literature intersect and of the similarities and differences in historical and literary writing. Readings include works of fiction and non-fiction such as novels, short stories, memoirs, biographies and autobiographies. Prerequisite: WRI 102.

ARA 301 Classical Arabic Prose until the end of the Third Century A.H. (3-0-3). Through critical textual analysis, this course tracks the evolution and development of classical Arabic prose from pre-Islamic times until the late second century A.H. after the death of Al Jahiz. Major trends, styles and forms are examined from a complex perspective, combining the evolutionary chronological approach with the artistic and analytical. It assesses the significance of the oratory tradition in early Islamic and looks at the early development of the epistolary genre, which was to become the focus of Arabic prose literature. It also looks at the influence of the Qur'an and Hadith on the development of Arabic prose.

ARA 304 Modern Arabic Poetry (3-0-3). (In Arabic). Surveys the renaissance of Arabic poetry from the 19th century to the present. Prerequisite: ARA 101.

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: ARA 101.

ARA 332 Women Writers from the Gulf (3-0-3). (In Arabic). Studies the development of the female literary tradition in modern Arabian Gulf states. Examines the treatment of gender and other socio-cultural and political themes in selected texts by contemporary Gulf women writers. Prerequisite: ARA 201 or ARA 206 or ARA 207 or ARA 209 or ARA 240.

ARA 350 Literature of the Arabian Gulf (3-0-3). (Formerly ARA 405). (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 201 or ARA 206 or ARA 207 or ARA 209 or ARA 210.

ARA 403 War and Peace in Arabic Literature and Film (3-0-3). (In English). Analyzes the way the twin themes of war and peace have been treated in modern Arabic literature and film by surveying Arabic novels, short stories, poetry, autobiographies and selected feature films. Prerequisite: ENG 203 or ENG 204.

Arab/Islamic Culture and Civilization

ARA 103 Arabic Music in a Historical Context (3-0-3). Studies the historical development of Arabic Classical and folk musical genres from the pre-Islamic to modern times. Examines music in its dialectical relationship with political and social climates of Arab culture.

ARA 240 Arab-Islamic Culture and Civilization (3-0-3). Examines the rise of Islam as a major world civilization. Provides students with an overview of the manifestation of Islamic culture in Arab history through the study of the basic Islamic texts and the contributions of Muslim intellectuals. Prerequisite: ARA 101 or ARA 102.

ARA 302 Arab Identity and Thought (3-0-3). (In English). Examines representative writings by Arab authors dealing with Arab identity formation in relation to or in opposition to other nations and cultures. Prerequisite: WRI 102.

ARA 303 Classical Arab/Islamic Culture (3-0-3). (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 320 Arabs and the West: The Andalusian Symbiosis (3-0-3). (Formerly THM 301). (In English). Introduces students to the cultural symbiosis between Arabs and Europeans during the eight centuries of Arab/Muslim rule in Spain. Examines and reevaluates the literary and cultural developments of that time. Discusses the historical, literary, linguistic and artistic products of Al Andalus. Prerequisite: junior standing.

ARA 380 Sufism: Readings in Islamic Mysticism (3-0-3). Discusses the salient features of the mystical dimension within Islam. Covers the historical background of the tradition and the foremost personalities who played a major role in its development. Examines the primary concepts promoted in Sufism and their manifestation, in both a religious and social context, through the classical works that present both Sufi theory and practice. Prerequisites: ARA 101 or ARA 102, and ENG 203 or ENG 204.

ARA 383 Islamic Law and Jurisprudence (3-0-3). Discusses the incremental evolution of the legal tradition in Islam to contextualize the juristic contributions of the foremost personalities who played a major role in its genesis. Examines the sources of Islamic law (*al-masadir*), its evidence (*al-adilla*), its guiding principles (*al-usul*), its jurisprudential maxims (*al-qawa'id*) and its underlying objectives (*al-maqasid*), which underpin the structure of Islamic legal theory. Prerequisites: ARA 240, and ENG 203 or ENG 204.

ARA 385 Islamic Texts in Translation (3-0-3). (In English). Explores the development of the Arab-Islamic intellectual tradition and traces the genesis of religious learning by examining the influence of the Islam's primary sacred texts and how they shaped the religion's intellectual history. Discusses the literary production of this evolution by selectively examining a range of Islamic texts from a number of disciplines such as Islamic jurisprudence (*fiqh*), scholastic theology (*kalam*) Arab philosophy (*falsafa*) and Islamic spirituality and mysticism (*tazkiyat al-nafs*). Prerequisite: ENG 203 or ENG 204.

ARA 402 Qur'anic Studies (3-0-3). (In English). Aims to develop the understanding of major topics in Qur'anic studies such as the revelation of the Qur'an, the characteristic features of Meccan and Medinan revelations, the notion of abrogation in the Qur'an, circumstances of revelation and parables in the Qur'an and their moral lessons. Provides students the opportunity to study Qur'anic exegesis and to explore the Qur'an's various themes and theological, spiritual and legal concepts. Requires a basic understanding of Qur'anic script. Prerequisites: ARA 101, and ENG 203 or ENG 204.

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. Gives 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. Gives 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 Human Biology (3-0-3). Surveys biological

concepts with a strong emphasis on human biology. Includes the following topics: 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 Introduction to Anatomy and Physiology (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. Discusses current literature on some human diseases resulting from dysfunction. Prerequisite: BIO 101.

BIO 251 Ecology (2-3-3). Covers the general principles of ecology with an emphasis on desert ecology and conservation. Includes case studies that illustrate important ecological principles. Includes laboratory excises that emphasize basic field ecology techniques, experimental design, data collection, modeling and analysis. Requires the completion of two professional-quality written reports. Not open to students in the BSB program who have not yet met the program's formal admission requirements. Prerequisite: BIO 102. Lab/Tech fee rate A applies.

BIO 260 Genetics and Molecular Biology (3-3-4). Introduces the general principles of genetics from Mendelian to modern molecular genetics. Covers DNA replication, transcription, translation, mutations, gene regulation, quantitative genetics, genetic engineering and genomics. Includes genetic applications in medicine, agriculture and law enforcement. Illustrates general principles discussed in class with laboratory experiments using modern equipment. Prerequisite: BIO 102. Lab/Tech fee rate B applies.

BIO 310 General Physiology (3-3-4). Explores the general physiology of multicellular organisms and emphasizes the mechanisms that coordinate activities of cells and tissues within these multicellular organisms. Assists in developing an understanding of cellular and biochemical processes fundamental to the survival of living organisms. Relates cellular processes to the organismal level and contrasts the differences in these processes as they occur in different organisms. Introduces examples of different organisms to illustrate various physiological principles. Prerequisites: BIO 102 and junior standing. Lab/Tech fee rate A applies.

BIO 330 Ecosystems Management (3-0-3). Focuses on the policies of ecosystems management from a scientific and natural approach. Gives special attention 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. Reviews management practices in light of current scientific and sociobiological understanding of biodiversity, conservation and sustainability. Prerequisite: BIO 251.

BIO 332 Cell Biology (3-0-3). Includes all of the concepts related to the cell, the "unit of life." Focuses on the metabolic pathways of the cell as they relate to the structure and function of cell organelles and other anatomical components. Covers macromolecules of the cell, biosynthesis, bioenergetics, metabolic regulatory mechanisms, membrane structure and transport, intracellular compartments and transport, cytoskeletal systems, cellular movement, cell communication and signal transduction mechanisms. Not open to students in the BSB program who have not yet met the program's formal admission requirements. Prerequisite: BIO 260.

BIO 335 Microbiology (3-3-4). Covers the biology of microorganisms (viruses, bacteria, fungi and helminthes). Emphasizes the role they play in our lives, especially as related to epidemiology, health, prevention of infection and identification. Teaches students 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). 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 421 Marine Environments (2-3-3). Focuses on interactions between biological, chemical and physical processes in marine environments. Places strong emphasis on marine ecology and local fauna of the Gulf region. Includes the following topics: 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: 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. Familiarizes them with the proper taxonomy and identification of species, and provides knowledge about the environment in which they grow. Emphasizes 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.

BIO 481 Cellular and Molecular Immunology (3-0-3). Covers basic principles of cellular and molecular immunology with special emphasis on development of the immune system, innate and adaptive immunity, cells and tissues of the immune system, antibody structure and synthesis, complement pathways, antigen-antibody reactions, antigen presentation, humoral and cell-mediated immune responses, and transplantation. Discusses major topics related to diseases and conditions such as allergies, autoimmune diseases, and immunodeficiency. Prerequisite: BIO 335.

BIO 491 Senior Research Project I (0-6-3). Requires students to select a biology problem for independent research project. Upon approval of the department, the student begins with a literature search then follows up with laboratory studies. The results are then presented in a seminar as well as thesis form. Prerequisite: senior standing. Lab/Tech fee rate B applies.

BIO 492 Senior Research Project II (0-6-3). Continuation of BIO 491. Requires students to select a new or related biology problem for independent research project. Upon approval of the department, the student begins with a literature search then follows up with laboratory studies. The results are then presented in a seminar as well as thesis form. Prerequisite: senior standing. Lab/Tech fee rate B applies.

CHM Chemistry

CHM 101 General Chemistry I (3-3-4). Covers the fundamental chemical principles, concepts and laws. Includes the following topics: 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. Includes laboratory experiments illustrating principles discussed in the course. Prerequisite: CHM 101. Lab/Tech fee rate A applies.

CHM 104 Basics of Chemistry (3-0-3). Introduces the fundamental chemical principles, concepts and laws. Includes atomic theory, atomic structure, periodicity; chemical bonding reaction stoichiometry and chemical accounting; physical states and intermolecular forces; gas laws and the kinetic-molecular theory; acids and bases, redox reactions; nuclear organic and polymer chemistry. Not open to science and engineering students.

CHM 105 Chemistry and Modern Society (3-0-3). Introduces the impact of chemistry on the environment and its fundamental role in everyday activities. Covers the following topics: chemistry of soil agriculture and soil pollution, air and water, wastewater treatment; energy and its renewable sources; food and health, vitamins and nutrients; drugs, pesticides, detergents; chemistry in the kitchen; toxins and poisons; forensic chemistry, polymer chemistry; perfumes and cosmetics. Prerequisite: CHM 101 or CHM 104.

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. Includes the following topics: alkanes and cycloalkanes; alkenes; alkynes; biologically active acetylenic compounds; electrophilic and nucleophilic reactions; resonance; alkyl halides; and SN1, SN2, E1 and E2 mechanisms. Not open to students in the BSB, BSC and BSES programs who have not yet met the program's formal admission requirements. 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. Gives special attention to mechanistic aspects. Prerequisite: CHM 215.

CHM 217 Organic Chemistry Laboratory I (0-4-1). Includes experiments on purification, separation and identification techniques, as well as synthesis of various organic compounds. Prerequisite: CHM 215. Lab/Tech fee rate A applies.

CHM 218 Organic Chemistry Laboratory II (0-4-1). 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 221 Basic Concepts of Inorganic Chemistry (3-0-3). Introduces basic concepts of inorganic chemistry. Covers atomic structure and the periodic table; molecular models, Lewis structure, electron pair repulsion model, hybridization and its use in explaining molecular properties; symmetry, point groups, electronic transitions and molecular vibrations; and molecular orbital theory of homonuclear and heteronuclear diatomic molecules and some triatomic molecules. Includes applications of inorganic compounds in environmental systems. Prerequisite: CHM 102.

CHM 241 Quantitative Analysis (2-3-3). Introduces the basic theories underlying analytical methods of chemical analysis. Covers fundamentals and applications of electrochemistry; complexiметric titrations; spectrophotometry; gravimetric and combustion analysis. Gives special attention to analysis of environmental samples. The laboratory component deals with a variety of analytical techniques. Not open to students in the BSC and BSES programs who have not yet met the program's formal admission requirements. Prerequisite: CHM 102.

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. Includes the following topics: 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: CHM 221. Lab/Tech fee rate A applies.

CHM 330 Physical Chemistry I (3-0-3). Investigates in depth the basic concepts of thermodynamics. Analyzes the properties of gases 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. Emphasizes the theory of reaction rates and methods of handling kinetic data. Examines the conventions, underlying theory and practical applications of electrochemical cells. Prerequisite: CHE 303 or CHM 330.

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 (1-6-3). Comprises individually performed experiments. Includes topics such as thermodynamics, kinetics, electrochemistry, surface chemistry and transport phenomena. Requires submission of an original report after each experiment, including sample calculations and error analysis. Prerequisite/concurrent: CHM 331. Lab/Tech fee rate B applies.

CHM 345 Instrumental Analysis (2-3-3). (Formerly CHM 445). Introduces modern instrumental methods of analysis utilized by scientists and engineers. Provides an understanding of the principles, laws and operation of modern instrumentation. Reviews spectroscopic methods: mass, molecular, optical, flame and plasma. Surveys electrochemical, analytical and chromatographic techniques. Prerequisite/concurrent: CHM 241. Lab/Tech fee rate B applies.

CHM 350 Biochemistry (3-0-3). Introduces the fundamental principles of biochemistry: protein structure and function; carbohydrates; lipids and the structure of biological membranes; enzymatic catalysis and regulations; and metabolism of carbohydrates, lipids and amino acids. Discusses the vital relationship between structure and function of major organic macromolecules. Surveys fundamental nucleic acid and protein biochemistry topics such as DNA replication,

transcription and translation. Prerequisite: CHM 215.

CHM 415 Spectroscopy in Organic Chemistry (3-0-3). Deals with modern methods of structure determination employing spectroscopic techniques and stereochemistry. Includes the following topics: 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 491 Senior Research Project I (0-6-3). Requires students to select a chemistry problem for independent research project. Upon approval of the department, the student begins with a literature search then follows up with laboratory studies. The results are then presented in a seminar as well as thesis form. Prerequisite: senior standing. Lab/Tech fee rate B applies.

CHM 492 Senior Research Project II (0-6-3). Continuation of CHM 491. Requires students to select a new or related chemistry problem for independent research project. Upon approval of the department, the student begins with a literature search then follows up with laboratory studies. The results are then presented in a seminar as well as thesis form. Prerequisite: senior standing. Lab/Tech fee rate B applies.

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. Gives special attention to issues of current educational concern including gender and educational values. Prerequisite: ENG 203 or ENG 204.

EDU 220 Introduction to Teaching (3-0-3). Introduces the basic issues important to the teaching profession. Covers effective teaching practices such as planning, classroom organization, behavior management and use of technology in the classroom. Explores other issues in teaching, including motivation, leadership, and multicultural and international education. Prerequisite: ENG 203 or ENG 204.

EDU 225 Globalization and Education (3-0-3). Introduces globalization in relation to schooling and educational issues. Explores ways that globalization has been problematized and researched in educational literature. Examines globalization from an educational stance and explores the macro and micro elements of a globalized economy. Prerequisite: ENG 203 or ENG 204.

EDU 307 Teaching and Learning in an Electronic Environment (3-0-3). Focuses on the prominent research and best practices trends in content and language learning, as well as the social and individual factors that affect teaching processes in an electronic environment. Explores how research and best practices in the area of e-learning can be utilized in different classroom situations. Prerequisite: ENG 203 or ENG 204.

EDU 309 Classroom Discourse (3-0-3). Focuses on patterns of language use in a variety of classrooms. Examines how these patterns can affect the equality or inequality of educational and learning opportunities. Analyzes discourse from the perspective of teaching practitioners in different professional settings. Prerequisite: ENG 223 or ENG 224 or ENG 234.

EDU 315 Emotional Intelligence (3-0-3). Examines theoretical perspectives of teaching Emotional Intelligence (EQ) within a multicultural context. Focuses on the ability to perceive and understand personal emotions and those of others to improve academic performance and helps to develop intra and interpersonal relationships. Examines ways to develop emotional intelligence (EQ) at both the personal and professional levels. Prerequisite: ENG 203 or ENG 204.

EDU 319 Teaching and Learning in a Foreign Language (3-0-3). Discusses various theoretical models dealing with teaching in a foreign language to children and adolescents. Examines the processes involved when reading and learning in a foreign language as well as effective instructional strategies based on current research in the field. Prerequisite: EDU 210 or EDU 220.

EDU 325 Methodology and Materials Development (3-0-3). Introduces students to pedagogical approaches, techniques and methodologies that can be useful in various educational settings. Offers students the opportunity to evaluate and adapt commercially available textbooks as well as to create their own discipline-specific teaching materials. Prerequisite: EDU 210 or EDU 220.

EDU 329 Curriculum Development (3-0-3). Introduces students to the basic principles of effective assessment and course design. Covers evaluating learner centered/communicative curriculum, setting goals and objectives, analyzing resources, writing syllabi and conducting students' needs analyses. Prerequisite: EDU 210 or EDU 220.

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. Requires students to 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. Requires students to 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. Registration fee applies.

ENG 208 Public Speaking (3-0-3). (Formerly COM 208). Introduces students to the art of public speaking, debate and argument. Helps 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. Covers grammar and appropriate usage, oral vs. written language, formal vs. informal language, standard vs. non-standard languages, language universals and language typology. Prerequisite: ENG 203 or ENG 204.

ENG 224 English Grammar (3-0-3). Focuses on the fundamental rules of English grammar as they relate to sentence structure and function. Explores different systems of analysis, including an introduction to the analysis of texts. Prerequisite: ENG 203 or ENG 204.

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: ENG 203 or ENG 204.

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. Prepares students to manage the process of designing documents, from the planning stage through final production. Helps 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. Explores definitions of language, dialect, diglossia and multilingualism. Prerequisite: ENG 203 or ENG 204.

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 321 Cultures in Contact (3-0-3). Introduces the ways in which language and culture influence human interaction in a variety of cultural and interpersonal contexts. Covers a broad range of topics, including perception differences, worldview, identity, verbal and nonverbal styles of communication, and the effect of bias and conflicting value systems on cross-cultural communication. 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. Examines inflectional and derivational rules in language and 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 203 or ENG 204.

ENG 334 Meaning in Language (3-0-3). Introduces various approaches to the study of meaning in language, examining linguistic reference and truth conditions of linguistic signs and expressions. Explores inferential strategies, presuppositions and speech acts in human communication, and situational context determining language use. Prerequisite: ENG 223 or ENG 224 or ENG 234.

ENG 372 English and Globalization (3-0-3). Discusses the role of English in globalization processes. Examines how the use of global English in education, the workplace, and society transforms local cultures and affects national languages and identities. Prerequisite: ENG 203 or ENG 204.

ENG 382 Language Variation in Media (3-0-3). Studies texts from different media types to examine variation in English based on text-type, genre, register, and ideological and social backgrounds. Initiates students into corpus-based research methodologies. Prerequisite: ENG 223 or ENG 224 or ENG 234.

ENG 385 Language and Gender (3-0-3). Examines the reasons behind the differences in men's and women's talk. Explores how categories of language influence one's belief about one's self and others and the ways in which gendered language use relates to power and dominance in society. Prerequisite: ENG 223 or ENG 224 or ENG 234.

ENG 401 Advanced English Grammar (3-0-3). Provides an intensive investigation into contemporary English sentence structure, function and meaning. Analyzes how structure types and sentence relationships are realized in various texts and genres. Discusses issues relative to descriptive/prescriptive approaches to language. Prerequisite: ENG 223 or ENG 224.

ENG 405 Discourse Analysis (3-0-3). Looks at the interpretation of meaning situated beyond the level of the sentence. Examines the role of notions such as background knowledge, cohesion and coherence in texts and conversational interaction in order to achieve a better understanding of how language works as a communication medium. Prerequisite: ENG 223 or ENG 224.

ENG 490 Senior Research Project (3-0-3). Focuses on the study of a literary movement/literary writer or qualitative/quantitative investigation of a linguistics issue of the student's and professor's choice. Includes the writing of a long critical paper/creative work/response to a specific literary problem, or reporting research findings in a journal article-length paper. Prerequisite: senior standing.

ENG 495 Seminar in English (3-0-3). Focuses on various topics in English language or English literature. Prerequisite: junior standing.

English Literature

ENG 210 Introduction to Literature (3-0-3). Focuses on the study of fiction, poetry and drama and shows how writers use the basic elements of their craft to convey insights into human nature. 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. Studies 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 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 210 or ENG 214 or ENG 215 or ENG 310 or ENG 311.

ENG 301 Creative Writing (3-0-3). (Formerly ENG 201). Introduces the basic elements of writing and evaluating poetry, fiction and creative non-fiction. Requires the submission of at least 20 pages of material suitable for inclusion in the student literary magazine. Prerequisite: ENG 203 or ENG 204.

ENG 303 Shakespeare's Plays (3-0-3). Examines works by Shakespeare. Covers Shakespeare's histories, romances, comedies and tragedies within the context of the politics, history and culture of his time. Prerequisite: ENG 203 or ENG 204.

ENG 308 British Literature Until 1600 (3-0-3). Surveys English and related literatures from the Anglo-Saxon period through Shakespeare. Studies texts in the context of their social, political and historical influences. Prerequisite: ENG 203 or ENG 204.

ENG 309 British Literature: 1600–1800 (3-0-3). Examines the transition in literature and thought from the Jacobean Age to the Enlightenment and the beginning of Romanticism. Prerequisite: ENG 203 or ENG 204.

ENG 310 Nineteenth Century British Literature (3-0-3). Surveys British poetry, prose and drama in the 19th century. Studies representative texts in relationship to their social, political and historical background. Prerequisite: ENG 203 or ENG 204.

ENG 311 Twentieth Century British Literature (3-0-3). Focuses on 20th century British poetry and prose, examining the causes of the rise of modernism and the subsequent development of post-modernism, as well as the persistence of traditional forms such as realism and fantasy. 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 203 or ENG 204.

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 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). Uses literary works and their cinematic adaptations to introduce 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 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 210 or ENG 215 or ENG 308 or ENG 309.

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 210 or ENG 215 or ENG 310 or ENG 311.

ENG 490 Senior Research Project (3-0-3). Focuses on the study of a literary movement/literary writer or qualitative/quantitative investigation of a linguistics issue of the student's and professor's choice. Includes the writing of a long critical paper/creative work/response to a specific literary problem, or reporting research findings in a journal article-length paper. Prerequisite: senior standing.

ENG 495 Seminar in English (3-0-3). Focuses on various topics in English language or English literature. Prerequisite: junior standing.

ENV Environmental Science

ENV 100 Principles of Environmental Science (3-0-3). Introduces the basic principles of environmental science. Explores the scientific method, structure of matter, energy principles, ecological concepts, organism interactions, communities and ecosystems, population dynamics, energy sources, biodiversity, human activities and the environment, managed ecosystems, water management, air quality and solid waste management. Not open to engineering and science students.

ENV 201 Fundamentals of Environmental Science (3-0-3). (Formerly ENV 101). Combines ideas and information from chemical, physical and biological disciplines. Provides information on how nature works and how environmental systems are interconnected. Employs scientific laws, principles and concepts to help understand environmental and resource problems and their possible solutions. Makes connections between natural systems and environmental issues using different physical science perspectives. Presents information that will ultimately be related to real-world environmental problems. Prerequisite/concurrent: CHM 102.

ENV 252 Environmental Chemistry (3-0-3). Investigates in detail the interaction between natural systems and human activity. Emphasizes the following topics: 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. Explores local and regional pollution problems in detail. Prerequisite: CHM 102.

ENV 261 Physical Geography (3-0-3). Covers the physical aspects of the geographic environment. Includes topics such as 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: CHM 101 or PHY 101.

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. Includes topics such as population, pollution, mass transportation systems and climate modeling. Prerequisites: ENV 201 and MTH 104.

ENV 352 Environmental Toxicology (3-0-3). Combines principles of chemistry, biochemistry, biology and environmental science. Discusses 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. Covers briefly principles of risk assessment and risk management of toxicants. Prerequisites: CHM 215 and ENV 201.

ENV 411 Environmental Assessment and Management (3-0-3). Deals with the impact of human activities on the ecosystem. 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. Discusses ethical and legal dimensions of a number of environmental problems. Emphasizes local and regional issues. Students cannot obtain credit for both ENV 411 and ENV 412. Prerequisite: ENV 201.

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. Discusses ethical and legal dimensions of a number of environmental problems with emphasis on regional case studies. Students cannot obtain credit for both ENV 411 and ENV 412. Prerequisites: ENV 100 and junior standing.

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. Covers topics such as mineralogy, soil solution, ion exchange/sorption, water acidity, wetlands and redox processes in aerobic soils and nitrogen transformations. Prerequisite: ENV 252.

ENV 453 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. Stresses the interrelationship of these components and their importance to ecosystems along with the difficulties in environmental sampling. Provides standard methods for the examination of environmental samples and applies them in practical application for all compartments of the environment. Includes field trips to collect samples for characterization of water and soil quality in local areas. Prerequisites: CHM 345, ENV 201 and STA 201. Lab/Tech fee rate A applies.

ENV 491 Senior Research Project I (0-6-3). Investigates in depth an environmental problem within the context of an independent research project. Involves literature search followed by field and laboratory studies. Evaluates scientific, ethical and legal dimensions of the problem investigated. Requires attendance and commentary on related seminars and tests on assigned topics as well as the presentation of results in both oral and thesis formats. Prerequisite: senior standing. Lab/Tech fee rate B applies.

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. Lab/Tech fee rate B applies.

ENV 497 Internship in Environmental Science (0-0-0). Requires a minimum of five weeks of approved applied work in environmental aspects with a governmental, municipal or private organization. Graded as Pass/Fail. Prerequisites: Junior II standing and approval of internship coordinator. Registration fee applies.

GEO Geography

GEO 201 World Cultural Geography (3-0-3). Provides a broad survey of the cultural geography of the world. Addresses cultural systems, agriculture and natural resources, urbanization, industrialization, development and political geography, among other topics. Prerequisite/concurrent: WRI 102.

HIS History

HIS 201 Western Cultural Studies I (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.

HIS 202 Western Cultural Studies II (3-0-3). Continues the introduction of students to the basic doctrines and concepts of Western civilization. Covers reading material from modern and contemporary authors focusing on selections from the great books that made Western civilization what it is. Deals with readings that cover theology, politics and literature. Prerequisite: WRI 102.

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. 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. Devotes particular attention 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. Aims to examine the lives, achievements, contributions and position of women historically, as well as 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 210 The Making of Modern Europe (3-0-3). Introduces students to modern European history by exploring the key events and trends that have shaped Europe from 1789 to the present. Investigates the French Revolution, the Industrial Revolution, European imperialism, the development of nationalism, the First World War, the Russian Revolution, the rise of fascism, the Second World War, the Cold War, the collapse of the Soviet Union and development of the European Union. The course will also focus on the key social, demographic and cultural trends that have redefined European life in the 19th and 20th centuries. Prerequisite: WRI 102.

HIS 212 Modern Japanese History (3-0-3). Surveys the history of Japan from its beginnings to today. Briefly outlines Japan's earliest times, and then focuses on the period after the mid-1500s and the first contact with Europeans, the Edo Era (1600–1868), with major discussion of the history of economic, social, cultural, political and foreign policy developments from 1868 to the present day. Prerequisite: WRI 102.

HIS 215 The Making of Modern Southeast Asia (3-0-3). Introduces the history of Modern Southeast Asia (Indonesia, Thailand, Singapore, Malaysia, Vietnam, Cambodia, the Philippines, Myanmar and Laos). Explores the impact of colonialism upon the region by investigating not only the role of imperial powers, but also the ways in which colonial administrations affected indigenous populations. Focuses on the emergence of nationalism in the 20th century and its role in anti-colonial movements. Examines regional development in the context of the Cold War. Exhibits the success of ASEAN in wake of the Asia crisis of 1997. 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. Covers topics such as 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. 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 240 Introduction to American History (3-0-3). Surveys the history of North America with a particular emphasis on the United States of America from the first European settlements to the present day. Covers interactions with Native Americans, slavery, the foundation of government, the Civil War and its aftermath, immigration, the emergence of the US as an industrial power, the US' role as an international power in the 20th century, social movements including those for civil and women's rights, the Cold War and its consequences, and the present situation of the US in the world. Prerequisite: WRI 102.

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. 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. 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 in the first half of the course. Surveys the individual histories of the six Gulf Arab states in the second half of the course. Prerequisites: WRI 102 and junior standing.

HIS 311 America and the Middle East (3-0-3). Traces the connections between the United States and the Arab and Persian world from the first official contacts between the "Barbary Pirates" and the Jefferson Administration to the present. Studies a wide variety of material, from politics, immigration and war to art, literature and film. Requires a research paper on the topic of the student's choice as a key component of the course. Functions as a seminar. Prerequisite: HIS 204 or HIS 206 or HIS 240.

HIS 312 Modern Iranian History (3-0-3). Introduces students to the history of modern Iran in the 19th and 20th centuries. Focuses on the political and social transformation of Iran under the influence of European imperialism and popular protest movements. Examines the roles of constitutionalism, modernity and nationalism in the development of the Qajar and Pahlavi monarchies, and the Iranian Revolution of 1978–1979. Prerequisite: ENG 203 or ENG 204.

HIS 330 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. Investigates the reasons why different groups and individuals chose to either resist or collaborate in the Second World War and the Algerian War of Independence. Uses films, original documents, novels and academic writing to study 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. 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 340 History of the Family (3-0-3). Explores the transformation of family life and family structures in a specific historical context. Examines the family as an economic, political and social entity, and as a gendered network. Analyzes the relationship between family/kinship structures and socio-economic/socio-political developments. Covers key concepts and different methodological approaches employed in the field of family history. Prerequisite: HIS 201 or HIS 202 or HIS 204 or HIS 205 or HIS 206 or HIS 208 or HIS 210 or HIS 212 or HIS 215 or HIS 221 or HIS 240 or INS 205 or WST 240.

INS International Studies

INS 120 Global Problems (3-0-3). Introduces disciplines associated with international studies (e.g., political science, geography, anthropology, sociology, economics, history and philosophy) through the study of global issues. Employs particular global problems as case studies in order to explore different disciplinary and theoretical approaches. Addresses the impact of particular global problems on both international affairs and on local populations and examines national, regional and international responses to global issues. Restricted to students with less than 45 credit hours. Prerequisite: WRI 101.

INS 205 World Cultures (3-0-3). Explores the varied cultures of the world. Helps students acquire an appreciation for the critical importance of societal culture as a tool of human survival. 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.

INS 290 Research Practicum I (3-0-3). 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 Pass/Fail. Prerequisite: WRI 102.

INS 291 Research Practicum II (1 to 3 credits). Continuation of INS 290. 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 Pass/Fail. Prerequisite: WRI 102.

INS 301 Globalization (3-0-3). (Formerly POL 301). Examines the process of globalization, which is well underway at all levels of society with sociopolitical impacts on all cultures. Introduces the globalization of economic systems, multinational organizations, technological, consumerism and worldwide communication systems. Prerequisite: POL 202.

INS 310 The Middle East Meets the West (3-0-3). Examines issues pertaining to the Middle East and the West, including the history, religion, foreign policy, tensions, perceptions and other relevant issues. Explores cultural commonalities and differences. Includes formal exchanges with student groups from the United States, Europe and the Middle East. Prerequisite: GEO 201 or HIS 206 or INS 205 or POL 201 or SOC 201.

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. 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: ECO 201, ECO 202 and POL 202.

INS 325 Imperialism (3-0-3). Explores the origins, development and consequences of modern imperialism. Surveys the key patterns that have defined the growth and expansion of modern empires. Uses case studies of concrete historical situations to provide students with a detailed look at how empires grow and develop. Exhibits the development of imperial and colonial cultures in order to examine the durability of imperial orders. Investigates the decline and end of empires and the rise of nation states. Investigates the disparities between different patterns of decolonization and their respective legacies. Prerequisite: HIS 205 or HIS 206 or POL 201.

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. 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. 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. Explores themes such as 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: ECO 201, ECO 202 and POL 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. Places special emphasis 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 INS 301 or INS 322 or POL 300 or POL 304.

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. Gives special attention 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 490 Senior Research Project (3-0-3). Focuses an independent capstone research project involving global issues or problems, in conjunction with an academic supervisor. Considers theoretical approaches in disciplines related to the Bachelor of Arts in International Studies program. Restricted to international studies students. Prerequisites: senior standing and INS 322.

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. Graded as Pass/Fail. Prerequisite: Junior II standing and approval of internship coordinator. Registration fee applies.

MCM Mass Communication

MCM 100 Introduction to Digital Media Design (3-1-3). Introduces graphic design as a form of visual communication through the examination of type, image, form and color. Explores design processes using digital design software. Explains the various elements and principles of design and how these fit together to create good composition. Covers

aspects of advertising and public relations design and layout. 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. Discusses comparisons and relationships between visual arts, music, and oral, written and technological media. 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 200 Intermediate Digital Media Design for Mass Communication (3-1-3). Stresses intermediate creative design problem-solving techniques as applied to single and multiple page layout as well as color and typography. Builds on the processes in previous courses, enabling students to more thoroughly analyze and question problems while exploring a range of design solutions. Prerequisites: MCM 100 and MCM 150. Lab/Tech fee rate A applies.

MCM 203 Effective Relational and Presentational Communication Skills (3-0-3). Examines theories and practices relevant to acquiring effective skills in relationship building and maintenance as well as in presenting information accurately and persuasively. Examines how personal and situational factors influence both interpersonal and public communication. Prerequisite: ENG 203 or ENG 204.

MCM 222 Integrated Marketing Communication (3-0-3). Explores the essential issues shaping contemporary communication practice including direct-response advertising, media technology, communication planning, sales, public relations and event marketing. Prerequisite: MCM 150; prerequisite/concurrent: MKT 201.

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 231 Writing for Mass Communication (3-0-3). Introduces students to writing in a professional mass media environment and to the specific forms of writing used in the mass media. Includes news stories for print and broadcast, advertising copy for print and broadcast, and various types of writing for public relations. Prerequisites: MCM 100 and MCM 150. Lab/Tech fee rate A applies.

MCM 241 Media and Professional Presentations (3-0-3). Explores the range of presentation techniques needed by advertising, public relations and other media professionals. Includes advanced oral presentation skills, scripting and representational technology. Prerequisite: MCM 231.

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. Prerequisite: MCM 231; prerequisite/concurrent: MKT 201.

MCM 265 Principles of Public Relations (3-0-3). (Formerly MCM 227). 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 231.

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. Discusses the history of journalism, from the penny press, yellow journalism and muckraking to modern responsible journalism and tabloid journalism. Discusses a variety of legal and ethical journalistic concerns. Covers writing techniques for newspapers, radio and television broadcast news. Prerequisite: MCM 231.

MCM 277 Video Editing for Journalism (3-1-3). Covers the use of professional editing software. Explores techniques that include the use of supers, titles, CG, news and photos, and special effects such as blue screen techniques, basic editing functions such as of multi-track audio and video layering, audio monitoring. Examines and employs additional skills such as adding voice over and voice over/sound on tape to a series of video clips, and editing documentary shorts, which can require narration and music, utilizing a variety of new media output formats. Prerequisite concurrent: MCM 281. Lab/Tech fee rate A applies.

MCM 281 Principles of Media Production and Performance (3-1-3). Surveys a variety of media production and performance techniques. Presents media elements, such as concept development, writing, supervision, performance, scheduling and execution of a variety of media formats. Discusses background information on the history of specific media, media theory and aesthetics. Prerequisite/concurrent: MCM 231. Lab/Tech fee rate A applies.

MCM 300 Mass Communication Research Methods (3-0-3). (Formerly MCM 280). Introduces students to social science research methods within a mass communication context. 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 225, MCM 231, and STA 202 or QBA 201 or NGN 111.

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. Requires students to 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).Provides an overview of world cultural literacy and shows how cultures influence communication. Enables the acquisition of knowledge about the interrelation of the humanities, music, mythology, art, theater, history and science. Prerequisite: ENG 203 or ENG 204.

MCM 321 Mass Communication Law and 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 255 or MCM 265 or MCM 275.

MCM 325 Cyberspace and Arab Media (3-0-3). Provides an updated overview of Arab media and new media industry. Explores the Internet with respect to cyberspace theories and research. Examines content practices in the context of the Arab world as well as Internet research studies. Discusses issues such as the economics, culture,

social and politics of new media. Prerequisite: MCM 225.

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. Examines the role the media play in creating "the global village." 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 (3-1-3). Explores issues, strategies, theories and practices in writing and editing advertising messages. Teaches the technical aspects of advertising: writing advertising copy and designing effective layouts based on clients' strategies, and elements of reproduction mechanicals. Emphasizes the use of new technologies and design parameters to produce effective advertising. Considers audience differentiation, media strategy and creative strategy. Employs persuasive attention-getting techniques. Prerequisite: MCM 255. Lab/Tech fee rate A applies.

MCM 353 Direct Response Advertising (3-0-3). Introduces students to marketing communication that achieves an action-oriented objective as a result of the advertising message sent through a number of media, including telemarketing, direct mail and point-of-purchase. Prerequisite: MCM 255. Lab/Tech fee rate A applies.

MCM 354 The Internet and Marketing Communication (3-0-3). Introduces students to online marketing communication while bringing attention to the various strategies related to interactive advertising and communication. Explores issues related to research on the Internet, online marketing, e-mail marketing, web casting and privacy. 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 255 or MCM 265 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 265.

MCM 369 Public Relations Writing (3-0-3). (Formerly MCM 269). Introduces students to the essentials of how to prepare and present written material for use in the practice of public relations. Teaches students the techniques needed for creating effective written communication at a standard generally expected of persons entering into the practice of public relations. Prerequisite: MCM 265.

MCM 370 Broadcast Journalism (3-1-3). (Formerly MCM 306). Introduces the basic principles of broadcast journalism as it occurs in radio, TV and online (webcasting). Includes discussions of technological, ethical and legal issues affecting broadcast news, as well as lab/studio practice in writing and producing broadcast reels. Prerequisite: MCM 275. Lab/Tech fee rate A applies.

MCM 371 News Writing (3-0-3). Builds students' expertise in the writing of news for newspapers and magazines. Gives students 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 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. Emphasizes narrative, descriptive, analytic and storytelling skills. Includes one-on-one instructor-student conferences that stress story building and revision techniques. Prerequisite: 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. Emphasizes a number of editing styles and employs appropriate editing symbols. 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. Requires access to a digital or 35mm camera. Prerequisite: MCM 255 or MCM 265 or MCM 275. Lab/Tech fee rate B applies.

MCM 379 Journalism in the Arab Countries (3-0-3). Provides an overview of the main issues and practices of the news industry in Arab Countries. Examines recent developments in journalism, as well as the main actors, news organization and channels in the pan-Arab news media. Tackles several factors that affect news making, including political, social, and cultural influences on Arab news and reporting. Focuses on the reporting of war and political conflict, women and development issues, and human rights in the region. Combines both theoretical and professional approaches to the practice of journalism in the Arab region as approached and practiced by Arab journalists, news producers, news media directors and owners. Prerequisite: MCM 225.

MCM 380 Persuasive Communication (3-0-3). Teaches students a comprehensive and critical treatment of theory and research in persuasion. Discusses 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. Prerequisite: MCM 255 or MCM 265 or MCM 275.

MCM 383 Organizational Communication and Leadership (3-0-3). (Formerly MCM 363). 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 255 or MCM 265 or MCM 275.

MCM 392 Women and Film (3-0-3). Examines issues pertaining to women and film such as, but not limited to, history of women's cinema, prominent women directors and genres, and social functions of film as it pertains to the role of women in society. Prerequisite: ENG 203 or ENG 204.

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 401 Media 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. Builds students' proficiency in the art of copy preparation, typography, graphic design, layout and desktop publishing. Prerequisite: MCM 255 or MCM 265 or MCM 275. Lab/Tech fee rate A applies.

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. Focuses on project management as well as discussions on audience/marketing and advertising revenue. Covers 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. Emphasizes practical knowledge of basic video and cinema production techniques from the viewpoint of the producer. Requires students to develop and write multiple camera scripts in a variety of formats such as live news, game show and drama. Focuses on a variety of producing skills regarding supervision of crew and talent. Prerequisite: MCM 281 or FLM 310. Lab/Tech fee rate B applies.

MCM 431 Strategic Communications Research (3-0-3). (Formerly MCM 451). 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. Emphasizes designing and developing research projects. Prerequisites: MCM 255 or MCM 265 or MCM 275, 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. Teaches students 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. Emphasizes advanced copywriting and layout and production concerns for print, broadcast and new media. Requires students to 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. Prerequisites: MCM 351 and MCM 453.

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 361.

MCM 465 Public Relations Campaigns (3-0-3). Functions as a full-service public relations firm, requiring students to embark on a semester-long PR project that uses all the relevant skills gained in other MCM courses. Prerequisites: MCM 361 and MCM 369.

MCM 467 Public Relations for Non-Profit Organizations (3-0-3). Explores fund-raising techniques, alumni relations and foundation management. Prerequisite: MCM 361.

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. Prerequisite: MCM 370. 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. Emphasizes immersion or in-depth reporting; students spend a great deal of time with a subject to develop skills in storytelling and organization. Prerequisite: MCM 371.

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 371.

MCM 473 Writing for Multimedia (3-0-3). Offers advanced students hands-on experience with writing and producing shorter-form texts for electronic media. Studies comparative perspectives of writing for radio, television, Internet and CD-ROM texts. Covers generating ideas, writing proposals, research and development of topics, planning and employing the stylistic conventions of professional writers in the field. Teaches the distinctive competencies of writing for each medium and of working from concepts to actual productions. Prerequisites: MCM 231 and MCM 281. Lab/Tech fee rate A applies.

MCM 475 Writing and Producing for Documentaries (3-1-3). Provides exposure to representative documentaries with regard to history, form, technique, trends and audience objectives. Examines different formats used in documentary production and the concepts used in transforming research efforts into production of a full half-hour program. 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. Lab/Tech fee rate A applies.

MCM 480 Critical Analysis of the Mass Media (3-0-3). (Formerly MCM 450). Examines the uses of critical theory and specific methodological approaches in the study of mass media. Considers sources of influence in society and the implications of media production and consumption. Prerequisite: MCM 300.

MCM 481 International Mass Communication (3-0-3). (Formerly MCM 461). Enhances understanding of world media systems' impact on different world cultures. Examines how global media behavior affects domestic politics, regulations, businesses, economics, national development and public diplomacy. Prerequisite: MCM 300 or INS 301 or MGT 305.

MCM 485 Integrated Marketing Communication Campaigns (3-0-3). Examines all aspects of integrated marketing communication (IMC) campaigns. Covers research, strategy planning, creative planning, media planning and pitching. Requires collaborative work focused on developing and executing an IMC

campaign. Prerequisites: MCM 351 and MCM 453, or MCM 361 and MCM 369.

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. Lab/Tech fee rate A applies.

MCM 497 Mass Communication Internship (0-0-0). Provides MCM students with a minimum of six weeks (normally 240 hours) 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 II standing and approval of internship coordinator. Registration fee applies.

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. Explores 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. Students are allowed to repeat a preparatory course up to Sophomore I standing (less than 45 credits). Prerequisite: Engineering 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. Students are allowed to repeat a preparatory course up to Sophomore I standing (less than 45 credits).

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. Students are allowed to repeat a preparatory course up to Sophomore I standing (less than 45 credits).

MTH 100 Fundamentals of Logic and Geometry (3-0-3). Covers logic and set theory, geometry in the plane and space, and basic algebra. Includes the following topics: 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, 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. Emphasizes techniques and applications. Prerequisite: MTH 002 or any AUS 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. Emphasizes 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 of algebraic, logarithmic, exponential, trigonometric and inverse trigonometric functions; applications of derivatives including maxima and minima, related rates, approximations, theory of integration with applications including areas, volumes, lengths, and surface areas. Includes a computer laboratory component. Not open to students in MUM, VIS and DES majors. Prerequisite: MTH 001 or Engineering Math Placement Test or SAT II Math 1C test with score 600 and above. Lab/Tech fee rate A applies.

MTH 104 Calculus II (3-1-3). Covers inverse functions, inverse trigonometric functions, hyperbolic functions, techniques of integration, improper integrals, infinite series, power series, parameterized curves, polar coordinates, integration in polar coordinates and complex numbers. Prerequisite: MTH 103.

MTH 111 Mathematics for Architects (3-0-3). 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. Prerequisite: MTH 001 or MTH 003 or Architecture Math Placement Test or Engineering Math Placement Test or SAT II Math 1C test with score 600 and above.

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. Includes a computer laboratory component. Prerequisite: MTH 104.

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 211 Geometry for Art and Architecture (3-0-3). Introduces the relation between geometry and architecture. Focuses on the use of geometrical concepts in art and architecture. Includes the following topics: sculpture and ancient Greek geometry; Egyptians and the geometry of the pyramids; basic geometric constructions; use of proportion in art, symmetry and isometry; Euclidean geometry; and polygons. Not open to science and engineering students. Prerequisite: MTH 100 or MTH 102 or MTH 111 or MTH 103.

MTH 213 Discrete Mathematics (3-0-3). (Cross-listed as CMP 213). Covers prepositional and predicate calculus, sets, functions and related algorithms, asymptotic analysis of functions, 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 304 Mathematics of Finance (3-0-3). Covers interest measurement, pricing of annuities (due, immediate, increasing, decreasing, geometric, with payments frequency smaller than the compounding period), amortization schedule, sinking fund method (with different remunerative and reproductive rate), yield rate, and bonds (pricing, book value, market value, flat price, bound amortization schedule, callable bounds). Introduces the basic principles of life table, life annuities and life insurance. Prerequisite: MTH 102 or MTH 103 or MTH 111.

MTH 305 Life Contingencies (3-0-3). Provides a basic review of interest theory, 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 and statistical considerations. Prerequisite: MTH 102 or MTH 103 or MTH 111.

MTH 307 Theory of Risk (3-0-3). Covers probabilistic notions related to risk theory, individual and collective risk models for a short term, compound processes and approximations, collective risk for an extended period, applications to insurance, stop-loss insurance reinsurance, dividends in group insurance, reinsurance and probability of ruin, surplus and loss process, and ruin theory. Prerequisites: MTH 102 or MTH 103 or MTH 111, and NGN 111 or QBA 201 or STA 201 or STA 202.

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 203 or MTH 213 or MTH 221.

MTH 320 Abstract Algebra I (3-0-3). Covers semi-groups, monoids, groups, permutation groups, cyclic groups, Lagrange's Theorem, subgroups, normal subgroups, quotient groups, (external) direct product of groups, homomorphism and isomorphism theorems, Cayley's Theorem, and introduction to rings and fields. 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.

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. Includes the following topics: Fourier analysis, integral transforms, calculus of variation, special functions and coordinate systems. Discusses applications problems, 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, spectral characteristics, Markov chains and applications to systems. Prerequisites: NGN 111 or STA 201, and ELE 323 or MTH 351 or prerequisite/concurrent: ELE 321.

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. Provides examples from various disciplines. Prerequisite: MTH 221.

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 Abstract Algebra II (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. Prerequisites: MTH 205 and MTH 221.

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. Includes the following topics: 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 CMP 341 or MTH 343.

MTH 490 Senior Project (0-6-3). Provides 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. Prerequisites: senior standing and consent of instructor.

MUS Music

MUS 101 Fundamentals of Music I (3-0-3). Develops fundamental skills in the theory of Western music. Relates theory to theoretical understanding of musical construction. Includes notation, chord and melodic analysis and ear training.

MUS 140 Applied Voice Lessons I (2-1-3). Studies and applies the Italian Bel Canto Vocal Technique through studio classes and compulsory weekly individual lessons. Includes jury evaluation and a final studio recital. Prerequisite: consent of instructor based on audition.

MUS 151 Choral Ensemble I (1-4-3). Studies, rehearses and performs a variety of choral literature. Includes required participation in a scheduled public performance. Prerequisite: consent of instructor based on audition.

MUS 170 Class Piano I (1-2-3). Studies basic piano technique in a classroom/piano laboratory environment. Covers music theory topics such as finger numbers, note reading, rhythm, dynamics, legato/staccato, key signatures, intervals and rests, among others. Introduces a variety of simple piano pieces. Includes jury evaluation. Prerequisite: interview/audition with instructor.

MUS 171 Introduction to Piano Performance I (1-2-1). Introduces basic piano-technique and music-theory topics in a piano laboratory environment. Covers a variety of simple solo and ensemble piano pieces. Prerequisite: consent of the instructor based on interview. Lab/Tech fee rate A applies.

MUS 200 Introduction to European Classical Music (3-0-3). Introduces the history and development of music within the European Classical tradition and its impact on culture worldwide. Examines the chronological development and the factors involved in the evolution of musical thought and experience. Prerequisite: WRI 102.

MUS 201 History and Development of Jazz (3-0-3). Surveys the history and development of jazz as a unique American art form, with emphasis on the musical, sociological, folk and non-Western backgrounds of jazz, as well as the contribution of jazz as an art form. Examines the individual contribution of the pioneers, innovators and practitioners of this art form. Prerequisite: WRI 102.

MUS 202 Survey of World Music (3-0-3). Studies music as a world phenomenon with emphasis on its relationship to culture, indigenous customs, function and significance. Focuses on important figures, instruments and theories, but equally on music's ethical and social dimensions. Prerequisite: WRI 102.

MUS 221 Choral Ensemble for Performance I (0-3-1). Studies, rehearses and performs a variety of choral literature. Includes required participation in a scheduled public performance. Graded as Pass/Fail. Prerequisite: consent of the instructor based on audition; prerequisite/concurrent: MUS 101.

MUS 231 Applied Voice Lessons for Performance I (1-1-1). Studies and applies introductory Italian Bel Canto Vocal Technique through studio class and compulsory weekly individual lessons. Includes jury evaluation and final studio recital. Prerequisite: consent of instructor based on audition; prerequisite/concurrent: MUS 101.

MUS 251 Choral Ensemble II (1-4-3). Covers intermediate ensemble skills such as vowel placement, diction and breath control. Includes individual singing exams. Requires solo performance in concerts. Introduces research of fundamental ensemble techniques and musicianship skills. Prerequisites: MUS 151 and consent of the instructor based on audition.

MUS 271 Introduction to Piano Performance II (1-2-1). Develops basic-intermediate piano-technique and music-theory topics (such as keys and key signatures, scales, arpeggios and primary chords) in a piano laboratory environment. Covers a variety of simple-intermediate solo and ensemble piano pieces. Prerequisite: MUS 171 or consent of instructor based on audition. Lab/Tech fee rate A applies.

MUS 276 Introduction to Chamber Music (1-2-1). Studies elementary concepts for the understanding of music performance in a chamber ensemble setting. Introduces the basic tools for the performance of chamber music. Applies these tools and knowledge to performance of chamber music repertoire through compulsory individual weekly coaching sessions/lessons and studio class. Prerequisite: MUS 271 or consent of instructor based on audition. Lab/Tech fee rate A applies.

MUS 321 Choral Ensemble for Performance II (0-3-1). Covers intermediate ensemble skills such as vowel placement, diction and breath control. Includes individual singing exams. Requires solo performance in concerts. Graded as Pass/Fail. Prerequisite: MUS 221 or MUS 251.

MUS 331 Applied Voice Lessons for Performance II (1-1-1). Studies and applies intermediate Italian Bel Canto Vocal Techniques through studio class and compulsory weekly individual lessons. Includes a final studio performance. Prerequisite: MUS 231.

MUS 370 Applied Piano Lessons I (1-2-3). Studies and applies basic piano technique through compulsory individual weekly lessons and studio class. Includes jury evaluation and studio recital. Prerequisite: consent of instructor based on audition. Lab/Tech fee rate A applies.

MUS 377 Piano Literature (3-0-3). Explains the major currents in music history. Studies the major composers in

music history and gives an overview of their main keyboard works. Describes the socio-cultural circumstances that surrounded such composers and works. Describes the main characteristics of the main genres found in keyboard repertoire. Analyzes some of the most important keyboard repertoire in music history. Prerequisite: MUS 271 or consent of instructor based on audition. Lab/Tech fee rate A applies.

MUS 421 Choral Ensemble for Performance III (0-3-1). Covers upper intermediate choral literature through performance in a select chamber ensemble and the AUS Choral Ensemble. Evaluates musical articulation such as staccato, marcato and legato through individual singing exams. Requires assistance with and develops skills for section rehearsals. Graded as Pass/Fail. Prerequisite: MUS 321.

MUS 431 Applied Voice Lessons for Performance III (1-1-1). Studies and applies advanced Italian Bel Canto Vocal Techniques through studio class and compulsory weekly individual lessons. Includes final studio performance. Prerequisite: MUS 331.

MUS 470 Chamber Music with Piano I (1-2-3). Studies and applies basic chamber music with piano technique through compulsory individual weekly coaching sessions and lessons. Develops the student's abilities and potential on the art of making music together with other students. Includes weekly studio class, jury evaluation and studio recital. Prerequisite: MUS 370 or consent of instructor based on audition. Lab/Tech fee rate A applies.

PHI Philosophy

PHI 201 Introduction to Philosophy (3-0-3). Introduces basic questions, ideas and methods of philosophy. Discusses philosophers 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). 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. Not open to computer science students. Prerequisite: WRI 102.

PHI 206 Ethics and Information Technology (3-0-3). (Equivalent to CMP 235). 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 207 Existentialism (3-0-3). Examines the development of the various schools of Existentialist thought through an examination of its crucial texts in 19th century and 20th century thought. Explores central questions to existentialist thought such as: What does it mean to say that existence precedes essence? What is the nature of human freedom? What does it mean to be an authentic human being? Prerequisite: WRI 102.

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: ENG 203 or ENG 204.

PHI 304 Themes in Western Thought (3-0-3). Explores selected themes from the history of Western thought with relevance in the present. Makes clear how ideas shape culture and inform life far into the future. Emphasizes the relationship between Western thought and the students' lives. Prerequisite: ENG 203 or ENG 204.

PHI 305 Advanced Social Political Philosophy (3-0-3). Concentrates on advanced issues in social political philosophy and offers a normative approach to social political issues from a historical perspective that allows students to understand better contemporary debates. Concentrates on a specific issue (e.g., equality, personal liberty, human rights, property rights, etc., depending on the year and instructor) and explores its significance in detail. Prerequisite: PHI 303.

PHI 306 Philosophy of Law (3-0-3). Surveys the philosophical issues associated with law. Considers issues relating to the natural law approach in Aquinas to later 20th century interpretations. Analyzes the positivist and realist approaches to law. Explores the relationship between law and morality, constructivism, and criticisms of the law by Marxists and others. Prerequisite: PHI 201 or PHI 202 or POL 201 or ECO 326 or BLW 301

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.

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. Students are allowed to repeat a preparatory course up to Sophomore I standing (less than 45 credits).

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. Not open to engineering and science students. Prerequisite/concurrent: MTH 001 or MTH 002 or MTH 003 or MTH 100 or any AUS math placement test.

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; prerequisites/concurrent: MTH 103 and PHY 101L.

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; prerequisite/concurrent: PHY 102L.

PHY 102L General Physics Laboratory II (0-3-1). Trains students how to use new equipment and perform experiments with it that demonstrate their understanding of the basics of electricity and magnetism. 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. Not open for students who have taken PHY 101. Prerequisite/concurrent: MTH 101 or MTH 103 or MTH 111.

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 III Laboratory (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. Recommended for engineering majors, particularly electrical and computer engineering. Prerequisites: PHY 102 and PHY 102L.

PHY 201L Modern Physics Laboratory (0-3-1). Provides students with the chance to perform experiments that demonstrate the ideas of 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 232 Properties of Matter (3-0-3). Provides a thorough and technical overview of the physical properties of matter to students with a background in basic physics. Includes the following topics: states of matter, classes of materials, atomic bonding, structural properties of matter, X-ray diffraction, experimental diffraction methods (simulation), imperfections in solids, atom movements and diffusion, mechanical properties of matter and electrical properties of matter. Prerequisites: PHY 102 and PHY 102L.

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. 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 301 Energy Sources (3-0-3). Examines energy from a physics perspective. Examines present and future alternative energy sources, including hydroelectric, nuclear, solar, geothermal and tidal energy. Investigates the problems caused by each energy source and the issue of sustainability. Recommended for environmental science majors and engineering students. Prerequisites: PHY 102 and PHY 102L.

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. Prerequisites: 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. Prerequisites: PHY 102 and PHY 102L.

PHY 305 Modern Optics and Lasers (3-0-3). Provides a modern introduction of ray and wave optics and laser physics to students with a background in modern physics and electricity and magnetism. Covers the propagation of light (waves, phase and group velocities, and the Doppler Effect), the vectorial nature of light (electromagnetic fields, the Poynting vector, polarization, reflection and refraction), coherence and interference, optical spectra and light amplification (stimulated emission, population inversion and lasers). Prerequisite: PHY 201.

PHY 313 Satellites and Space Physics (3-0-3). Covers topics that prepare and allow the student to understand the latest developments, discoveries and trends in space science and technology. Emphasizes the relevance and application of various physical principles and laws (mechanics

for orbits and electromagnetism for communication, signal detection and processing, energetics, and image processing for remote sensing, etc.) Focuses on practical applications and tools in this field. Prerequisites: PHY 102, PHY 102L and PHY 103.

PHY 401 Physics of Semiconductors (3-0-3). Covers the basics of semiconductor devices. Provides a general introduction to semiconductors (crystal structures, crystal symmetry, crystal growth techniques), carrier modeling (band structures, effective masses, density of states, carrier distribution, and carrier concentration), carrier action (mobility, resistivity, band bending, diffusion, recombination), pn junction diodes (build-in potential, step-junctions, boundary value solution using Poisson's equations, I-V characteristics) and optoelectronic devices (solar cells and LEDs). Designed for students with a thorough understanding of general physics and some exposure to quantum phenomena. Prerequisite: PHY 201.

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 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. 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. Gives particular attention to the sources of basic American policies during the past half century, along with a focus on the various theoretical approaches to explanation. Examines the pressing issues of today, particularly those pertaining to the Middle East and the West. Prerequisites: 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. Prerequisites: POL 201, and POL 202 or POL 208.

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/concurrent: WRI 101.

PSY 102 Social Psychology (3-0-3). Introduces the scientific study of social behavior 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/concurrent: WRI 101.

PSY 210 Scientific Method in Psychology (3-0-3). Explores various methods within the social sciences that have transformed our understanding of human thought and behavior; contrasts the most common methods and explores their strengths and limitations; provides skills in seeking sources of scientific information; introduces basic concepts for data analysis and provides hands-on training with common applications; guides students through research projects, emphasizing the process of study design and material creation. Prerequisites: PSY 101 or PSY 102, and WRI 102.

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 210, or PSY 101 and any one of STA 201, STA 202, QBA 201 or NGN 111.

PSY 302 Developmental Psychology (3-0-3). Explores how human psychology changes over time; considers various factors in development from conception until death, including biological, cognitive, social and cultural influences; periods of emphasis may include infancy, childhood, adolescence or adulthood. Prerequisite: PSY 210, or PSY 101 and any one of STA 201, STA 202, QBA 201 or NGN 111.

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 210, or PSY 101 and any one of STA 201, STA 202, QBA 201 or NGN 111.

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 210, or PSY 101 and any one of STA 201, STA 202, QBA 201 or NGN 111.

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 210, or PSY 101 and any one of STA 201, STA 202, QBA 201 or NGN 111.

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 210, or PSY 101 and any one of STA 201, STA 202, QBA 201 or NGN 111.

PSY 307 Stereotypes, Prejudice, and Discrimination (3-0-3). Introduces core concepts related to stereotyping, prejudice, discrimination, stigma and intergroup relations. Focuses on how perceiving other people as somehow different from ourselves can impact our thoughts, feelings and behaviors toward those people at very basic levels. Addresses how stereotypes are formed, maintained and changed; why prejudice exists and how it impacts society; and how people can try to control or change these processes. Prerequisites: PSY 210, or PSY 101 or PSY 102 and any one of STA 201, STA 202, QBA 201 or NGN 111.

PSY 310 Psychology Research Experience (3-0-3). Provides hands-on experience in psychological research. Offers the opportunity to work with faculty in reviewing scientific literature, creating research materials, guiding participants through studies and analyzing data. Aims to produce results that can be submitted for publication in international scientific journals. Addresses techniques for lab organization and the promotion of research. Prerequisites: PSY 210, or PSY 101 and any one of STA 201, STA 202, QBA 201 or NGN 111.

PSY 401 Psychology of Bilingualism (3-0-3). Explores a psychological perspective on the relationship between language and thought. Addresses the questions of what happens in our brain when we speak, read or write. Explores how we learn language and how we learn a second language. Investigates whether our language influences the way we think. Discusses whether the ability to speak more than one language changes our perception of the world. Presents an argument about whether we can make computers understand and produce human speech, and more generally, explores how a study of the psychological aspects of language processing can contribute to the creation of the Artificial Intelligence. Prerequisite: PSY 302 or PSY 304 or PSY 305.

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 such as immigration past and present, social movements, citizenship and democracy, and social control and deviance. Prerequisite: WRI 102.

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. Considers selected organizations such as the United Nations, NATO, OPEC and the WTO. Prerequisite: POL 202.

SOC 320 East Asian Societies (3-0-3). Examines East Asian societies from sociological perspectives. Focuses on contemporary economic, social and cultural changes in China, South Korea and Japan. Introduces sociological methods to understand cross-cultural differences. Explores demography, culture and religion, marriage and family education, government, the mass media, economy, social inequality, crime and criminal justice system, health care system, aging,

mental health, etc. Prerequisite: GEO 201 or HIS 206 or HIS 212 or INS 205 or SOC 201 or SOC 220.

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.

STA Statistics

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. Not open to SBM students in the BSBA degree program or students in engineering majors. Prerequisite: MTH 103 or MTH 111. 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. Not open to SBM students in BSBA degree programs or College of Engineering students. Prerequisite: MTH 100 or MTH 101 or MTH 103 or MTH 111. Lab/Tech fee rate A applies.

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, spectral characteristics, Markov chains and applications to systems. Prerequisites: NGN 111 or STA 201, and ELE 323 or MTH 351 or prerequisite/concurrent: ELE 321.

THE Theatre

THE 101 Theatre Appreciation (3-0-3). Introduces fundamentals of theatre, history, plays, playwriting, movement and expression, acting and production. Explores the historical context of the development of Western Drama, and applies practical understanding of those elements. Explores theories related to each specific element.

THE 102 Dramatic Process (3-0-3). Explorers the speech, movement and improvisational techniques used to create dramatic expression and effective stage communication. Introduces the Stanislavsky system. Includes interactive ensemble performances.

THE 141 Stagecraft (3-0-3). Presents lectures and classroom demonstrations in the construction, painting, lighting, handling of scenery, and the making of properties. Requires crew hours.

THE 230 Dramatic Literature (3-0-3). Examines fundamentals of theatre, plays, playwriting, movement and expression, acting and production through script analysis. Explores the historical context of the development of Western drama and applies practical understanding of those elements. Explores theories related to each specific element. Prerequisites: THE 101 or THE 102, and WRI 101.

THE 242 Elements of Theatrical Design (3-0-3). Covers the vocabulary of analytical tools that theatrical designers use. Addresses color theory and picture plane composition, and discovers how the principles of two-dimensional and three-dimensional design impact the theatre artist. Contributes to development of department productions. Prerequisite: THE 101 or THE 102 or THE 141.

THE 245 Technical Theatre Laboratory (0-4-1). Addresses the knowledge and skills necessary to work on backstage crews. Covers assembly and construction of set and prop pieces, hanging and focusing of lighting equipment. Studies the execution of lighting and sound plots, and theatrical ground plans. Includes running of live theatrical productions. Graded as Pass/Fail. Repeatable up to 3 credits. Prerequisite: permission of the instructor.

THE 251 Rehearsal and Performance (0-4-1). Provides practical experience turning a dramatic script into a theatrical performance. Employs rehearsal and performance techniques used in professional production. Emphasize full development of character creation. Explores the role of the stage manager in full detail. Graded as Pass/Fail. Repeatable up to 3 credits. Prerequisite: consent of instructor based on audition.

THE 253 Musical Theatre Production (6-0-3). Provides experience in turning a musical script into a theatrical performance. Employs rehearsal and performance techniques used in professional production. Emphasizes study of texts, warm-up, reading, blocking, vocal study and development, audience-actor relationships, incorporation of director's guidance, the nuances of creating a character, analyzing a dramatic text, and stage management. Prerequisite: consent of instructor based on audition.

THE 255 Voice and Movement I (3-0-3). Provides an introduction to the study, analysis, and application of various styles of movement required in theatrical productions, and how the voice and body work as one. Studies body language, analysis of movement, types and rhythms of movement and pantomime. Prerequisite: THE 101 or THE 102 or THE 141.

THM Theme

THM 310 Social Science Analysis of Environmental Issues I (3-0-3). 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). 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.

TRA Translation and Interpreting

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 230 Translating Arabic Literary Texts (3-0-3). Introduces basic theories of literary translation and applies them to a selection of Arabic literary texts from different genres. Covers linguistic and non-linguistic (cultural) dimensions of literary translation. Highlights the role of literary translation in human interaction. Prerequisite: WRI 102.

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. Prerequisites: TRA 210 or TRA 220, or ARA 101 and MCM 150.

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 307 Screen Translation (3-0-3). Introduces screen translation and the stylistic features and cultural aspects of screen productions. Provides training in the translation of scripts of various cinema and TV scripts from and into Arabic. deals with the problems encountered by the translator in rendering these genres. Prerequisite: TRA 210 or TRA 220.

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.

WRI Writing Studies

WRI 001 Fundamentals of Academic Discourse (3-0-3). (Formerly COM 001). Introduces students to basic strategies for university success with particular emphasis on reading and writing skills. Aids students in developing goal setting, time management and study skills while reading and responding to university texts. Helps students become familiar with the conventions of academic writing through reading and writing activities. Includes contextualized grammar instruction. Students must successfully complete WRI 001 by the end of Sophomore I standing. Students who have earned a C- or above in WRI 001 will not be allowed to repeat the course. Prerequisite: EPT score less than 4.

WRI 101 Academic Writing (3-0-3). (Formerly COM 101). Addresses the recognition, understanding and production of academic writing. Develops practice strategies for reading academic material through responding to texts in both formal and informal writing assignments and classroom discussion. Facilitates improvement of writing skills through use of the writing process, and develops the necessary grammar and mechanical skills for written English proficiency through contextualized grammar instruction. Students must successfully complete WRI 101 by the end of Junior I standing. Students who have earned a C- or above in WRI 101 will not be allowed to repeat the course. Prerequisite: EPT score of 4 or ELPT score of 1 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. Requires students to practice critical reading strategies by engaging with challenging and academically diverse texts and responding through formal and informal critical evaluations. Helps students develop their academic writing skills by identifying and fulfilling the requirements of supporting an academic thesis, as well as address issues of grammar and mechanics within the context of their writing. Introduces students to basic research techniques. Students must successfully complete WRI 102 by the end of Junior I standing. Students who have earned a C- or above in WRI 102 will not be allowed to repeat the course. Prerequisite: EPT score of 5 or WRI 101.

WRI 221 Peer Tutoring in Writing (3-0-3). Focuses on issues and theories of writing and peer-collaboration as they relate to peer tutoring in writing. Involves readings and class discussion that help students think critically about writing and the teaching and tutoring of writing. Explores the views of different writers towards their craft, writers as individuals, issues of writing in a second language, and the role of "talking" in writing. Prepares students for the second part of the course in which they prepare for possible roles as Writing Center Tutors or Writing Fellows. Focuses largely on "hands-on" learning as students observe writing center tutorials, experience teaching each other, and comment on sample papers. Prerequisite/concurrent: ENG 203 or ENG 204.

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 300 Women, Science and Technology (3-0-3). Examines the relationships between gender and science and technology. Appraises the most notable achievements of women in science and technology across cultures. Investigates how scientific and technical power and knowledge operate in society. Analyzes the social barriers

faced by women seeking a scientific career. Presents feminist critiques of science and technology. Prerequisite: ENG 203 or ENG 204 or HIS 208 or WST 240 or WST 250.

Independent Study

Independent study is the umbrella term used to label two types of independent work: independent course and directed study.

Students are allowed to take one independent study. A second independent study could be approved by the student's associate dean for graduation purposes only.

Independent Course (1 to 4 credits). A course listed in the catalog but offered in an independent study format. The course is coded using the course number in the catalog.

Students are not allowed to repeat courses in an independent course format.

Directed Study (1 to 4 credits). An investigation under faculty supervision beyond what is offered in existing courses. Prerequisites: minimum CGPA of 3.00, Junior II standing and consent of the instructor.

Directed study courses are numbered as 396 or 496 courses. The three-letter course prefix reflects the field of study of the course (e.g., independent study courses in Arabic are coded as ARA 396 or ARA 496).

For more details, please refer to Registration in Independent Study Courses in the Academic Policies and Regulations section of this catalog.

Special Topic Courses

Special Topic (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: topic specific. Lab/Tech fee may apply.

Special topic courses are numbered as 194, 294, 394 or 494 courses. The three-letter course prefix reflects the field of study of the course.

Special topic courses at the 300 level require sophomore standing or above; 400-level special topic courses are restricted to junior standing and above.

Descriptions of particular special topic courses are made available in the college/school offering the course during registration.

College of Engineering

ASE Aerospace Engineering

ASE 350 Introduction to Aerospace Engineering (3-0-3). Gives an overview of aerospace engineering, airplane and the atmosphere. Examines the basic aerodynamics; airfoils and wings; lift and drag; aerodynamics moments, circulation, boundary layers, and skin friction. Covers the performance or aircrafts: level flight, climb, range, endurance, takeoff and landing. Introduces stability and control, structures and materials, principles of propulsion of flight vehicles and space flight. Prerequisites: MCE 222, MCE 223, MCE 240 and MCE 241, or MCE 300.

ASE 415 Aircraft Stability and Control (3-0-3). Covers reference frames, equations of motion for a rigid body, forces and moments, trim, linearization, dynamic response characteristics for aircrafts and spacecrafts. Includes aircraft stability derivatives, static longitudinal and lateral stability, handling qualities, phugoid, short period, spiral, roll subsidence, Dutch roll modes and the corresponding transfer functions. Prerequisite: ASE 350.

ASE 454 Thermal Design Issues for Aerospace Systems (3-0-3). Deals with processes, systems, instruments and equipment for aerospace systems. Emphasizes issues of energy conversion and thermal design. Includes the following topics: thermodynamic concepts and heat transfer processes for aerospace systems, the space environment, influence of gravity on heat transfer, power generation for space systems (energy sources, solar cell arrays, energy storage), thermal control (analysis techniques, design procedures, active versus passive design, heating and refrigeration) and environmental effects. Prerequisite: ASE 350.

ASE 470 Aircraft Structures (3-0-3). Examines the characteristics of aircraft structures and materials; stress strain relationships in two and three dimensions; torsion, bending and flexural shear in thin-walled sections; buckling and fatigue analysis of thin wall structures; analysis of composite laminates; introduction to aeroelasticity and energy methods. Prerequisite: ASE 350.

ASE 475 Aircraft Design (3-0-3). Covers the theory, background and methods of aircraft design. Integrates aerodynamics, structure, propulsion, flight dynamics and control in the design of aircrafts. Prerequisites: ASE 415, ASE 470 and MCE 482.

ASE 486 Compressible Flow (3-0-3). Applies basic thermodynamics and fluid mechanics equations to model the flow phenomena of compressible fluids. Includes the following topics: reversible flow, flow with heat transfer, flow with friction, normal and oblique shock waves, diffuser and nozzle flow. Prerequisite: ASE 350.

BME Biomedical Engineering

BME 210 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. Prerequisites: BIO 101 and WRI 102.

BME 410 Biomedical Systems Modeling I (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 411 Biomedical Systems Modeling II (3-0-3). Applies principles of kinetics and mass transfer to model physiological systems including pharmacokinetics, membrane transport, renal filtration and gas exchange to design medical devices. Prerequisite/concurrent: BME 410.

BME 420 Biomedical Electronics I (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 421 Biomedical Electronics II (3-0-3). Covers pulmonary system measurements, blood gas analysis, clinical laboratory instrumentation, biomedical optics and lasers, and therapeutic and prosthetic devices and systems. Prerequisite: BME 420.

BME 422 Biomedical Imaging (3-0-3). Covers imaging techniques, including ultrasound imaging, x-ray imaging, computerized tomography, magnetic resonance imaging, microwave imaging, thermal imaging and nuclear imaging. Covers the following for each of the addressed imaging techniques: radiation propagation and interaction with materials, generation and detection, and image construction and reconstruction. Covers radiation protection. Prerequisite: ELE 225 or ELE 341.

BME 424L Biomedical Electronics Laboratory (0-3-1). (Cross-listed as ELE 439L). Explores data acquisition tools, medical signal processing, biopotential amplifiers, biopotentials, bioimpedance measurements, blood pressure measurements, respiratory measurements, ultrasonic measurements and electrical safety. Prerequisite/concurrent: BME 420. Lab/Tech fee rate B applies.

BME 430 Biomechanics (3-0-3). Presents the fundamentals of orthopedic biomechanics and the application of solid mechanics toward describing physiological systems. Emphasizes the interaction between biomechanical and physiologic factors (bone, connective tissue and muscle and joint physiology and structure) in the musculoskeletal system and application of engineering principles in clinical practice. Prerequisite: CHE 230 or MCE 222 or MCE 224 or MCE 225.

BME 431 Biomaterials (3-0-3). Provides an overview of materials used in biomedical applications, both internal and external to the human body. Covers structure and properties of biomaterials in addition to material performance in hostile environments. Prerequisite: BME 410 or BME 430.

BME 432 Biothermofluids (3-0-3). Discusses the fluid and thermodynamics principles underlying the operation of physiological systems, including the heart and circulatory system and the lungs and pulmonary system. Prerequisite: BME 410 or BME 430.

BME 440 Bioinformatics (3-0-3). Discusses elementary topics in bioinformatics. Includes the basics of molecular genetics, the biological aspects of bioinformatics, data searches, algorithms for pairwise alignments and substitution patterns. Prerequisites: BIO 210, and ELE 360 or COE 360.

CHE Chemical Engineering

CHE 205 Principles of Chemical Engineering I (2-1-2). 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; prerequisites/concurrent: MTH 104 and NGN 111.

CHE 206 Principles of Chemical Engineering II (2-2-3). Covers the application of energy balances to chemical engineering equipment and processes. Includes the following topics: steady state energy balances with and without chemical reactions, heat of solution and mixing, humidity charts and simultaneous material and energy balances. Restricted to students formally admitted to the second-year level in chemical engineering. Prerequisite: CHE 205; prerequisites/concurrent: CHM 102 and WRI 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, differential analysis of basic viscous incompressible flows, flow past immersed bodies and dimensional analysis. Prerequisites: CHE 205, PHY 101 and PHY 101L; prerequisite/concurrent: MTH 203.

CHE 230 Materials Science (3-1-3). Introduces material science, relationships between structure and properties of materials. Includes the following topics: 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. Includes the following numerical techniques: solution of linear and nonlinear algebraic equations, ordinary differential equations, and numerical integration and differentiation. Introduces chemical process simulation. Restricted to students formally admitted to the second-year level in chemical engineering. Prerequisite: CHE 205; prerequisites/concurrent: MTH 205 and MTH 221. Lab/Tech fee rate B applies.

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: CHE 206 and MTH 203.

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. Prerequisites: CHE 206, CHE 215 and MTH 205.

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 240; prerequisites/concurrent: CHE 307 and CHM 331.

CHE 329 Mass Transfer (3-0-3). Covers mechanisms of mass transfer, laws of diffusion, mass transfer coefficients, theories of mass transfer, and mass transfer and chemical reactions. Prerequisites/concurrent: CHE 230 and 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: junior standing.

CHE 342 Separation Processes (3-0-3). Examines application of mass transfer principles to the design of multi-stage systems and countercurrent differential contacting operations. Prerequisite: CHM 215; prerequisites/concurrent: CHE 304 and CHE 329.

CHE 350 Chemical Engineering 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. Prerequisites/concurrent: CHE 303 and CHE 307. Lab/Tech fee rate B applies.

CHE 397 Professional Training in Chemical Engineering (0-0-0). Requires a minimum of five 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 Pass/Fail. Prerequisite: Junior II standing and approval of internship coordinator for the major. Registration fee applies.

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; and process control software. Prerequisites/concurrent: CHE 321 and CHE 342.

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. Includes the following topics: process safety, pollution prevention and waste minimization, plant economics and cost estimation. Prerequisites: CHE 321 and CHE 342; prerequisite/concurrent: CHE 332.

CHE 434 Petroleum Refining Processes (2-2-3). Presents an overview of petroleum refining processes. Includes the following topics: introduction to petroleum, its origins and composition, basic principles of refining, the effect of feedstock on refinery design, selection of refinery units, design of major equipment and refinery economics. Prerequisite: CHM 215; prerequisite/concurrent: CHE 342. Lab/Tech fee rate B applies.

CHE 436 Natural Gas Processing (3-0-3). Provides basic and applied knowledge in natural gas processing. Includes the following topics: characterization of natural gas and its products, phase behavior of natural gas, water-hydrocarbon phase behavior, prevention of hydrate formation, gas sweetening, gas dehydration using glycol, gas dehydration using solid desiccants, natural gas liquids recovery, sulfur recovery and design and sizing of equipment. Prerequisite/concurrent: CHE 432.

CHE 451 Chemical Engineering Laboratory II (0-3-1). Comprises hands-on laboratory 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. Prerequisites: CHE 321 and CHE 350; prerequisite/concurrent: CHE 342. Lab/Tech fee rate B applies.

CHE 452 Unit Operations and Control Laboratory (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 342.

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/concurrent: CHE 342.

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/concurrent: 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 307.

CHE 490 Senior Design Project I (1-2-1). 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 presentation. Current practices in the chemical engineering field are discussed through guest lectures. Prerequisite: ENG 207. Prerequisite/concurrent: CHE 432.

CHE 491 Senior Design Project II (0-6-2). Continues the work of CHE 490. Prerequisite: CHE 490.

CMP Computer Science

CMP 120 Introduction to Computer Science I (2-3-3). (Cross-listed as COE 210). Provides an overview of computer architecture and programming. Examines elements of a C++ program, statements and expressions, data types, relational and logical operators, conditional and iterative control structures. Examines, file I/O, declaration and initialization of arrays and strings, pointers and function arguments. Covers program design and testing, and modular programming. Includes laboratory and programming assignments. Prerequisite: NGN 110.Lab/Tech fee rate A applies.

CMP 210 Digital Systems (3-3-4). 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 or COE 210. Lab/Tech fee rate A 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, asymptotic analysis of functions, principle of mathematical induction, proof techniques, recursive definitions, counting, relations, graphs and trees. Prerequisite: MTH 103.

CMP 220 Introduction to Computer Science II (2-3-3). (Cross-listed as COE 211). Covers object-oriented programming concepts: constructors, destructors, objects, classes, functions and attributes, operator overloading and overriding, inheritance and polymorphism. Explores abstraction principles (interfaces, information hiding, encapsulation), templates, exception handling, I/O streams and advanced pointers. Uses the C++ programming language in laboratory work. Restricted to students formally admitted to the second-year level in computer science or computer engineering, and to economics students, and to students pursuing a minor in computer science. Prerequisite: CMP 120 or COE 210. Lab/Tech fee rate A applies.

CMP 235 Ethics for Computing and Information Technology (3-0-3). (Equivalent to PHI 206). Examines ethical theories and ethical decision-making models applied for computing and information technology. Offers in-depth discussion of social, ethical and professional issues in computing, including the codes of ethics of computing professional societies; intellectual property defined by copyright, patent and trade secrets; privacy; confidentiality; conflict of interest; cybercrime; hacking; viruses; and identity theft. Prerequisite: WRI 102.

CMP 240 Introduction to Computer Systems (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: CMP 120 or COE 210 or MCE 226L, and CMP 210 or COE 221. Lab/Tech fee rate B applies.

CMP 256 GUI Design and Programming (3-1-3). Covers the design and implementation of interactive 2D graphical user interfaces. Explores the event-driven paradigm and its application in GUI development. Examines multi-threading and exception handling. Covers widget layout, dialog construction and elementary data visualization techniques. Covers essential functions such as drag-and-drop and basic graphics operations such as image I/O and 2D drawing. Addresses design, usability, standard interface building and cross-platform compatibility issues. Not open to computer engineering majors. Prerequisite: CMP 220 or COE 211. Lab/Tech fee rate A applies.

CMP 305 Data Structures and Algorithms (3-1-3). (Cross-listed as COE 311). Covers design and implementation of abstract data types, lists, stacks, queues and trees. Covers recursion and runtime stacks. Introduces the complexity of algorithms and data structures. Covers searching and sorting and basic graph algorithms. Laboratory work includes substantial programming assignments. Prerequisite: CMP 220 or COE 211; prerequisite/concurrent: CMP 213 or MTH 213. Lab/Tech fee rate A applies.

CMP 306 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). Not open to computer science and computer engineering majors. Lab/Tech fee rate A applies.

CMP 310 Operating Systems (3-1-3). (Cross-listed as COE 381). Introduces operating systems, process management, process scheduling, interprocess communications, memory management techniques, virtual memory, I/O management, deadlock avoidance, file system design and security issues. Employs examples of commonly used operating systems (e.g., Windows and UNIX). Prerequisites: CMP 305 or CMP 306 or COE 311, and CMP 240 or COE 241. Lab/Tech fee rate A applies.

CMP 320 Database Systems (3-1-3). (Cross-listed as COE 422). Introduces the basic principles of database management systems; data models, including conceptual and logical models; translation between data models; query languages; normalization of relations; and formal database design and database application development. Prerequisite: CMP 305 or CMP 306 or COE 311. Lab/Tech fee rate A applies.

CMP 321 Programming Languages (3-1-3). 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 or COE 210. Prerequisites: CMP 256 or COE 312, and CMP 305 or CMP 306 or COE 311. 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 305 or CMP 306 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.

CMP 350 Software Engineering (3-1-3). (Cross-listed as COE 420). Introduces the basic principles and practices of software engineering. Emphasizes the different phases of the software development process and quality issues. Includes the following topics: software life cycle models; general design, implementation and testing issues; specification and design methodologies; model-based approaches to software design; project management; and the use of various design and development tools. Prerequisites: CMP 256 or COE 312, and CMP 305 or CMP 306 or COE 311. Lab/Tech fee rate A applies.

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. Prerequisites: CMP 256 or COE 312, and CMP 305 or CMP 306 or COE 311.

CMP 397 Professional Training in Computer Science (0-0-0). Requires a minimum of five 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 Pass/Fail. Prerequisites: Junior II standing and approval of internship coordinator for the major. Registration fee applies.

CMP 415 Introduction to Computer Networks (3-1-3). Introduces concepts in computer networks and network architectures. Includes the following topics: network reference models, circuit and packet switching, error control, data link layer, multiple access, wired LAN, network layer addressing, forwarding, routing, transport layer and application layer protocols. Not open to computer engineering majors. Prerequisite: CMP 310 or COE 381. Lab/Tech fee rate A applies.

CMP 416 Internet and Network Computing (3-1-3). Examines 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 such as XML and Web services; and building Internet-based applications. Prerequisites: CMP 256 or COE 312, CMP 310 or COE 381, and CMP 320 or COE 422. Lab/Tech fee rate A applies.

CMP 433 Artificial Intelligence (3-0-3). Introduces the fundamental concepts and techniques of artificial intelligence. Studies the structure and components of intelligent agents and systems. Includes problem-solving methods, knowledge representations, formal logic and probabilistic reasoning. Examines selected advanced topics such as expert systems, planning, machine learning and approximate reasoning, as well as case studies of AI in the real world. Prerequisite: CMP 305 or CMP 306 or COE 311.

CMP 434 Multimedia Compression (3-0-3). Covers the theory and applications of multimedia compression; presents information theory and its applications to compression; introduces lossless compression algorithms, such as statistical and dictionary based techniques; applies scalar and vector quantization to image and video compression; covers predictive coding and frequency domain transformations; and introduces international compression standards such as JPEG and MPEG. Prerequisites: CMP 305 or CMP 306 or COE 311, MTH 221, and NGN 111 or STA 201.

CMP 435 Computer Security (3-0-3). (Cross-listed as COE 444). Covers a broad variety of topics in computer security. Includes the following topics: authentication and authorization, introduction and application of cryptography, social engineering attacks, physical security, network security, application security (web, e-mail), wireless security, operating system security, program security, security management, and ethical and legal issues in computer security. Prerequisite: CMP 310 or COE 370 or COE 381.

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. Requires students to complete a substantial object-oriented software project. Prerequisite: CMP 350 or COE 420.

CMP 451 Formal Specification Methods (3-0-3). Explores requirements elicitation and modeling using formal specification models and languages. Covers finite state automata, extended and communicating finite state machines, labeled transition systems, process algebra and Petri nets. Covers selected topics of the LOTOS, UML Statecharts and Z specification languages. Prerequisite: CMP 350 or COE 420.

CMP 452 Compiler Construction (3-0-3). (Cross-listed as COE 445). Analyzes issues associated with the implementation of high-level

programming languages. Covers fundamental concepts, functions and structures of compilers, and basic program optimization techniques. Includes the following topics: parsing, abstract syntax representation, semantic analysis and code generation. Discusses run-time organization and various interpretive techniques to support execution of compiled programs. Prerequisites: CMP 256 or COE 312, and CMP 305 or COE 311.

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 305 or CMP 306 or COE 311; prerequisite/concurrent: CMP 350 or COE 420.

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 (0-3-1). Includes faculty-supervised student projects on special topics of current interest. Requires students to give both oral and written presentations on the topics. Prerequisites: CMP 350 or COE 420, ENG 207 and senior standing.

CMP 491 Project in Computer Science II (0-6-2). Continues the work of CMP 490. Prerequisite: CMP 490.

COE Computer Engineering

COE 210 Programming I (2-3-3). (Cross-listed as CMP 120). Provides an overview of computer architecture and programming. Examines elements of a C++ program, statements and expressions, data types, relational and logical operators, conditional and iterative control structures. Examines file I/O, declaration and initializations of arrays and strings, pointers and function arguments. Covers program design and testing, and modular programming. Includes laboratory and programming assignments. Prerequisite: NGN 110. Lab/Tech fee rate A applies.

COE 211 Programming II (2-3-3). (Cross-listed as CMP 220). Covers object-oriented programming concepts: constructors, destructors, objects, classes, functions and attributes, operator overloading and overriding, inheritance and polymorphism. Explores abstraction principles (interfaces, information hiding, encapsulation), templates, exception handling, I/O streams and advanced pointers. Uses the C++ programming language in laboratory work. Restricted to students formally admitted to the second-year level in computer engineering or computer science. Prerequisite: COE 210 or CMP 120. Lab/Tech fee rate A applies.

COE 221 Digital Systems (3-3-4). Covers number systems, representation of information, introduction to Boolean algebra, and combinational and sequential circuits analysis and design. Prerequisites: PHY 102 and PHY 102L. Lab/Tech fee rate A applies.

COE 241 Microcontrollers: Programming and Interfacing (3-3-4). Examines the basic hardware building blocks, addressing modes and instruction sets of microprocessors and microcontrollers. Introduces selection criteria for microcontrollers. Covers digital and analog input/output, timers, interrupts and serial communications, programming and interfacing. Restricted to students formally admitted to the second-year level in computer engineering or electrical engineering, and to students pursuing a minor in computer engineering or mechatronics engineering. Prerequisites: COE 210 or CMP 120 or MCE 226L, COE 221 or CMP 210, and ELE 211 or ELE 225. Lab/Tech fee rate B applies.

COE 311 Data Structures and Algorithms (3-1-3). (Cross-listed as CMP 305). Covers design and implementation of abstract data types, lists, stacks, queues and trees. Covers recursion and runtime stacks. Introduces the complexity of algorithms and data structures. Covers searching and sorting and basic graph algorithms. Laboratory work includes substantial programming assignments. Prerequisite: COE 211 or CMP 220; prerequisite/concurrent: CMP 213 or MTH 213. Lab/Tech fee rate A applies.

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. Not open to computer science majors. Prerequisites: COE 211 or CMP 220, and COE 241 or CMP 240. 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; DSP processor architectures; and introduction to parallel computing. Prerequisite: COE 241 or CMP 240.

COE 360 Probability and Stochastic Processes (3-0-3). (Cross-listed as ELE 360, MTH 360 and STA 360). Covers set theory, preliminaries of probability theory and random variables, stochastic processes, spectral characteristics, Markov Chains and applications to systems. Prerequisites: NGN 111 or STA 201, and ELE 323 or MTH 351 or prerequisite/concurrent ELE 321.

COE 370 Communications Networks (3-0-3). Examines the principles of communications networks. Includes the following topics: OSI and TCP/IP reference models, line coding, analog and digital modulation, transmission media, circuit and packet switching, telephony and DSL technology, datalink error and flow control, multiple access, LAN technologies and interconnections, network layer addressing and subnetting. Prerequisites: COE 221 or CMP 210, and MTH 104.

COE 371 Computer Networks I (2-3-3). Provides an overview of computer networks and the Internet, application layer services and protocols, transport layer services, principles of congestion control, network layer addressing, forwarding and routing, link layer protocols, addressing and multiple access, and VC networks (ATM, MPLS, Frame Relay, computer networks security). Prerequisite: COE 370. Lab/Tech fee rate B applies.

COE 381 Operating Systems (3-1-3). (Cross-listed as CMP 310). Introduces operating systems, process management, process scheduling, interprocess communications, memory management techniques, virtual memory, I/O management, deadlock avoidance, file system design and security issues. Employs examples of commonly used operating systems (e.g., Windows and UNIX). Prerequisites: COE 311 or CMP 305 or

CMP 306, and COE 241 or CMP 240. Lab/Tech rate A applies.

COE 397 Professional Training in Computer Engineering (0-0-0). Requires a minimum of five 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 Pass/Fail. Prerequisites: Junior II standing and approval of internship coordinator for the major. Registration fee applies.

COE 410 Embedded Systems: Design and Applications (2-3-3). Introduces embedded systems computing platforms and examines their basic building blocks. Covers programming and interfacing, process-controlled and time-controlled interrupt handling. Explores communication methods and real-time operating systems. Evaluates embedded systems design requirements and specifications, reviews embedded systems emerging applications. Includes laboratory work and team projects. Prerequisites: COE 241, and ELE 225 or ELE 241. Lab/Tech fee rate B applies.

COE 420 Software Engineering (3-1-3). (Cross-listed as CMP 350). Introduces the basic principles and practices of software engineering. Emphasizes the different phases of the software development process and quality issues. Includes the following topics: software life cycle models; general design, implementation and testing issues; specification and design methodologies; model-based approaches to software design; project management; and the use of various design and development tools. Prerequisites: COE 311 or CMP 305 or CMP 306, and COE 312 or CMP 256. Lab/Tech fee rate A applies.

COE 422 Database Systems (3-1-3). (Cross-listed as CMP 320). Introduces the basic principles of database management systems; data models, including conceptual and logical models; translation between data models; query languages; normalization of relations; introduction to formal database design and/or database application development. Prerequisite: COE 311 or CMP 305 or CMP 306. Lab/Tech fee rate A applies.

COE 423 Computer Networks II (3-0-3). Examines the most important communication networks used today. Includes the following topics: telephone networks and VoIP, wireless networks, ad-hoc and sensor networks, optical networks, multimedia networks, network management and network performance considerations (error/noise, delay models, throughput). Prerequisite: COE 371; prerequisite/concurrent: 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. Lab/Tech fee rate B applies.

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. Covers 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. Introduces service-oriented architectures and web services and the semantic Internet. Includes and Internet programming project. Prerequisites: COE 312 and COE 370.

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 (3-1-3). 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 410 or ELE 341. Lab/Tech fee rate B applies.

COE 434 Mobile Computing (3-0-3). Introduces students to the challenging field of mobile computing. Includes the following topics: wireless communications and networks, location management, routing in ad hoc wireless network, file systems issues and caching strategies. Prerequisite: COE 371.

COE 444 Computer Security (3-0-3). (Cross-listed as CMP 435). Covers a broad variety of topics in computer security. Includes the following topics: authentication and authorization, introduction and application of cryptography, social engineering attacks, physical security, network security, application security (web, e-mail), wireless security, operating system security, program security, security management, and ethical and legal issues in computer security. Prerequisite: COE 370 or COE 381 or CMP 310.

COE 445 Compiler Design (3-0-3). (Cross-listed as CMP 452). Analyzes issues associated with the implementation of high-level programming languages. Covers fundamental concepts, functions and structures of compilers, and basic program optimization techniques. Includes the following topics: parsing, abstract syntax representation, semantic analysis and code generation. Discusses run-time organization and various interpretive techniques to support execution of compiled programs. Prerequisites: COE 311 or CMP 305, and COE 312 or CMP 256.

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). Introduces theories and methods for automating the solution of problems with inexact specifications, input, processing models or output. Covers fuzzy logic, neural networks and genetic algorithms and implements examples using CAE tools. Prerequisite/concurrent: COE 360.

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. Emphasizes engineering ethics and communication skills. Prerequisites: COE 241, COE 311 or CMP 305, COE 370, ENG 207 and senior standing.

COE 491 Design Project II (0-6-2). Continues the work of COE 490 Prerequisite: COE 490.

CVE Civil Engineering

CVE 202 Construction Materials Laboratory (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. Prerequisite/concurrent: 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. Includes the following topics: 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. Prerequisites: PHY 101 and PHY 101L.

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: CHM 101; prerequisites/concurrent: CVE 202 and CVE 223.

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. Restricted to students formally admitted to the second-year level in civil engineering. Prerequisite: CVE 220 or MCE 220 or MCE 224.

CVE 231 Geology (3-0-3). Covers the nature and structure of earth, formation of rocks, chemical and physical properties of minerals, weathering, volcanoes, earthquakes and tectonic movements, types of mountains and their formation, groundwater and surface water process, and rock mass instabilities. Prerequisite: NGN 110.

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, Bernouli'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. Restricted to students formally admitted to the second-year level in civil engineering. Prerequisites: CVE 220 and MTH 104. 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). Restricted to students formally admitted to the second-year level in civil engineering, and to students pursuing a minor in urban planning. 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 and benefit cost analysis. Restricted to students formally admitted to the second-year level in civil engineering. Prerequisites: CVE 221 and NGN 111.

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 Laboratory (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. Utilizes 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. Prerequisite/concurrent: CVE 331. Lab/Tech fee rate B applies.

CVE 304 Environmental and Water Engineering Laboratory (0-3-1). Includes experiments in environmental engineering, hydraulic engineering and surface and ground water hydrology. Includes sampling, physical, chemical and bacteriological analysis of water and wastewater. Utilizes 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. Prerequisite/concurrent: CVE 351. Lab/Tech fee rate B applies.

CVE 310 Fundamentals of Structural Dynamics (3-0-3). Examines fundamental concepts of kinetics of particles and sources and types of dynamic forces in structures. 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 221 and CVE 301.

CVE 325 Numerical Methods in Engineering (3-1-3). 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 differential equations and introduces partial differential equations. Includes applications of computational methods using computers. Prerequisites: CVE 211, MTH 205 and 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. Includes the following topics: 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 and CVE 231; prerequisite/concurrent: 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 raftings; 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 including 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; prerequisites/concurrent: CVE 304 and 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 scheduling, resource leveling, time-cost tradeoff; earned value; project controls and project closeout. Prerequisite: CVE 267.

CVE 397 Professional Training in Civil Engineering (0-0-0). Requires a minimum of five weeks of approved professional experience. Work undertaken must be documented in a formal report to the program by the beginning of the following term. Graded as Pass/Fail. Prerequisites: Junior II standing and approval of internship coordinator for the major. Registration fee applies.

CVE 410 Computer Methods in Structural Analysis (3-0-3). Introduces matrix algebra, degrees of freedom and system coordinates. Explores 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 of 2D and 3D framed structures. Emphasizes team-based learning through projects. Prerequisites: CVE 301 and MTH 221.

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 414 Prestressed Concrete Design (3-0-3). Covers the analysis and design requirements for prestressed concrete members; materials, prestressing systems and methods; prestress losses; flexural design for service stresses at transfer and at service; ultimate flexural and shear strength design; composite construction and secondary moments. Prerequisite: CVE 313.

CVE 431 Fundamentals of Earthquake Engineering (3-0-3). Introduces the fundamental principles and practical methods in geotechnical earthquake engineering. Presents basic concepts of vibratory motion, dynamics, seismology, earthquakes and strong ground motion. Develops procedures of deterministic and probabilistic seismic hazard analysis. Explores the concepts of wave propagation that are used to develop procedures for site response analysis and site amplification factors. Prerequisite/concurrent: CVE 331.

CVE 437 Advanced Concrete Technology (3-0-3). Covers mix design, production, applications and quality control of high performance concrete in hot and cold climates. Includes the following topics: concrete strength, durability, deterioration, maintenance and repair materials and methods; application of admixtures and cement replacement in various advanced concrete types; and the prediction of service life and cost of repair. Prerequisites: CVE 202 and CVE 221.

CVE 441 Coastal Engineering (3-0-3). Covers wave theories and their characteristics; wave transformation (wave refraction, diffraction and reflection); wave forces and concepts and theories of wave structure interactions; water level fluctuations (tides); coastal and ocean structures; design of seawalls, breakwater and shore protection systems; design of selected coastal structures; and hydraulic considerations. Introduces selected coastal engineering problems. Prerequisite: CVE 341.

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 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. Includes the following topics: reactor theory, mixing, gravity separation, centrifugation, adsorption, Ion exchange, disinfection kinetics, acid/base chemistry, neutralization, precipitation and corrosion. Prerequisites: CVE 304 and CVE 351.

CVE 451 Urban Water Infrastructure Management (3-0-3). Introduces drinking water, wastewater and stormwater infrastructures. Includes water quality management of water infrastructures, waste solids handling and disposal practices and integrity of water infrastructures, design approach and construction of infrastructure, and operations, maintenance and renewal of water, sewer and stormwater systems. Introduces financial management, asset management, risk management and the use of information technology in water management. Prerequisites/concurrent: CVE 341 and CVE 351.

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 467 Building Construction Materials and Methods (3-0-3). Covers traditional and alternative building systems, the principles, materials, methods, codes and standards, and discusses their advantages and limitations. Encompasses aspects of site preparation, excavation and formwork, foundation choices, different elements of frame construction, scaffolding, thermal and moisture protection, electrical wiring, heating ventilation and air-conditioning (HVAC), plumbing, roofing, cladding systems, and external and internal finishes. Prerequisites: CVE 211 and CVE 267.

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 472 Geographic Information Systems (3-0-3). Introduces the concept and use of Geographic Information Systems (GIS). Covers assorted topics in GIS including map generation and analysis, vector and raster GIS, spatial databases and query, spatial data display, simple spatial analysis, data in GIS, GIS capabilities, GIS data structures and sources of data, GIS tools, GIS analysis, GIS applications and GIS visualization. Prerequisites: CVE 241, CVE 242 and senior standing.

CVE 490 Civil Engineering Design Project I (0-3-1). Requires preparing a proposal for 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 work in close accord with one or more faculty members in a team environment with emphasis on communication, independent study and ethics. The project outcomes must demonstrate that students have attained the level of competency needed for entry into the civil engineering profession. Introduces basic concepts in business, public policy and leadership skills. Prerequisites: ENG 207 and senior standing.

CVE 491 Civil Engineering Design Project II (0-6-2). Continues the work of CVE 490. Prerequisite: CVE 490.

EGM Engineering Management

EGM 361 Management for Engineers (3-0-3). Focuses on engineers as managers. Includes the following topics: 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. Prerequisites: WRI 102 and NGN 110.

EGM 362 Engineering Project Management (3-0-3). Covers projects in engineering organizations. Includes the following topics: 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. Prerequisites: ECO 201 and NGN 110.

EGM 364 Engineering Economy (3-0-3). (Formerly EGM 464). 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. Not open to civil or chemical engineering students. Prerequisites: ECO 201 and NGN 111.

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 circuit analysis. Covers single phase AC power analysis. Includes laboratory experiments and use of PSpice and MATLAB. Prerequisites: PHY 102 and PHY 102L. 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. Restricted to students formally admitted to the second-year level in electrical engineering, and to students pursuing a minor in electrical engineering or mechatronics engineering. Prerequisites: 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. Not open to electrical engineering or computer engineering majors. Prerequisites: PHY 102 and PHY 102L. 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. Restricted to students formally admitted to the second-year level in electrical engineering or computer engineering, and to students pursuing a minor in electrical engineering. Prerequisite: ELE 211; prerequisite/concurrent ELE 241L.

ELE 241L Electronics I Laboratory (0-3-1). Laboratory to accompany ELE 241. Prerequisite/concurrent: ELE 241. Lab/Tech fee rate B applies.

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. Restricted to students formally admitted to the second-year level in electrical engineering or computer engineering, and to students pursuing a minor in electrical engineering. Prerequisites: MTH 203, MTH 205, PHY 102 and PHY 102L.

ELE 321 Signals and Systems (3-0-3). Covers 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. 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, and FIR and IIR Digital filters and their design. Not open to electrical engineering students. Prerequisites: ELE 211 or ELE 225, and MTH 205.

ELE 324 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 332L Measurements and Instrumentation Laboratory (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 225 or ELE 241.

ELE 341L Electronics II Laboratory (0-3-1). Laboratory to accompany ELE 341. Prerequisite/concurrent: ELE 341. Lab/Tech fee rate B applies.

ELE 342 Photovoltaic Semiconductors (3-0-3). Covers semiconductor physics, properties of sunlight, Positive Negative (PN) junction, light emitting diodes, photocurrent in a PN junction, solar cell operation, design and manufacturing of solar cells, and efficiency considerations. Prerequisite: ELE 225 or ELE 241.

ELE 351 Electrical Energy Conversion (3-0-3). Covers Magnetic circuits, single-phase transformer and equivalent circuit, autotransformer, basic concepts of electromechanical energy conversion, and DC and AC machines modeling and steady state analysis. Prerequisite: ELE 212 or ELE 225 for non-electrical engineering students only.

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.

ELE 353L Control Systems I Laboratory (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). (Cross-listed as COE 360, MTH 360 and STA 360). Covers set theory, preliminaries of probability theory and random variables, stochastic processes, spectral characteristics, Markov chains and applications to systems. Prerequisites: ELE 323 or MTH 351 or prerequisite/concurrent: ELE 321, and NGN 111 or STA 201.

ELE 361 Communications (3-0-3). Covers signals and systems concepts, communication systems and signal transmission through linear systems; continuous wave modulation schemes including amplitude modulation (AM), frequency modulation (FM) and phase modulation (PM); detection schemes for analog modulation systems and superheterodyne receivers; and noise modeling and performance of various analog modulation schemes in the presence of noise. Fundamentals of digital communications and networking. Prerequisite: ELE 321 or ELE 323; prerequisite/concurrent: ELE 360.

ELE 361L Communications Laboratory (0-3-1). Laboratory to accompany ELE 361. Prerequisite: ELE 361. Lab/Tech fee rate B applies.

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 351; prerequisite/concurrent: MTH 221.

ELE 371L Electric Machines and Power Systems Laboratory (0-3-1). Laboratory to accompany ELE 371. Prerequisite/concurrent: ELE 371. Lab/Tech fee rate B applies.

ELE 397 Professional Training in Electrical Engineering (0-0-0). Requires a minimum of five 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 Pass/Fail. Prerequisite: Junior II standing and approval of the internship coordinator for the major. Registration fee applies.

ELE 432 Medical Instrumentation (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 439L Medical Electronics Systems Laboratory (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, MOSFETs, BJTs and modern FETs. Uses of the state-of-the-art technology CAD/CAE simulation tools, analytical techniques for device design, layout, fabrication and testing. Prerequisite: ELE 341.

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, and modulation and coding trade-off. 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: ELE 323 or ELE 324.

ELE 456 Pattern Recognition (3-0-3). Covers fundamentals of pattern recognition. Explores the following topics: Bayesian decision theory and parameter estimation, maximum likelihood estimation, linear discriminant analysis**,** Fisher discriminant analysis**,** dimensionality reduction via principle component analysis, and neural networks. Includes unsupervised learning and clustering. Prerequisites: ELE 360 and MTH 221.

ELE 457 Satellite Communications (3-0-3). Explores the technical and economical aspects of satellite communication. Includes the following topics: design considerations of low, medium and high power transponders, antenna types, and ground station design. Prerequisites: ELE 311 and ELE 361.

ELE 458 Multimedia Communications and Networking (3-0-3). Provides an overview of multimedia information (text, video, audio and images). Explains the fundamentals of image and video

compression. Introduces underlying concepts and principles of multimedia technologies and networking. Demonstrates basic understanding of Quality of Service (QoS) and QoS Routing network protocols, routing, operating systems and human computer interaction. Includes multimedia streaming standards and techniques over wired and wireless networks. Prerequisite: ELE 360.

ELE 458L Communications Systems Laboratory (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; prerequisite/concurrent: ELE 324. Lab/Tech Fee Rate B applies.

ELE 459 Introduction to Radar Systems (3-0-3). Explores the nature of radars. Includes the following topics: 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 system models, open-loop and closed-loop discrete-time systems, time-response characteristics, stability analysis techniques, digital controller design and implementation techniques, state-space representations of discrete-time systems, state-feedback, pole-placement design and state estimation. Prerequisites: ELE 324 and 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 Laboratory (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 332L and ELE 353L. 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, system grounding, 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. Includes the following topics: 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 485 Power Electronics (3-0-3). Covers operating characteristics of power semiconductor devices such as bipolar junction transistors (BJTs), insulated gate bipolar transistors (IGBTs), metal-oxide semiconductor field-effect transistors (MOSFETs) and Thyristors. Covers the fundamentals of power converter circuits including dc/dc converters, phase controlled ac/dc rectifiers and dc/ac inverters. Addresses practical issues in the design and implementation of power converters. Prerequisites: ELE 212 and ELE 241, or ELE 225.

ELE 486 Electric Drives (3-0-3). Covers the application of semiconductor switching power converters to adjustable speed DC and AC motor drives. Includes the following topics: steady state theory and analysis of electric motion control in industrial, robotic and traction systems. Prerequisites: ELE 225 or ELE 241, and ELE 351.

ELE 487 Power Conversion in Renewable Energy Systems (3-0-3). Includes modeling and control of renewable energy sources such as wind generation, solar panels and fuel cells; power electronics topologies and interfaces for renewable energy systems; and integration of renewable energy systems with the distribution grid. Prerequisite: ELE 371.

ELE 488L Power Engineering Laboratory (0-3-1). Explores various power systems and power electronics applications including issues related to power transmission and distribution and adjustable speed motor drives. Prerequisites: 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 of significance in electrical engineering. The project includes the design of a system, process or component to achieve the functional objectives representative of problems encountered by practicing engineers. Realistic constraints and standards are considered in the design. Collaborative teams define, complete, validate and document their design project under the supervision of one or more faculty members. Emphasizes engineering ethics and communication skills. Prerequisites: ENG 207, senior standing and permission of the department.

ELE 491 Electrical Engineering Design Project II (0-6-2). Continues the work of ELE 490. Prerequisite: ELE 490.

EWE Environmental and Water Engineering

EWE 331 Introduction to Environmental and Water Engineering (3-0-3). Introduces different components of water resources engineering and environmental engineering, environmental sustainability, environmental and social impact assessment, and environmental risk assessment. Covers surface and groundwater hydrology, quantity and quality of water resources, water supply systems and pollution originating from air, noise and solid waste. Prerequisite: CHM 101.

EWE 333 Water Quality and Treatment (3-0-3). Introduces water quality criteria, standards, water sampling and testing methods. Covers pollution sources in water bodies and their impacts on aquatic life. Covers water demand, forecasting and waste generation, and provides a guide to selecting water and wastewater treatment processes. Introduces resource recovery options from water and wastewater treatment facilities. Introduces water re-use options, the importance of pretreatment and quality requirements. Prerequisite: CHM 101.

INE Industrial Engineering

INE 222 Operations Research I (3-0-3). Introduces deterministic

models in operations research with special emphasis on linear programming. Covers graphical solutions, simplex method, duality, sensitivity analysis, transportation and assignment problems, shortest path problem, CPM/PERT, maximum flow problem, and minimum spanning tree problem. Provides real modeling of various industrial problems as linear programs. Prerequisite: MTH 221.

INE 310 Manufacturing Processes for Industrial Engineers (2-3-3). Introduces the fundamentals of engineering materials and manufacturing processes, including casting, forming, welding, machining operations and machining economics. Prerequisite: MCE 216L. Lab/tech fee rate B applies.

INE 311 Quality Engineering (3-0-3). Emphasizes the importance of quality management and control. Deals with statistical methods relevant to process control, control charts for variables and attributes, process capability analysis, acceptance sampling plans. Introduces process improvement techniques and six sigma concepts and their applications. Prerequisites: INE 310 and NGN 111.

INE 322 Operations Research II (3-0-3). Covers deterministic models in operations research and their solution methods. Introduces integer programming formulation and branch and bound method, deterministic dynamic programming, nonlinear programming formulation and unconstrained and constrained optimization techniques. Provides real applications of integer, dynamic and nonlinear programs to industrial and engineering problems. Prerequisites: INE 222 and MTH 205.

INE 323 Stochastic Processes and Simulation (3-0-3). Introduces stochastic processes and simulation modeling and techniques. Covers discrete and continuous Markov chains, Poisson processes, renewal reward processes, discrete event simulation, simulation languages, model verification and validation. Discusses applications to queuing, reliability and inventory systems. Prerequisites: INE 222 and NGN 111.

INE 331 Analysis of Production Systems (3-0-3). Covers design and analysis of production systems. Introduces the managerial concepts and quantitative techniques required in production planning and inventory control. Includes aggregate production planning, master production scheduling, material requirement planning, single and multiple products inventory control in both certain and uncertain environments. Prerequisites: INE 222 and NGN 111.

INE 332 Analysis of Supply Chains (3-0-3). Presents various concepts, tools and techniques of supply chain management (SCM). Deals with development and application of supply chain decision models with special emphasis on supply network design, forecasting, supply chain performance metrics, transportation, and green supply chain. Explores various SCM initiatives such as vendor managed inventory, postponement, consignment stock and third-party logistics. Prerequisite: INE 331.

INE 333 Facility Design and Operations (3-0-3). Deals with principles and practices of facility design and planning and materials handling equipment for manufacturing and service systems. Includes analytical approaches in site location, facility design and layout, materials handling and storage systems. Emphasizes quantitative methods for warehouse layout and facility location theory. Prerequisite: INE 331.

INE 397 Professional Training in Industrial Engineering (0-0-0). Requires a minimum of five 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 Pass/Fail. Prerequisites: Junior II standing and approval of internship coordinator for the major. Registration fee applies.

INE 413 Maintenance Engineering (3-0-3). Covers maintenance workload analysis and calculations, capacity planning of maintenance resources, maintenance work scheduling, maintenance auditing and the measurement of maintenance operations performance, and computerized maintenance management systems (CMMS). Explores recent maintenance concepts and techniques such as predictive maintenance and enterprise asset management. Prerequisite: INE 322.

INE 415 Design of Experiments (3-0-3). Introduces the planning, design and statistical analysis of experiments. Includes analysis of variance (ANOVA), randomized block design, factorial and fractional design, random and mixed models, and response surface methods. Stresses the application of the learned techniques to various engineering problems. Prerequisite: INE 311.

INE 416 Reliability Engineering (3-0-3). Covers the concepts of reliability and failure analysis. Addresses hazard and reliability functions, reliability data analysis and reliability modeling. Explores recent reliability concepts and techniques such as reliability-centered maintenance. Prerequisite: INE 323.

INE 417 Six Sigma Methodology (3-0-3). Covers the concepts of Six Sigma methodology for both manufacturing and service organizations. Introduces lean, six sigma and the DMAIC problem-solving methodology. Discusses continuous process improvement techniques such as process definition, process flow diagrams, data collection, measurement techniques, causes of process variation, Pareto diagrams, cause and effect diagrams, and statistical-based techniques. Prerequisite: INE 311.

INE 425 Decision Analysis (3-0-3). Introduces judgment and decision making of individuals, groups and organizations. Includes structured decision problems, decision trees, Bayesian decision analysis, utility theory and multi-criteria decision making. Covers practical applications from various engineering areas. Prerequisite: INE 323.

INE 431 Industrial Scheduling (3-0-3). Examines scheduling applications in manufacturing and services. Covers practical scheduling problems such as single machine, parallel machine, flow shop, job shop and project scheduling with unconstrained and constrained resources. Discuses both exact and approximate procedures to solve such problems. Prerequisite: INE 332.

INE 433 Logistics Engineering (3-0-3). Provides an overview of transportation activities related to design, evaluation and performance of logistics systems. Develops an understanding of the physical and information flows in supply chains and the economic drivers of logistic choices. Includes methods to analyze and improve logistics and transportation systems, technology and infrastructure. Prerequisite: INE 332.

INE 435 Warehousing Systems (3-0-3). Offers an overview of the design and management of warehousing systems. Includes warehousing management systems, warehouse operations, packaging, warehouse location analysis and material handling. Prerequisite: INE 331.

INE 450 Safety Engineering (3-0-3). Introduces safety regulations and standards, industrial hazard avoidance concepts and techniques, and plant safety applications. Covers process safety, analytical trees and fault tree analysis, risk assessment, and emergency planning. Prerequisite: INE 311.

INE 490 Senior Design Project I (1-0-1). Covers problem-solving methodology through an open-ended, in-depth design project within the field of industrial engineering. Applies industrial engineering-specific techniques and concepts to problem definition, design and analysis, and evaluation of alternatives. Emphasizes teamwork, engineering ethics, and the skills and abilities necessary for entry into the industrial engineering profession. Addresses the role of effective communication through a report presented orally and in writing. Prerequisites: ENG 207 and senior standing.

INE 491 Senior Design Project II (0-6-2). Continues the work of INE 490. Prerequisite: INE 490.

MCE Mechanical Engineering

MCE 216L Introduction to Engineering Drawing and Workshop (0-3-1). Covers descriptive geometry, orthographic projections, 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. Prerequisites: PHY 101 and PHY 101L.

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. Includes the following topics: 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. Restricted to students formally admitted to the second-year level in mechanical engineering, and to students pursuing a minor in mechanical engineering. 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. Restricted to students formally admitted to the second-year level in mechanical engineering, and to students pursuing a minor in mechanical engineering or mechatronics engineering. Prerequisite: MCE 220 or MCE 224 or MCE 225.

MCE 224 Engineering Mechanics–Statics and Dynamics (3-1-3). Covers statics and dynamics of particles and rigid bodies, vector mechanics, free body diagrams, force equilibrium systems, rectilinear and curvilinear motion, Coriolis effects, considerations of work and energy, and rigid body motion. Not open to mechanical engineering or civil engineering majors. Prerequisites: MTH 104, PHY 101 and PHY 101L.

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, internal forces, moments of inertia, rectilinear and curvilinear motion, considerations of work and energy. Not open to mechanical engineering, civil engineering or electrical engineering majors. Prerequisites: MTH 104, PHY 101 and PHY 101L.

MCE 226L Computer Applications in Mechanical Engineering I (0-3-1). Covers Boolean algebra, numbering systems, basic computer hardware, C-programming with focus on input-output, logic statements, loops, arrays, pointers and computer interfacing. Lab/Tech fee rate A applies.

MCE 230 Materials Science (3-0-3). 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; properties of engineering materials; and corrosion. Prerequisite: CHM 101.

MCE 236L Solid Modeling (0-3-1). Covers dimensioning, an introduction to fits and tolerances, detailed and assembly drawings, solid modeling and computer-aided drafting using commercial computer-aided design software. Prerequisite: MCE 216L. Lab/Tech fee rate A applies.

MCE 240 Fluid Mechanics (3-1-3). 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 and turbomachinery. Restricted to students formally admitted to the second-year level in mechanical engineering, and to students pursuing a minor in mechanical engineering. Prerequisites: MCE 220 and MTH 104.

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. Prerequisites: PHY 101 and PHY 101L.

MCE 300 Introduction to Mechanical Systems (3-0-3). Covers the rigid body dynamics as well as the concept of stress and strain under different types of loading. Introduces the fundamental concepts and basic equations of fluid mechanics and thermodynamics. Not open to mechanical engineering majors. Prerequisite: MCE 220 or MCE 224 or MCE 225.

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; signal conditioning; data acquisition; and selection and use of temperature, pressure, fluid flow, force, stress, strain, torque and power instrumentation. Includes laboratory experiments with emphasis on fluid flow experiments, temperature measurements, motion measurements and solid mechanics experiments. Prerequisites: MCE 222, MCE 240, ELE 225 and NGN 111. Lab/Tech fee rate B applies.

MCE 321 Mechanical Design I (3-0-3). Examines properties of ductile and brittle materials. Explores the concepts of stress, strain and deformation analysis of solid elements as applied to mechanical design, and the analysis of long and intermediate compression members. Includes design to prevent static and fatigue failures. Covers the design of mechanical elements, including power screws and bolted and welded joints. Prerequisites: MCE 223, MCE 230 and MCE 236L.

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. Requires a design project. Prerequisite: MCE 321; prerequisite/concurrent: MCE 331.

MCE 325 Numerical Methods in Engineering (3-0-3). Covers computational methods and error analysis; numerical solutions of non-linear equations; direct and iterative methods for solving systems of linear algebraic equations; numerical differentiation and integration; regression and interpolation; numerical solutions of ordinary and partial differential equations; and initial and boundary-value problems, eigenvalue problems and applications of numerical methods in solving engineering problems using computers. Prerequisites: MCE 326L, MTH 205 and MTH 221.

MCE 326L Computer Applications in Mechanical Engineering II (0-3-1). Covers Matlab programming software, input-output, loops functions, s-functions and embedded Matlab functions. Introduces Simulink Matlab toolbox for mechanical simulations. Includes a term project on interfacing a mechanical system to computer hardware. Prerequisite: MCE 226L. Lab/Tech fee rate A applies.

MCE 328 Dynamic Systems (3-0-3). Covers modeling and analysis of mechanical, electromechanical and fluidic systems. Covers forced and free vibrations in single and multiple degree-of-freedom dynamic systems, energy storage and dissipation, transfer functions, state space model representations, system stability, and time domain and frequency domain analysis. Utilizes block diagram simulation tools. Prerequisites: MCE 222, MCE 326L and ELE 225.

MCE 331 Manufacturing Processes (3-0-3). Introduces fundamentals of manufacturing processes including casting, forming, welding and machining operations. Covers economics of metal cutting and statistical quality control. Introduces basics of non-metals manufacturing and other contemporary topics in manufacturing. Prerequisites: MCE 216L, MCE 223 and MCE 230; prerequisite/concurrent: MCE 332L.

MCE 332L Materials and Manufacturing Processes (0-3-1). Covers experimental determination of mechanical properties of engineering materials. Includes experiments covering different manufacturing processes such as casting, welding, forming and machining. Introduces new experiments on contemporary topics in materials and manufacturing. Prerequisite/concurrent: MCE 331. Lab/Tech fee rate B applies.

MCE 341 Thermodynamics II (3-0-3). Covers energy system analysis including modified power cycles, refrigeration and heat pump cycles, and air conditioning processes; thermodynamic relations and development of thermodynamic properties; and thermodynamics of non-reacting and reacting mixtures, combustion fundamentals and chemical reaction. Prerequisites: MCE 240 and MCE 241.

MCE 344 Heat Transfer (3-0-3). 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.

MCE 345L Thermofluids Laboratory (0-3-1). Includes the experimental evaluation and analysis of the performance of energy systems, the thermal conductivity of solids and fluids, and the performance curves of pumps; and experiments on fluid flow, heat exchangers, cooling towers, internal combustion engines, and refrigeration and air conditioning systems. Prerequisites/concurrent: MCE 341 and MCE 344. Lab/Tech fee rate B applies.

MCE 348 Renewable Energy Systems and Sustainability I (3-0-3). Covers energy supply and demand; energy conversion and utilization technologies; environmental impact and potential solutions; sustainable development; analysis of renewable energy systems: solar, wind, geothermal, hydro, tidal and nuclear; hydrogen energy; and fuel cells and their applications. Prerequisite: MCE 241.

MCE 397 Professional Training in Mechanical Engineering (0-0-0). Requires a minimum of five weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Prerequisites: Junior II standing and approval of internship coordinator for the major. Registration fee applies.

MCE 410 Control Systems (3-0-3). Covers state variable models, feedback control system characteristics, performance and stability of feedback control systems, root-locus method, and stability in the frequency domain and design of feedback control systems. Includes control system design in the state space. Introduces digital control systems. Prerequisites: MCE 311 and MCE 328.

MCE 415L Dynamics and Control Systems Laboratory (0-3-1). Covers experiments on system dynamics, vibration and control systems. Includes experiments on dynamic systems' response in the time and frequency domains, and open loop and closed loop control of various mechanical systems. Uses CAD software for dynamic response and controller design. Prerequisite: MCE 410. 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 single and two degree-of-freedom vibration time and frequency response (free, transient and harmonic forcing). Includes analysis of multi-degree of freedom system (mass, stiffness and damping matrices). Covers modal analysis and frequency response functions (FRF), vibration analysis of continuous structures and finite element method. Covers vibration measurements and testing: vibration signal analysis, vibration isolation techniques, vibration measurements of active structures, including vibrating machines and rotating machinery. 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. Includes the following topics: 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 326L and MCE 331. Lab/Tech fee rate B applies.

MCE 435 Advanced Mechanics of Materials (3-0-3). Examines basic material properties and their use in design. Includes the following topics: stress-strain-temperature relations, inelastic material behavior, energy

methods, torsion of non-circular bars, non-symmetric bending of straight beams, curved beam theory and thick-walled cylinders. Prerequisite: MCE 321.

MCE 439 Computer Integrated Manufacturing (3-0-3). Covers fundamentals and principles associated with computer integrated manufacturing (CIM). Includes the following topics: 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. Prerequisites: MCE 326L 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 psychrometrics, 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 laboratory 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 laboratory experiments and demonstrations. Prerequisite: MCE 341. Lab/Tech fee rate B applies.

MCE 448 Renewable Energy Systems and Sustainability II (3-0-3). Covers energy efficiency and utilization technologies for solar, wind, fuel cells and hydrogen production systems; geothermal power generation; performance analyses and design methods of renewable energy systems; environmental concerns; economics of solar and wind energy systems; and performance of fuel cells, hydrogen liquefaction and integrated systems for sustainability. Prerequisite: MCE 348.

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. Prerequisite: MCE 328 or ELE 353.

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, or ELE 332L and ELE 353. 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; prerequisites/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/concurrent: MCE 325, MCE 345L and MTH 203.

MCE 485 Hydraulics of Pipeline Systems (3-0-3). Covers fundamentals of piping systems, hydraulic and mechanical design considerations, pipe sizing and selection, constant and telescopic wall thickness, pipe network design, pipeline economics, transient pipe flow, pumps performance, affinity laws, cavitations and net positive suction head. Introduces drag reduction techniques, thermal hydraulics and natural gas transmission. Prerequisite: MCE 344.

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 341. Lab/Tech fee rate B applies.

MCE 488 Introduction to Computational Fluid Dynamics (CFD) (2-3-3). Explores discretization techniques and solution algorithms; finite difference solutions to classical model equations pertinent to wave phenomena, diffusion phenomena, or equilibrium, boundary and initial conditions and stability considerations,

application into equations of fluid mechanics and heat transfer, using software packages in solving CFD problems. Prerequisite: MCE 325; prerequisite/concurrent: MCE 344. Lab/Tech fee rate B applies.

MCE 490 Design Project I (1-0-1). 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 must address design methodologies including design concept generation techniques, as well as design for manufacturability, reliability and sustainability. The project must demonstrate alternative design evaluation and selection techniques, collaborative design, teaming and product dissection. Economic analysis of decision making and the reverse engineering aspect of the project will be practiced and presented. Relevant standards, especially ASME standards, must be incorporated. 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. Emphasizes intellectual property, ethical issues and communication skills. Prerequisites: MCE 311, MCE 322, ENG 207 and senior standing.

MCE 491 Design Project II (0-6-2). Continues the work of MCE 490. Prerequisite: MCE 490.

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 College of Engineering.

NGN 111 Introduction to Statistical Analysis (2-1-2). 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. Presents examples from the engineering and related disciplines. Prerequisite/concurrent: MTH 103.

PET Petroleum Engineering

PET 305 Fundamentals of Petroleum Operations (3-0-3). Introduces fundamental principles of oil and gas production and recovery. Includes the following topics: petroleum geology, fluid zonation in the traps and reservoir statics, description of drilling, production and reservoir engineering, petroleum fluid properties, and petrophysics. Prerequisite: CHE 215 or CVE 240 or MCE 240.

PET 365 Petroleum Reservoir Engineering (3-0-3). Introduces concepts and methods of petroleum reservoir engineering. Covers reservoir energies and drive mechanisms, general material balance equation (MBE), and MBE applications to oil and gas in place estimations and reservoir performance evaluation, decline curve analysis, single-phase reservoir fluid low fundamentals, and applications to reservoir/well performance, water influx, and two-phase flow in porous media and immiscible displacement fundamentals. Prerequisites: PET 305 and MTH 205.

PET 375 Petroleum Drilling and Production (3-0-3). Covers rotary drilling system fundamentals, drilling fluids, formation pressures and casing setting, well completions, inflow performance modeling and causes of low productivity, wellbore flow mechanics and well deliverability, and well productivity improvement. Prerequisite: MTH 205; prerequisite/concurrent: PET 305.

PET 385 Formation Evaluation (3-0-3). Explores well testing and well logging as formation evaluation techniques. Covers topics such as solutions to reservoir fluid flow equations, including skin and storage; dimensionless variables and the superposition principle; interpretation of pressure build up, drawdown and interference tests using manual and application software techniques; logging environments; permeable zone logs (SP and Gamma Ray); resistivity log; porosity logs (neutron, density and acoustic); Nuclear Magnetic Resonance (NMR) log; and interpretation of various log-suits using manual and application software techniques. Prerequisite: PET 305.

PET 414 Enhanced Oil Recovery (3-0-3). Introduces reservoir screening criteria for enhanced oil recovery methods, immiscible displacement, mobility control processes, thermal recovery, miscible displacement and chemical flooding methods. Prerequisite: PET 365.

Independent Study

Independent study is the umbrella term used to label two types of independent work: independent course and directed study.

Students are allowed to take one independent study. A second independent study could be approved by the student's associate dean for graduation purposes only.

Independent Course (1 to 4 credits). A course listed in the catalog but offered in an independent study format. The course is coded using the course number in the catalog.

Students are not allowed to repeat courses in an independent course format.

Directed Study (1 to 4 credits). An investigation under faculty supervision beyond what is offered in existing courses. Prerequisites: minimum CGPA of 3.00, Junior II standing and consent of the instructor.

Directed study courses are numbered as 396 or 496 courses. The three-letter course prefix reflects the field of study of the course (e.g., independent study courses in chemical engineering are coded as CHE 396 or CHE 496).

For more details, please refer to Registration in Independent Study Courses in the Academic Policies and Regulations section of this catalog.

Special Topic Courses

Special Topic (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: topic specific. Lab/Tech fee may apply.

Special topic courses are numbered as 194, 294, 394 or 494 courses. The three-letter course prefix reflects the field of study of the course.

Special topic courses at the 300 level require sophomore standing or above;

400-level special topic courses are restricted to junior standing and above.

Descriptions of particular special topic courses are made available in the college/school offering the course during registration.

School of Business and Management

ACC Accounting

ACC 201 Fundamentals of Financial Accounting (3-0-3). Introduces the principles and concepts underlying financial statements. 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: MTH 101 or MTH 103 or MTH 111.

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. Prerequisite: ACC 201.

ACC 230 Accounting and Finance for Non-Business Majors (3-0-3). Introduces basic concepts of financial accounting, managerial accounting and finance to non-business majors. Provides a basic understanding of the information contained in financial statements without undertaking an extensive study of accounting and financial principles. Not open to SBM students. Prerequisite: MTH 100 or MTH 101 or MTH 103 or MTH 111.

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. Includes financial statement analysis, income measurement, valuation of assets and equities, and generally accepted accounting principles. Prerequisite: ACC 202.

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.

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. Prerequisite: ACC 202.

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. Prerequisite: ACC 301.

ACC 306 Income Tax II (3-0-3). Introduces the US federal income tax system as it applies to corporations, partnerships, estates and trusts. 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 310 Analysis of Financial Statements (3-0-3). (Cross-listed as FIN 310). 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. Not open to the BSBA accounting major students. Prerequisites: ACC 202 and FIN 201.

ACC 360 Accounting Information Systems (3-0-3). Provides an overview of current accounting information systems concepts, web technology, online auditing issues and contemporary accounting issues. Includes the following topics: e-business, computer hardware and software issues, accounting cycles, systems development, computer crime, auditing and expert systems. Prerequisites: ACC 202 and junior standing.

ACC 370 Accounting in Islamic Financial Institutions (3-0-3). Focuses on the accounting and reporting practices in Islamic financial institutions. Explores the theoretical basis of Islamic accounting standards and regulations, and accounting concepts and principles underlying these standards. Not open to BSBA accounting major students. Prerequisites: ACC 201 and FIN 370.

ACC 401 Advanced Financial Accounting (3-0-3). Covers theory and practices of accounting for partnerships, business combinations and consolidated financial statements, and advanced topics in financial accounting. Prerequisite: ACC 302.

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. Includes the following topics: 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.

ACC 413 Introduction to Accounting for Government and Non-Profit Entities (3-0-3). Introduces students to accounting practices and fund management planning, financial control, and the usefulness of accounting data for evaluating program inputs and outcomes. Prerequisite: ACC 301.

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.

BIS Business Information Systems

BIS 101 Business Information Systems (3-0-3). Provides students with technical proficiency and expertise in office tools as well as important computer skills. Presents analytical techniques and essential knowledge to enhance student productivity in higher-level courses. Enhances students' ability to apply advanced features of spreadsheet software to business case assignments. Not open to computer science and computer engineering students. Prerequisite/concurrent: Math Placement Test or preparatory math course. 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. Focuses on US law but also considers international and global legal perspectives. Prerequisites: ACC 201 and ECO 202; prerequisite/concurrent: ENG 204 or ENG 208.

BLW 302 Advanced Business Law (3-0-3). Continues and builds on the introductory business law course. Examines the following areas of law: sales and lease contracts; debtor and creditor relationships, including secured transactions; securities regulations; professional liability, including directors, officers and shareholders; corporate mergers and acquisitions; labor and employment law/employment discrimination; real property; and international law and other special topics. Prerequisite: BLW 301.

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 multinational organizations and attend seminars given by the professionals from these corporations. Prerequisites: good academic standing, and junior standing or sophomore standing with permission of instructor.

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. Graded as Pass/Fail. Prerequisites: Junior II standing and approval of internship coordinator. Registration fee applies.

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: ELPT score of 1 or EPT score of 4 or WRI 001.

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: ELPT score of 1 or EPT score of 4 or WRI 001.

ECO 301 Intermediate Microeconomics (3-0-3). Studies consumer and firm optimization. Emphasizes applications to different market structures, in addition to uncertainty and asymmetric information. Prerequisites: ECO 201, ECO 202, MTH 102 or MTH 103 or MTH 111, 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. 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. 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 modem 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. Considers 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. 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. Analyzes both efficiency and fairness. For efficiency, emphasis is placed upon the incentive effects that legal rulings create for economic behavior in the future. Analyzes fairness 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. Includes the following topics: 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 340 Real Estate Economics (3-0-3). Examines the spatial pattern of economic activities and commercial and residential real estate in urban areas. Examines tools for "space market" analysis by introducing urban economics theories. Identifies the underlying factors that determine how the demand for space varies by location characteristics, such as transportation, schooling, crime, pollution, etc. Addresses basic concepts of real estate investments and the supply of residential and commercial real estate. Covers tools used to study the observed patterns of real estate locations and characteristics in cities Prerequisites: ECO 201, ECO 202 and sophomore standing.

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. Includes 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 360 Economics of Multinational Corporations (3-0-3). Examines the origin and development of multinational firms, recent trends and facts concerning the flow of foreign direct investment and the effect of the activities of multinational corporations on both parent and host countries. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 401 Managerial Economics (3-0-3). Managerial decision making is considered from the perspective of the economic theory of the firm. Integrates the traditional topics in the theory of the firm, production, cost and price with finance and 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. Begins with an economic analysis of the contention that markets fail to adequately control environmental pollution. Addresses alternative policy mechanisms that have been proposed for control on environmental pollution. Covers topics such as 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 to 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 451 Advanced Econometrics (3-0-3). Continues the development of statistical methods in economics initiated in ECO 351. Covers nonlinear models, limited dependent variables, endogeneity and panel data. Treats both theoretical underpinnings of models and also estimation using computer software. Emphasizes interpretation of econometric results and limits to causal inference. Prerequisite: ECO 351.

ECO 452 Economic Forecasting (3-0-3). Constructs, estimates, and tests univariate and multivariate forecasting models. Evaluates forecasts in terms of unbiasedness, efficiency, and predictive information content. Prerequisite: ECO 351.

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.

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. Prerequisites: ACC 201, MTH 102 or MTH 103 or MTH 111, and QBA 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: 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: ACC 202, FIN 201 and WRI 102.

FIN 310 Analysis of Financial Statements (3-0-3). (Cross-listed with ACC 310). 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: ACC 202 and FIN 201.

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. Focuses on risk versus return in investment theory, but students also construct and manage real-time hypothetical investment portfolios. Prerequisites: ACC 202, FIN 201 and WRI 102; prerequisites/concurrent: MGT 201 and MKT 201.

FIN 350 Mergers and Acquisitions (3-0-3). Covers mergers and acquisitions along several dimensions: motivations of mergers, valuation of targets, estimating synergies, and other financial, strategic and legal aspects of mergers. Examines hostile mergers and international cross border transactions. Prerequisite: FIN 201.

FIN 360 Behavioral Finance (3-0-3). Studies the impact of psychology and human emotions on investment and financial decision-making processes. Examines the validity of the traditional assumptions of market efficiency and individual rationality so pervasive in the finance literature. Prerequisite/concurrent: FIN 330.

FIN 370 Fundamentals of Islamic 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. Explores current and future challenges to Islamic finance in an integrated world economy. Prerequisite: ECO 330 or FIN 201.

FIN 380 Islamic Markets, Money and Financial Institutions (3-0-3). Analyzes economic activities based on the economic rationale of Islamic values and Islamic law. Covers economic policies, business strategies and government regulations within the context of Islamic markets. Examine how and why Islamic values determine the business climate. Provides a clear framework for analyzing the micro-and macro-economic foundations of the Islamic system. Prerequisite: FIN 370.

FIN 385 Islamic Corporate Finance (3-0-3). Assesses corporate finance topics from an Islamic finance perspective such as the firm and the financial manager, risk and return, investment decisions and time value of money. Examines how Islamic Finance views the sources and uses of funds explored in modern corporate finance. Examines alternative Sharia'a compliant tools in the analysis of the cost of capital and investment opportunities. Prerequisite: FIN 201.

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 330 and QBA 202; prerequisite/concurrent: FIN 320.

FIN 402 Futures and Options (3-0-3). Covers conceptual and practical aspects of the functioning of speculative markets for various derivatives. Examines futures, options, swaps, and other products. Prerequisites: FIN 330 and QBA 202; prerequisite/concurrent: FIN 320.

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 330 and 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.

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 330; prerequisite/concurrent: FIN 320.

FIN 450 Case Studies in Corporate Finance (3-0-3). Emphasizes the case study approach to intermediate financial management (corporate finance). Includes the following topics: capital budgeting, corporate governance, mergers, capital structure, dividend policy and short-term financial management. Prerequisites: FIN 320 and FIN 330.

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. Includes the following topics: 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 300 Management of Public Organizations (3-0-3). (Formerly PBA 300). Introduces the challenges and problems of management in public organizations, including the need for effective leadership, appropriate motivational techniques and various communication styles. Positions the public agency in an environment of competing interests, politics, power relations and disjointed policy processes. Explores current trends in balancing the need for efficiency with a desire to be responsive to the needs of the public. Considers alternative perspectives on the role of public administrators. Not open to students who have taken PBA 101. Prerequisite: MGT 201 or UPL 201; prerequisite/concurrent: ENG 203 or ENG 204.

MGT 301 Organizational Behavior (3-0-3). 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.

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. Includes the following topics: manpower planning, recruitment and selection, policy and procedures, performance appraisal, compensation and benefits, training, safety and industrial relations. Prerequisites: MGT 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. Introduces students to these success factors and challenges them to both assess and develop their own managerial and leadership skills throughout the course. Prerequisites: MGT 201 and ENG 204.

MGT 305 International Business (3-0-3). 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.

MGT 306 Cross-Cultural Management (3-0-3). Introduces culture as an important variable in international management and examines its impact on organizations, strategy, negotiations, management of human capital, leadership, team building and ethics. Applies a metaphor approach to explore key differences

among cultures and examine their relevance for international management practice. Prerequisite: MGT 301.

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. Examines the characteristics that define family businesses and the potential risks and benefits these bring to family businesses in the UAE. Discusses issues such as family dynamics, generational gaps, leadership, the role of non-family members, governance and succession planning. Prerequisites: ACC 201, MGT 201 and QBA 201; prerequisite/concurrent: ENG 204.

MGT 312 Negotiation and Conflict Management (3-0-3). Examines conflict as a management issue in business organizations and explores techniques and methods for reaching effective agreements. Employs case studies, role playing and other experiential learning tools to develop analytical problem solving abilities and enhance conflict resolution skills. Prerequisites: MGT 301 and MGT 360.

MGT 313 Managing Change and Innovation (3-0-3). Explores the importance of innovation to business success and considers current trends in technology, society, consumer expectations and the workforce. Examines strategies for enabling innovation and overcoming obstacles to change. Presents the concept of a learning organization in the context of transformational leadership. Prerequisites: MGT 301 and MGT 303.

MGT 314 Management Intervention and Consultation (3-0-3). Introduces the management consulting industry and explores key activities associated with the consulting process. Considers the consultant as an advisor and change agent. Examines topics such as problem analysis, proposal development, project initiation, management of expectations, reputation and expertise, and knowledge transfer. Prerequisites: MGT 301 and MGT 360.

MGT 315 Enterprise Resource Planning (3-0-3). Covers the deployment and usage of Enterprise Resource Planning (ERP) software through hands-on-experience. Addresses how ERP software links operations, marketing, finance, accounting, human resources and information technology. Prerequisites: MGT 201, MIS 201 and ACC 201, or EGM 361 or EGM 364 or INE 332. Registration fee applies.

MGT 360 Business Ethics and Social Responsibility (3-0-3). 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. Prerequisite: MGT 201; prerequisite/concurrent: ENG 203 or ENG 204.

MGT 364 Introduction to Corporate Governance (3-0-3). Introduces concepts for the top-level control of professional managers, especially by the board of directors, in modem corporations and other organizations. Examines the results of both good and bad governance. Covers topics such as the separation of ownership from control; agency, stakeholder and stewardship theories of governance; and their application to large and small businesses and non-profit organizations. Prerequisites: BLW 301 and MGT 360.

MGT 380 Project Management (3-0-3). Examines the concepts and techniques of managing projects in service and manufacturing settings. Includes the following topics: project selection and evaluation, dynamics, motivation and evaluation of team members, scheduling, budgeting and closure. Prerequisites: ACC 202, ENG 204, FIN 201, MIS 201, and MGT 301 or MIS 303.

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: FIN 201, MGT 201, MKT 201 and ENG 204.

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. Uses business cases extensively to highlight the diversity and complexity of organizational environments and systems. Includes the following topics: missions and objectives; environmental analysis; formulating, implementing and assessing strategies and policies; and international, social and ethical issues. Prerequisites: business senior standing; FIN 201, MGT 201, MIS 201, MKT 201 and ENG 204; or by permission of department.

MIS Management Information Systems

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. Includes the following topics: 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. Provides a technology update in hardware and software basics, database management and telecommunications. Prerequisite: BIS 101 or NGN 110.

MIS 202 Principles of Business Programming (3-0-3). Introduces the logic of business processing independent of any programming language. Covers the extraction of program specifications from business narratives or business process descriptions. Uses flowcharts, decision tables, decision trees, use cases and structured English to document program specifications, which can easily be translated into any programming language. Prerequisites: BIS 101 or NGN 110, and MTH 101 or MTH 103 or MTH 111. 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. Illustrates various aspects of visual programming languages, as well as testing and debugging, in laboratory sessions. Prerequisites: MIS 201 and MIS 202. Lab/Tech fee rate 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. Includes the following topics: 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). Covers information as an organizational resource. Addresses the beginning technical, business and application development issues associated with managing and using an organization's data resources. Employs ORACLE-SQL as the database language to address organizational data management, data analysis and modeling with the entity relationship model, database design with SQL, normalization and the relational model. Prerequisites: MIS 201 and WRI 102. 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. Employs ORACLE DEVELOPER or PL/SQL as an application development environment. Covers the database development process, physical database design, database implementation with client/server and middleware technology, database access, data administration and introduces object-oriented database management systems. Prerequisite: MIS 301. Lab/Tech fee rate A applies.

MIS 303 Introduction to Systems Analysis and Design (3-0-3). Examines traditional analysis, logical design through a data flow analysis and the system development life cycle approach. Covers methods for structured analysis and design. Addresses data structures, definitions and normalization. Emphasizes gaining the ability to use the various tools associated with systems analysis. Prerequisites: MIS 201 and WRI 102; prerequisite/concurrent: MGT 201.

MIS 304 Applied Systems Design (3-0-3). Builds on previous courses and allows students to apply the tools studied in MIS 303. 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. Emphasizes project teamwork. Prerequisites: MIS 301 and MIS 303. Lab/Tech fee rate A applies.

MIS 402 Technology and Knowledge Management (3-0-3). Explores the theoretical foundation of technology and knowledge management and its value to the organization. Examines the nature of technological change, innovation and intellectual capital, and the valuation of an organization's knowledge assets. Prerequisites: MGT 360 and MIS 301.

MIS 404 Internet Business Applications (3-0-3). Examines how the Internet and the World Wide Web are used for marketing and business purposes. Studies 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. Prerequisite: MIS 301.

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. Covers emerging issues such as e-government and cyber ethics. Prerequisites: MIS 303 and senior standing.

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. Introduces the use of information systems audit software, where the practical nature of the subject will be developed through its use. Uses cases and job simulation 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.

MKT Marketing

MKT 201 Fundamentals of Marketing (3-0-3). Introduces the concept of making marketing decisions in business and non-profit organizations within the global context. Devotes particular attention 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 WRI 102. Lab/Tech fee rate A applies.

MKT 301 Consumer Behavior (3-0-3). Studies marketing, psychology, sociology and cultural anthropology to determine motivations for product purchases. Uses a multimedia approach to illustrate the use of behavioral science theory to create new products and promotional campaigns. Prerequisite: MKT 201.

MKT 302 Marketing Research (3-0-3). Examines research tools students can use to help make marketing decisions. Teaches students 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, and QBA 201 or NGN 111 or STA 201 or STA 202.

MKT 303 E-Commerce (3-0-3). Examines how the Internet and the World Wide Web are used for marketing and business purposes. Covers well-established companies based in the United States and United Arab Emirates 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: MIS 201 and MKT 201.

MKT 304 Sales Management (3-0-3). Introduces professional sales force management. Develops student skills in planning a sales program, organizing the selling effort and in recruiting, training and motivating the sales force. Prerequisite: MKT 301.

MKT 305 Retail Marketing (3-0-3). Explores marketing in large and small retail institutions. Includes the following topics: retail strategy, store layout, buying, merchandising, pricing, promotion, inventory management, customer service, control, store image, trading area and location selection. Prerequisite: MKT 301.

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 situations, such as marketing to manufacturers, other commercial organizations, government and institutions. Prerequisites: MKT 201 and ENG 204.

MKT 308 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 301.

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 and ENG 204.

MKT 310 Marketing Communications (3-0-3). Introduces the creation and management of integrated marketing communications campaigns to promote a variety of products. Considers the selection of promotional tools such as advertising, public relations, consumer and trade promotions, sponsorships, databases and direct marketing. Exposes students to simulations demonstrating the competitive nature of marketing communications. Explores methods for assessing campaign effectiveness. Prerequisites: MKT 301, and ENG 203 or ENG 204.

MKT 311 Marketing Management Simulation (3-0-3). Explores the interrelated dynamic nature of elements of marketing using simulation. Requires students to develop marketing plans and strategies for a company based on analysis of marketing data, and review the performance of the company in a simulated market environment. Emphasizes application of concepts in marketing management, focusing on financial implications of marketing decisions. Prerequisites: FIN 201 and MKT 301. Lab/Tech fee rate A applies.

MKT 365 Services Marketing (3-0-3). Examines service-related issues, practice and strategy in business organizations. Includes the following topics: 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 370 Brand Management (3-0-3). Introduces the steps involved in building strong brands and maximizing the value of existing brands. Examines a framework for understanding when and why consumers care about brands, and introduces tools for measuring brand equity. Presents the business process of mission and strategy creation through brand and identity development and execution, and reinforces the concepts through readings, case studies and two course projects for practical applications and experiential learning. Prerequisite: MKT 301.

MKT 372 Tourism Destination Marketing (3-0-3). Addresses how local government authorities responsible for tourism develop and market tourism clusters in order to appeal to consumers in high-potential feeder markets. Explores how executives in privately owned destinations and tourism service organizations identify profitable markets and create promotional appeals based on an understanding of shifting social values and lifestyles. Examines the role that consumer thought processes play in evaluating and selecting destinations. Prerequisites: MKT 201 and ENG 204.

MKT 401 Marketing Strategy (3-0-3). Analyzes current marketing management issues. Requires students to develop a marketing plan for an outside organization, analyze case studies and participate in computer simulation exercises. Prerequisites: MKT 301, MKT 302 and senior standing.

PBA Public Administration

PBA 302 Comparative Public Administration (3-0-3). Examines governmental administrative systems in Europe, North America, the Arab world, Asia and Africa. Emphasizes a comparative analysis of industrialized nations with nations of the Third World. Prerequisite: MGT 300.

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: BIS 101 and MGT 300; prerequisite/concurrent: ACC 201.

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. Prerequisite: MGT 300.

PBA 311 Nonprofit Organization Management (3-0-3). Covers concepts of management and organizational development that are appropriate to the nonprofit sector. Emphasizes the development of people skills, a volunteer workforce, fundraising, goal setting, motivation and communication techniques. Prerequisites: MGT 201 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. Examines race, gender and ethnicity, as well as policy on education, crime, social welfare and economic development. Prerequisite: MGT 300 or UPL 201.

PBA 395 Seminar in Public Administration (3-0-3). (Formerly PBA 495). Synthesizes and contextualizes elements of the public administration curriculum to prepare students for a career in public management. Includes the following elements: expertise and bureaucratic power, administration and the law, ethics, business–government relations, economics, public policy and the role of public employees. Prerequisites: MGT 300 and junior standing.

PBA 397 Internship in a Public Organization (0-0-0). 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. Requires students to submit a written report, a daily journal and an agency supervisor's evaluation. Graded as Pass/Fail. Restricted to PBA students. Prerequisites: Junior II standing and approval of the internship coordinator. Registration fee applies.

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. Prerequisite: MGT 300 or UPL 201.

PBA 407 Legal Issues in Public Administration (3-0-3). Introduces the legal issues facing public managers, including risk management, due process for employees, judicial review aspects, administrative ethics and personal liability. Prerequisite: MGT 300.

PBA 411 The Public Policy Environment (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. Prerequisite: MGT 300.

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: MGT 300, and ENG 203 or ENG 204.

QBA Quantitative Business Analysis

QBA 201 Quantitative Business Analysis (3-0-3). Covers descriptive and inferential statistics. Introduces the use of statistical software. Includes the following topics: descriptive statistics, probability distributions, estimation and hypothesis testing, correlation, and simple and multiple linear regression. Prerequisite: MTH 101.

QBA 202 Operations Management (3-0-3). Introduces the basic principles, functions and concepts involved in the design, management and control of operations in contemporary organizations. Covers topics such as production planning, quality control and materials management, and stresses tools and techniques required to improve the efficiency, effectiveness and competitiveness of both service- and manufacturing-based organizations. Prerequisite: QBA 201 or NGN 111 or STA 201 or STA 202.

QBA 310 Management of the Supply Chain (3-0-3). Demonstrates the strategic importance of the supply chain and emphasizes the overall reach of supply chain management. Synthesizes supply chain management principles to deliver cost-effective customer service through integration of functional areas including marketing, information systems management and purchasing/procurement. Examines supply chain performance metrics, and takes a closer look at identifying and managing suppliers and the role of purchasing. Considers issues such as strategic sourcing, supplier selection and development, collaborative planning, just-in-time, customer relationship management and enterprise resource planning. Prerequisite: QBA 202.

QBA 311 Logistics Management (3-0-3). Covers and applies the basic modeling and solution techniques for planning and executing the decisions in logistics and supply chain management. Uses optimization and simulation techniques to extend the understanding of planning, organizing, operating and controlling the supply chain operations. Brings together the principles of logistics management to deliver cost-effective customer service through the integration of transportation, inventory management and materials handling. Examines inbound (purchasing and materials management) and outbound (demand management and customer service) logistics, inventory management, warehousing, transportation systems and preliminary concepts in logistics network design. Prerequisite: QBA 202.

QBA 320 Quality Management and Service Organizations (3-0-3). Introduces the field of operations management as it applies to service organizations. Covers the basic principles, functions and concepts involved in quality management, and the design, operation and control of service operations, within contemporary organizations. Prerequisite: QBA 202.

Independent Study

Independent study is the umbrella term used to label two types of independent work: independent course and directed study.

Students are allowed to take one independent study. A second independent study could be approved by the student's associate dean for graduation purposes only.

Independent Course (1 to 4 credits). A course listed in the catalog but offered in an independent study format. The course is coded using the course number in the catalog.

Students are not allowed to repeat courses in an independent course format.

Directed Study (1 to 4 credits). An investigation under faculty supervision beyond what is offered in existing courses. Prerequisites: minimum CGPA of 3.00, Junior II standing and consent of the instructor.

Directed study courses are numbered as 396 or 496 courses. The three-letter course prefix reflects the field of study of the course (e.g., directed study courses in accounting are coded as ACC 396 or ACC 496).

For more details, please refer to Registration in Independent Study Courses in the Academic Policies and Regulations section of this catalog.

Special Topic Courses

Special Topic (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: topic specific. Lab/Tech fee may apply.

Special topic courses are numbered as 194, 294, 394 or 494 courses. The three-letter course prefix reflects the field of study of the course.

Special topic courses at the 300 level require sophomore standing or above; 400-level special topic courses are restricted to junior standing and above.

Descriptions of particular special topic courses are made available in the college/school offering the course during registration.

Special topic courses in accounting are restricted to students in accounting and finance.

Full-Time Faculty

A

Abdalla, Jamaleldin, PhD, University of California at Berkeley, 1989; Professor in Civil Engineering (on sabbatical Spring 2013)

Abdallah, Abed Al-Nasser, PhD, University of Lancaster, 2004; Associate Professor in Accounting

Abdelfatah, Akmal, PhD, University of Texas at Austin, 1999; Associate Professor in Civil Engineering

Abdel-Hafez, Mamoun, PhD, University of California at Los Angeles, 2003; Associate Professor in Mechanical Engineering

Abdel-Jabbar, Nabil, PhD, University of Michigan, 1996; Professor in Chemical Engineering (on sabbatical Spring 2013)

AbdulHadi, Zayid, PhD, Université Laval, 1987; Professor in Mathematics and Statistics

Abed, Farid, PhD, Louisiana State University, 2005; Associate Professor in Civil Engineering

Abouleish, Mohamed Yehia, PhD, Tennessee Technological University, 2003; Assistant Professor in Biology, Chemistry and Environmental Sciences

Abu Al-Foul, Bassam, PhD, University of Utah, 1994; Associate Professor in Economics

Abualrub, Taher, PhD, University of Iowa, 1998; Professor in Mathematics and Statistics

Abukhaled, Marwan, PhD, Texas Tech University, 1995; Professor in Mathematics and Statistics (on sabbatical Spring 2013)

Abu-Lebdeh, Ghassan, PhD, University of Illinois at Urbana-Champaign, 1999; Associate Professor in Civil Engineering

Abu-Muhanna, Yusuf, PhD, State University of New York at Albany, 1979; Professor in Mathematics and Statistics

Abu-Nabah, Bassam, PhD, University of Cincinnati, 2007; Visiting Assistant Professor in Mechanical Engineering

Abusalim, Alaanoud, MA, Southern Illinois University, Carbondale, 2006; Instructor in Writing Studies and Associate Director, Department of Writing Studies

Abu-Yousef, Imad, PhD, McGill University, 1996; Professor in Biology, Chemistry and Environmental Sciences

Ahmad, Norita, PhD, Renssealaer, 2001; Assistant Professor in Management Information Systems

Ahmad, Shoaib Nabi, MID, Rhode Island School of Design, 1991; Associate Professor in Design

Ahmed, Khawlah, PhD, State University of New York at Buffalo, 1998; Assistant Professor in English

Ahmed, Rana, PhD, Duke University, 1991; Associate Professor in Computer Science and Engineering

Ahmed, Saad, PhD, Georgia Institute of Technology, 1981; Professor in Mechanical Engineering

Al-Ali, Abdul-Rahman, PhD, Vanderbilt University, 1990; Professor in Computer Science and Engineering (on sabbatical Spring 2013)

Al-Assadi, Wesam, MA, American University of Sharjah, 2004; Instructor in Arabic and Translation Studies

Al-Assaf, Yousef, PhD, Oxford University, 1988; Professor in Electrical Engineering and Dean, College of Engineering

Albasha, Lutfi, PhD, University of Leeds, 1995; Associate Professor in Electrical Engineering

Al-Ghoussein, Tarek, MA, University of New Mexico, 1989; Professor in Design (on leave Academic Year 2012–2013)

AlHamaydeh, Mohamed, PhD, University of Southern California, 2005; Assistant Professor in Civil Engineering

Ali, Ahmed, PhD, University of Durham, 1999; Assistant Professor in Arabic and Translation Studies

Ali, Naghmana, PhD, University of Toronto, 2004; Assistant Professor in English

Ali, Tarig, PhD, Ohio State University, 2003; Associate Professor in Civil Engineering

Alibrandi, Thomas, EdD, University of San Francisco, 1999; Assistant Professor in Writing Studies and Director, Achievement Academy

Al-Issa, Ahmad, PhD, Indiana University of Pennsylvania, 1998; Professor in English

Al-Jurf, Saladin, JD, University of Iowa College of Law; 1998; Assistant Professor in Management

Alkafaji, Yass, DBA, Mississippi State University, 1983; Associate Professor in Accounting

Al-Kaisi, Meis, PhD, University of London, 2006; Assistant Professor in Arabic and Translation Studies

Al-Kaisy, Ahmed, PhD, Carleton University, 1999; Visiting Professor in Civil Engineering

Al-Kattan, Ibrahim, PhD, Tennessee Technical University, 1994; Professor in Engineering Systems Management

Al-Khazali, Osamah, PhD, University of Memphis, 1997; Professor in Finance

Allagui, Ilhem, PhD, University of Montreal, 2001; Associate Professor in Mass Communication

Allee, John, MA, University of Minnesota, 1969; Senior Lecturer in Marketing

Alnaizy, Raafat, PhD, Texas A&M University, 1999; Associate Professor in Chemical Engineering

Al-Najjar, Abeer, PhD, University of Edinburgh, 2003; Assistant Professor in Mass Communication

Alnaser, Ali Sami, PhD, Western Michigan University, 2002; Associate Professor in Physics

Al-Nashash, Hasan, PhD, Kent University, 1988; Professor in Electrical Engineering

Al-Natour, Sameh, MS, University of British Columbia, 2005; Instructor in Management Information Systems

Alobaidi, Ghada, PhD, University of Western Ontario, 2000; Associate Professor in Mathematics and Statistics (on sabbatical Fall 2012)

Aloul, Fadi, PhD, University of Michigan, 2003; Associate Professor in Computer Science and Engineering

Al-Sayah, Mohamed, PhD, University of Alberta, 2002; Associate Professor in Biology, Chemistry and Environmental Sciences (on sabbatical Academic Year 2012–2013)

Al Shaar, Nuha, PhD, University of Cambridge, 2010; Assistant Professor in Arabic and Translation Studies

Al-Tamimi, Adil, PhD, Strathclyde University, 1990; Professor in Civil Engineering and Director, Institute of Material Systems

Amador, Victoria, PhD, University of Denver, 1986; Assistant Professor in English

Anabtawi, Mahmoud, PhD, University of Texas, 1998; Professor in Mathematics and Statistics and Head, Department of Mathematics and Statistics

Anderson, Pia-Kristina, PhD, University of California at Berkeley, 2001; Assistant Professor in International Studies; Associate Dean, College of Arts and Sciences; and Director, CAS Graduate Programs

Angell, Linda, DBA, Boston University, 1996; Director, International Exchange Office

Aouam, Tarik, PhD, Purdue University, 2005; Associate Professor in Engineering Systems Management

Arenfeldt, Pernille, PhD, European University Institute, 2006; Assistant Professor in International Studies

Arzaghi, Mohammad, PhD, Brown University, 2005; Assistant Professor in Economics

Asa'd, Randa, PhD University of Cincinnati, 2012; Assistant Professor in Physics

Ashill, Nicholas, PhD, University of Bradford, 2004; Chalhoub Group Professor in Luxury Brand Management, Professor in Marketing, and Head, Department of Marketing

Aslan, Neslihan, MA, Bosphorus University, 2006; Instructor in Writing Studies

Assaf, Hamed, PhD, University of British Columbia, 1991; Visiting Assistant Professor in Civil Engineering

Assaleh, Khaled, PhD, Rutgers University, 1993; Professor in Electrical Engineering and Director of Graduate Studies

Atabay, Serter, PhD, University of Birmingham, 2001; Associate Professor in Civil Engineering

Attom, Mousa, PhD, Kansas State University, 1989; Professor in Civil Engineering

Audi, Diana, MS, American University of Beirut, 2005; Instructor in Mathematics and Statistics

Aveyard, Mark, PhD, Florida State University, 2007; Assistant Professor in International Studies

Ayish, Mohammad, PhD, University of Minnesota, 1986; Professor in Mass Communications

B

Badawi, Ayman, PhD, University of North Texas, 1993; Professor in Mathematics and Statistics

Badni, Kevin, MA, De Montfort University, 1996; Associate Professor in Design and Head, Department of Design

Badry, Fatima, PhD, University of California at Berkeley, 1983; Professor in English

Baghestani, Hamid, PhD, University of Colorado, 1982; Professor in Economics

Bahloul, Maher, PhD, Cornell University, 1994; Associate Professor in English

Baker, Cynthia, MBA, Texas Tech University, 1997; Instructor in Management

Baker, Emily, MArch, Cranbrook University, 2012; Assistant Professor in Architecture

Baker, Jeffrey, PhD, Texas Tech University, 2008; Assistant Professor in Management Information Systems

Bakri-Kassem, Maher, PhD, University of Waterloo, 2007; Assistant Professor in Electrical Engineering

Balthrop, Andrew, PhD, Georgia State University, 2012; Assistant Professor in Economics

Bantey, Paul, MFA, Whitecliffe College of Arts and Design, 2005; Assistant Professor in Design

Barlas, Gerassimos, PhD, National Technical University, Athens, 1996; Professor in Computer Science and Engineering (on sabbatical Fall 2012)

Bartholomew, Aaron, PhD, College of William and Mary, 2001; Associate Professor in Biology, Chemistry and Environmental Sciences

Bateman II, Robert E., PhD, University of Utah, 2004; Associate Professor in Management and Director, SBM Graduate and Executive Programs

Battenburg, John, PhD, Purdue University, 1989; Professor and Head, Department of English

Beheiry, Salwa, PhD, University of Texas at Austin, 2005; Assistant Professor in Civil Engineering

Belkhodja, Omar, PhD, Laval University, 2006; Assistant Professor in Management

Berbić, Amir, MFA, The School of the Art Institute of Chicago, 2004; Associate Professor in Design (on sabbatical Fall 2012)

Berenger, Ralph, PhD, Idaho State University, 2002; Visiting Associate Professor in Mass Communication

Bieber-Roberts, Peggy, PhD, University of Washington, 1990; Associate Professor in Mass Communication

Bley, Jörg, PhD, Florida Atlantic University, 2000; Professor in Finance

Bodolica, Virginia, PhD, HEC Montreal Business School, 2006; Associate Professor in Management

Boisvert, Jean, PhD, Macquarie Graduate School of Management, 2007; Assistant Professor in Marketing

Boubakri, Narjess, PhD, Université Laval, 2000; Professor in Finance and Interim Head, Department of Finance

Breslow, Harris, PhD, University of Illinois, Champaign-Urbana, 1995; Associate Professor in Mass Communication

Brodtkorb, Tor, LLB, McGill University, 2000; Assistant Professor in Management

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C

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Khoury, Suheil, PhD, Michigan State University, 1994; Professor in Mathematics and Statistics

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Waxin, Marie-France, PhD, University of Marseilles, 2000; Associate Professor in Management

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Xu, Xiaobo, PhD, University of Mississippi, 2005; Associate Professor in Management Information Systems (on sabbatical Academic Year 2012–2013)

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Z

Zaki, May, PhD, Middlesex University, 2011; Visiting Assistant Professor in Arabic and Translation Studies

Zantout, Zaher, PhD, Drexel University, 1990; Associate Professor in Finance

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Zualkernan, Imran, PhD, University of Minnesota, 1991; Associate Professor in Computer Science and Engineering

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