## Catalog



## American University of Sharjah



His Highness Sheikh Dr. Sultan Bin Mohammed Al Qassimi
Supreme Council Member, Ruler of Sharjah
Founder and President of the American University of Sharjah

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## A cademic C alendar 2003-2004

| Fall Semester |  | 2003 |  |
| :---: | :---: | :---: | :---: |
| July | 30 | Wednesday | Fall admission application deadline |
| August | 21 | Thursday | Dorms open |
|  | 22 | Friday | Parents orientation (new students) |
|  | 23-26 | Saturday - Tuesday | TOEFL \& placement tests (new students) |
|  | 23-25 | Saturday - Monday | Registration for all returning students |
|  | 24 | Sunday | New students academic and school orientation |
|  | 27-28 | Wednesday - Thursday | Registration for all new students |
|  | 30 | Saturday | First day of class |
| September | 24 | Wednesday | Al Israa Wal Miraj' holiday* |
| November | 8 | Saturday | Last day to withdraw from a class without penalty |
|  | 15 | Saturday | Transfer students' application deadline for Spring 2004 |
|  | 23 | Sunday | Classes end for 'Eid Al Fitr' holiday 10 pm* |
|  | 29 | Saturday | Classes resume at 8 am |
| December | 1 | Monday | Classes end for 'National Day' holiday 10 pm |
|  | 6 | Saturday | Classes resume at 8 am |
|  | 18 | Thursday | Fall semester classes end 10 pm |
|  | 20-30 | Saturday-Tuesday | Study and examination period |
|  | 27 | Saturday | Spring admission application deadline |


| Spring Semester |  | 2004 |  |
| :---: | :---: | :---: | :---: |
| January | 8 | Thursday | Dorms open |
|  | 9 | Friday | Parents orientation (new students) |
|  | 10-13 | Saturday - Tuesday | TOEFL \& placement tests (new students) |
|  | 10-12 | Saturday - Monday | Registration for all returning students |
|  | 11 | Sunday | New students academic and school orientation |
|  | 14-15 | Wednesday - Thursday | Registration of all new students |
|  | 17 | Saturday | First day of class |
|  | 28 | Wednesday | Classes end for 'Eid Al Adha' holiday 10 pm* |
| February | 7 | Saturday | Classes resume at 8 am |
|  | 22 | Sunday | Al-Hijra' holiday (Islamic New Year)* |
| March | 16 | Tuesday | Classes end for spring break 10 pm |
|  | 21 | Sunday | Classes resume at 8 am |
| April | 6 | Tuesday | Last day to withdraw from a class without penalty |
| May | 2 | Sunday | Prophet Mohammed's Birthday holiday* |
|  | 11 | Tuesday | Spring semester classes end 10 pm |
|  | 12-24 | Wednesday - Monday | Study and examination period |
|  | 15 | Thursday | Transfer students' application deadline for Fall 2004 |
| June | 3 | Thursday | Commencement Day |

[^0]| Summer | 2004 | 6 Week Summer Sessi |  |
| :---: | :---: | :---: | :---: |
| June | 7 | Monday | Registration |
|  | 8 | Tuesday | First day of classes, 'Drop/Add' day |
| July | 5 | Monday | Last day to withdraw from a course without penalty |
|  | 19 | Monday | Last day of class |
|  | 20 | Tuesday | Study day (no classes) |
|  | 21-22 | Wednesday- Thursday | Final examination |
| SPECIAL PROGRAMS CALENDAR |  |  |  |
| Summer 2004 |  |  |  |
| LEAP (Learn English in An American Program) |  |  |  |
| June | 13 | Sunday | Registration \& First day of LEAP, <br> English program for High School students |
| July | 10 | Saturday | LEAP program ends |
| Summer Intensive English Program 'SIEP' |  |  |  |
| July | 10-11 | Saturday-Sunday | Registration |
|  | 12 | Monday | First day of SIEP session \& late registration |
| August | 6 | Wednesday | Holiday - ascension to the throne |
|  | 21 | Saturday | TOEFL examination |
|  | 22 | Sunday | SIEP session ends |
| * 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) will be extended. |  |  |  |

## Board of Trustees

His Highness Sheikh Dr. Sultan Bin Mohammed Al Qassimi, Member of the Supreme Council and Ruler of Sharjah, United Arab Emirates, Chairman
Ms. Leslie E. Bains, Senior Executive Vice President, HSBC Bank, United States of America
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Honorable John R. Petty, Chairman, Federal National Payables, Inc. and of Tescsec, Inc., United States of America
Dr. Winfred L. Thompson, Chancellor, American University of Sharjah, United Arab Emirates

## University Administrators

Dr. Winfred Thompson, Chancellor
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Dr. Martin Giesen, Dean, School of Architecture and Design
Dr. Wadih Atiyah, Dean, School of Business and Management
Dr. Leland Blank, Dean, School of Engineering
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Mr. Ali Shuhaimy, Dean, Admissions
Ms. Lynda Ataya, Registrar
Ms. Lorin Ritchie, University Librarian
Mr. Bashir Abolail, Director, Continuing Education Center
Dr. Nouri Al-Sagban, M.D., Director, University Health Services
Mr. Antoine Chebat, Director, University Services
Ms. Mona Chehabi, Comptroller and Director, Finance
Mr. Ronald McNeill, Director, Human Resources
Mr. Richard Mundy, Director, Operations
Mr. Ibrahim Shehady, Director, Physical Plant

## C hancellor's Message



## Welcome to AUS!

Choosing a university is one of the most important decisions that you will ever make. It can be the key that opens the door to a lifetime of opportunities for growth and service.

This catalog is designed to provide you with a straightforward description of the courses of study offered by the American University of Sharjah. It is not an advertisement. We want you to base your choice of a university on reliable information.

AUS presents you with the chance to experience American education in the Gulf. That statement has four meanings that should be important to you. First, the curriculum is organized according to the American pattern of semesters and courses. Second, the method of classroom instruction is American in its emphasis on individual initiative, active learning and the application of knowledge. Third, the standard of instruction is comparable to that in good universities in America. Fourth, student life on the campus is rich with clubs and sports and cultural events. AUS feels like an American university.

You will find a special sense of excitement on our campus as we grow and mature. Faculty, staff and students are working together to create a great university. You could become part of this effort to establish a new standard of academic excellence for the region.

Our academic standards are challenging, but we are dedicated to helping you to meet those standards. We will judge our success as an institution by how well you do in realizing your potential as a student and in your professional life.

I invite you to visit our magnificent campus, inspect our state-of-the-art facilities, talk with students, meet members of the faculty and staff, and discover for yourself why so many bright young men and women have made AUS their first choice.

Winfred Thompson, Chancellor

# Telephone Directory 

P.O. Box: 26666 - Sharjah, UAE

UAE Code; 971, Sharjah Code; 6
www.ausharjah.edu

| Department | Telephone | Fax | E-mail |
| :---: | :---: | :---: | :---: |
| Career Advising \& Placement Services | 515-2036 | 515-2065 | caps@ausharjah.edu |
| Chancellor's Office | 515-2205 | 558-5858 | chancellors_office@ausharjah.edu |
| College of Arts \& Sciences | 515-2412 | 558-5067 | docas@ausharjah.edu |
| Continuing Education Center | 515-2020 | 515-2050 | cec@ausharjah.edu |
| Finance Department | 515-2185 | 515-2190 | finance@ausharjah.edu |
| Financial Aid and Scholarship Office | 515-2005/60 | 515-2040 | scholarship@ausharjah.edu |
| General Information | 558-5555 | 558-5858 | public_affairs@ausharjah.edu |
| Human Resources | 515-2228 | 515-2280 | hr@ausharjah.edu |
| Information Technology | 515-2119 | 515-2120 | it@ausharjah.edu |
| Library | 515-2252 | 558-5008 | library@ausharjah.edu |
| Office of Admissions | 515-1000 | 558-5018 | admission@ausharjah.edu |
| Office of the Registrar | 515-2031 | 515-2040 | registration@ausharjah.edu |
| Public Affairs | 515-2207 | 515-2200 | public_affairs@ausharjah.edu |
| School of Architecture \& Design | 515-2825 | 515-2800 | docad@ausharjah.edu |
| School of Business \& Management | 515-2310 | 558-5065 | deanofsbm@ausharjah.edu |
| School of Engineering | 515-2948 | 515-2979 | dosoe@ausharjah.edu |
| Student Accounts | 515-2233/82 | 515-2190 | studentaccounts@ausharjah.edu |
| Student Affairs | 515-2166 | 558-5024 | stud_affairs@ausharjah.edu |
| University Health Services | 515-2699 | 515-2690 | clinic@ausharjah.edu |
| University Services | 515-2223 | 558-5009 | university_services@ausharjah.edu |
| Vice Chancellor's Office for Academic Affairs | 515-2208 | 515-2150 | vcaa@ausharjah.edu |
| Vice Chancellor's Office for Finance \& Administration | 515-2192 | 515-2330 | f\&a@ausharjah.edu |

## The U niversity

## Historical Preamble

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

- Reinforce the efforts of the leaders of the UAE "to ensure that science and education regain their rightful place in the building and advancement of our society and shaping the lives of our children"
- Join other institutions of higher education in seeking "to reshape fundamentally the minds of our youth to enable them to address the challenges of life using the scientific method"
- Become a "center of research for
educational development and the solution of social problems".
- Become "organically linked" to the economic, cultural, scientific and industrial sectors of society in "productive cooperation".
- Exercise the "independence and objectivity in teaching and research" necessary for the achievement of these goals.


## Mission Statement

The American University of Sharjah (AUS) is a not-for-profit, independent, coeducational institution of higher education formed on the American model:

- AUS will offer academic programs that are the equivalent in content and quality to those offered by leading institutions of higher education in the United States
- AUS will admit students solely on the basis of their academic qualifications regardless of race, color, gender, religion, disabilities, age or national origin. The creation of a multicultural, coeducational, international academic
community is both a means and an end in the mission of the university
- AUS will provide students with a rich and varied campus life that fosters their personal growth and supports their transition to responsible adulthood in a rapidly changing world
- AUS will integrate liberal studies and professional education to give its graduates both breadth and specialization
- AUS will give its students access to the resources of art, literature and religion accumulated by earlier generations in various civilizations as well as mastery of the latest technical skills required for success in modern life
- AUS will give its graduates an education that enables them to comprehend the dynamism and complexity of contemporary global processes and empowers them to guide those processes in constructive directions
- AUS will adapt the model of the great American universities of the 20th century to the cultural setting of the Gulf in preparation for serving the educational needs of a new century



## University Terminology

| Academic Year | The part of the year defined by the fall and spring semesters, approximately September 1 through the end of May. |
| :---: | :---: |
| Academic Status | Determined by regulations governing good standing, probation and dismissal. |
| Add and Drop | A period of time beginning the first day of classes when students can adjust schedules by dropping or adding courses or changing sections of a course. |
| Admission | Formal application and acceptance as a regular student in a degree program. |
| Advisor | Faculty member assigned by the university to assist each student in planning the proper academic program. The student is called the advisor's "advisee." |
| Alumni | One who has attended or graduated from the American University of Sharjah. |
| Audit | Permission to attend and participate in a course without benefit of a grade or credit. |
| Bachelor Degree | The traditional undergraduate degree. |
| Calendar, University | Annual listing of all official dates and deadlines for the academic year. |
| Catalog Year | Refers to the regulations published in that year's catalog. A student's catalog year denotes which specific set of regulations will apply to that student. Unless altered, a student's catalog year is the year when the student first matriculated to study at AUS. |
| Course | A unit of study which 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 any registration period. |
| Common Examinations | Examinations for courses with multiple sections scheduled in a common time slot at the request of the College/School. |
| Concentration | Sub-specialization within a major that allows a student to focus on a particular aspect of the major field of study. |
| Concurrent | See prerequisite. |
| Co-requisite | A course required to be taken simultaneously with another course. |
| Credit | Described in semester credit hours, a credit is commonly defined as the equivalent to a one-hour lecture or three hours of laboratory or recitation work per week for one regular semester. |
| Curriculum | A structured set of learning objectives contained in a specified set of courses. |
| Department | An academic unit of a college or school. |
| Dismissal | The involuntary separation of a student from the university for unsatisfactory conduct or academic achievement. |
| Education Records | Records directly related to a student and maintained by the Office of the Registrar. |
| Elective Course | A course selected at a student's discretion with the approval of the advisor. |
| 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 courses and services. |
| Full Time Student | A student that is registered for 12 or more credit hours in a given semester. |
| General Education Requirement | University-wide requirement of the basic studies that form the foundation of all undergraduate degree programs. |
| Good Standing, Academic | Requires a cumulative GPA of 2.0 or higher. |
| GPA | Grade point average of the grades of AUS courses taken for university credit. |


| Grade Points | Numerical value associated with each grade. |
| :---: | :---: |
| Graduate Student | A graduate student is one that has completed an undergraduate degree and is pursuing a master's degree. |
| I.D. Card | University student identification card, showing name, photo and student identification number. |
| Major | A student's principal field of study. |
| Matriculation | Enrollment as an admitted, 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 credit courses but are not currently 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 is given to determine a student's ability in a subject where competence is an important consideration. Passing the Placement Test waives a student from the preparatory course. |
| Preparatory Courses | Those courses designated as 00X. Students are waived out of these courses by passing the Placement Test. Preparatory Courses do not count in the credits earned towards a degree, but they do count in the Grade Point Average. |
| Prerequisite | A requirement that must be met before a certain course may be taken. |
| Prerequisite/Concurrent | In some cases a course and its prerequisite may be taken simultaneously. |
| Probation | A warning status resulting from the student's unsatisfactory academic achievement or conduct. |
| Probation, Academic | Any undergraduate with less than a 2.0 GPA or any graduate student with less than a 3.0 GPA is placed on academic probation |
| Registration | The process of enrolling in classes. |
| Regular Student | A degree-seeking student who is officially admitted to the university. |
| Required Courses | Courses prescribed by the school or college necessary for the completion of a particular degree program. |
| Residence | A student's tenure within the university and/or specific college/school. |
| Semester or Term | Designated periods during which classes and exams are scheduled. |
| Schedule, Class | List of courses offered during a semester, including the names of the instructors, and the days, hours and locations of classes. |
| Schedule, Student | A listing of the courses that the student takes each semester. |
| Transcript | A certified copy of the student's permanent academic record on file in the Registrar's Office listing courses taken and final grade received. |
| Transfer Credit | Coursework completed at another institution that is accepted at AUS and which may be applicable toward a specific AUS degree. |
| Undergraduate | A student who is working towards competition of a bachelor's degree. |
| Visiting Student | A student of another accredited institution who receives permission to register (for up to 2 terms) as a non-degree seeking student 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. |



## O verview

## Introduction

In the fall of 1997, the American University of Sharjah (AUS) admitted its first students and began classes. Modeled on US institutions of higher education, AUS is the first comprehensive university of its kind in the Gulf. AUS is officially licensed by the Ministry of Higher Education and Scientific Research of the UAE. It is also licensed in the United States as an institution of higher education authorized to offer degrees by the Department of Education of the state of Delaware.
The American University of Sharjah is a Candidate for Accreditation by the Commission on Higher Education of the Middle States Association of Colleges and Schools, 3625 Market Street, Philadelphia, PA 19104, (215) 662-5606.

Candidate for Accreditation is a status of affiliation with a regional accrediting commission that indicates that an institution has achieved recognition and is progressing toward, but is not assured of, accreditation. It has provided evidence of sound planning, seems to have the resources to implement the plans, and appears to have the potential for obtaining its goals within a reasonable time.
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.
The university facilities have been designed to accommodate 4,000 students. There are 21 bachelor degrees, 21 minors, six master degrees and four graduate certificates offered by the faculty of the College of Arts and Sciences and three schools:
Architecture and Design, Business and Management, and Engineering. All programs of study are described in this catalog.
The American University of Sharjah has succeeded in building a multicultural education environment
that brings together people from diverse nations and backgrounds. AUS strives to instill in its students the importance of appreciating and understanding diversity, global issues and their own roles in society.

AUS serves students from the Gulf region and around the world by introducing them to a culture of high aspiration and achievement so they may lead productive and meaningful lives. The university is committed to a vision of itself as an independent, coeducational institution based on the American model but thoroughly grounded in Arab culture. Its aim is to meet the educational needs of its diverse student population. 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.
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 in the new millennium.
In keeping with its mission, AUS offers students an education that will enable them to comprehend the dynamism and complexity of contemporary global processes. Through the integration of liberal studies and professional education, students are given both breadth of knowledge and specialization in their chosen fields. Education at AUS runs the gamut from art, poetry and religions from past
civilizations to the latest skills and technologies of today's information age. These are all presented to students in order to produce future leaders with a firm understanding of how society has reached its present state.
The combination of traditional and innovative teaching methods provides an educational environment in which students can realize their individual potential and pursue their goals.
AUS is well-qualified to meet the challenges inherent in preparing its students for life in the age of electronic communications, global economies, social pluralism and political interdependence.

## Buildings and Grounds

The American University of Sharjah is situated in University City, a 1,640-acre educational complex located 10 miles ( 15 kilometers) from the center of Sharjah and a short distance from both the Sharjah International and the Dubai International airports. University City is also home to the University of Sharjah, the Higher Colleges of Technology, Police Academy, Fine Arts School and upcominmg Etisalat College.
The distinctive architecture of domes and arches of the Main Building and academic buildings is accentuated with graceful Islamic motifs. The campus also includes 10 student residence halls, seven for men and three for women, as well as a large Sports Complex and a Student Center. Faculty housing complexes are also located on campus.

## The Main Building

The Main Building houses the offices and majlis of His Highness, the Founder and President of the University, Sheikh Dr. Sultan Bin Mohammed Al Qassimi. It also includes the offices of the Chancellor, the Vice Chancellor for Academic Affairs, the Vice Chancellor for Finance and Administration, the Director of Admissions, the Registrar, the Continuing Education Center (CEC),

Career Advising Placement Services (CAPS) and other administrative units. Most significantly, the building houses a state-of-the-art university library. It also has a cafeteria for faculty and staff as well as a VIP dining room.
On the ground floor of the Main Building is a 920 -seat auditorium that features theatrical, dance and musical performances, symposia and other public events. The building also has two smaller lecture halls of 280 and 150 seats that feature similar activities.

## The A cademic Buildings

Nine academic buildings are located on both sides of the central plaza surrounding the Main Building. The academic buildings house classrooms and lecture halls of various sizes, laboratories, workshops, studios, and departmental and faculty offices.
University policy prohibits the use of tobacco products inside all university buildings, except in designated smoking areas.

## 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 23 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 Art Biennial. These resources permit AUS to broaden their formal education in a way not possible elsewhere in the region.

## On-Campus Services

## Athletics and Recreation

The Sports Complex meets the needs of nearly all athletic interests. The indoor facilities include an Olympicsize swimming pool, fitness centers and courts for basketball, volleyball, tennis and squash. Outdoors, one can find a soccer field, a cricket practice ground, and basketball, volleyball and tennis courts. The Student Center features an eight-lane bowling alley and a billiard room. The university has an intramural sports program that serves as an exciting complement to students' academic, social and cultural education. Involvement in intramural sports activities is a wonderful opportunity for students to develop new friendships and enjoy the benefits of exercise.

## Banking Services

Located in the Main Building, the National Bank of Sharjah offers banking services such as checking and saving accounts, ATM transactions and transfer of funds.


## Bookstore and Electronics Shop

Located on the ground floor of the Main Building, the bookstore sells all required textbooks, other books, art supplies, stationery, notebooks, gifts and many other items students find essential. An electronics shop that sells a wide range of products, such as computers and accessories, cameras, sound systems, and more is located in the Student Center.

## Copy Center

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

## Dining Services

The student cafeteria is located in the Student Center. Available in the food court are various hot meals and franchise foods, including Burger King, KFC, Pizza Hut, Dunkin' Donuts and Baskin Robbins. Most of these outlets offer campus delivery service.
The second floor of the food court includes a wide variety of cuisine choices including a salad bar, live cooking, BBQ, asian oriental and western dishes.
Downstairs, the Starbucks coffee shop offers sandwiches, snacks and beverages. An Internet Café is included in the Student Center. Most residence halls are equipped with kitchenettes, including a refrigerator and hot plates, in addition to vending machines containing snacks and beverages.

## International Student Service \& Alumni $O$ ffice (ISSA)

The ISSA Office provides essential support to international students before and after their arrival. Among its many tasks is to help international students comply with immigration rules and regulations during their time at the university. This division aids all

international students with visa processing, including new students, transfer students, and LEAP and SIEP students. The ISSA also provides passport custody and medical test assistance. The International Student Service and Alumni Office also helps alumni stay connected to AUS through alumni association chapters and publications.

## Point of Sale (PO S) System

Beginning with the Fall 2003 semester, students will be able to use their ID cards (Solo cards) for purchases at various AUS outlets through the Point of Sale (POS) System. To participate, students must deposit an initial sum with the university cashier, who will credit that amount to his/her POS account. The ID card can also be activated to serve as a debit card at no additional charge. The POS system is very secure, and students may check their balance online.
Students can use their ID cards at the following AUS outlets:
Bookstore

Food outlets
Starbucks
Dunkin' Donuts
Internet Café
Leopard Mini-Mart
Hairdresser or barbershop
Pharmacy
Laundry service
Other services to be announced

## Media and Printing Department

The Media and Printing Department implements the university's communications policies and plans. In addition to managing the university's publications, this department works to ensure media coverage of university events through press conferences, media interviews, press releases and press invitations. The department also writes, designs and produces the following publications: Campus Report, which is published every two to three weeks for the AUS campus community; AUS News, a quarterly publication distributed on and off campus; and the University Catalog.


Mini-Mart
The Leopard Mini-Mart provides a large variety of grocery items, fresh fruits and vegetables, and other household items. It is located on the ground floor of the Student Center.

## Parking and Transportation

Parking lots are provided on university grounds for faculty, staff and students free of charge. Vehicles must be registered with the Parking Services Office and faculty, staff and students must purchase and display a valid AUS parking sticker on the windshield. These permits are issued once the vehicle is registered. Visitor parking is also available in the university parking lots.
AUS also offers a bus shuttle service between the student residence halls and other areas of campus. Students who
wish to commute off campus may contact University Services, who can provide transportation to the cities of Sharjah, Dubai, Abu Dhabi and Al-Ain. For more information on all routes and schedules, contact University Services at 515-2171. The transportation unit also provides information on local taxi and rental car services.

## Personal Services

A hairdresser is located in the west side faculty housing, and a barbershop is located on the east side faculty housing. Regular and dry-clean laundry services are available in both faculty housing areas.

## Post $O$ ffice and Mail Service

AUS provides a full-service post office on campus. All mail intended for university offices and for those residing on campus should be addressed to:

American University of Sharjah
P.O. Box 26666

Sharjah, UAE
Mail is distributed daily to all university offices by the University Post Office. The Post Office also maintains individual post office boxes for the university community.

## Public Relations Department

The Public Relations Department ensures a good working relationship between the university and the local public and private sectors. It handles all official government documents and transactions for students, faculty and staff, including the processing of visas and residence permits, driving licenses, car registration, traffic violations and accidents. It also provides official letters that might be required by various government and/or private organizations. This division also issues AUS Identity Cards (IDs) and car stickers.

## Security

The Security division is the recognized law enforcement agent on campus. It monitors security on the entire campus, including residential halls and all university-owned buildings, and works to ensure that UAE laws and AUS regulations are implemented. If a violation occurs, the security officers have the right to withdraw any ID. This division oversees the campus traffic and parking system and is authorized to enforce all related regulations. It also provides security personnel 24 hours a day on university premises and in the residential areas and for campus events when requested.

## Travel 0 ffice

Located in the Main Building, the Travel Office offers an efficient and cost-effective program designed to assist all AUS students, faculty and staff. The role of the office is to handle all travel arrangements, negotiate the most favorable rates, and provide information on special offers.

## University Health C enter (UHC)

The University Health Center (UHC) provides primary health care to all AUS students, faculty and staff and their dependents. This health service includes 24-hour accident and emergency care and depending on the severity of the illness, patients are referred to government or private hospitals for further treatment. An ambulance service is available to deal with emergencies on campus. Great emphasis is placed on making the campus a healthy and safe place to study, work and live.

## Health Services

- Primary healthcare to students, administrative staff, faculty and dependents (including 24-hour emergency care to residential halls and other campus residents). Consultations by the internists, the general practitioners, the dentist, the dietitian, and the clinical therapist include basic examinations and basic medications.
- Basic investigations - blood sugar, blood grouping, sugar/protein in urine, ECG, pulmonary function test, Sonography
- Preventive care including vaccinations and immunizations
- Follow-up treatment, observation and referral to specialists
- Counseling/Psychotherapy services for a wide range of emotional and psychological disorders (this service is confidential and voluntary)
- Diet Counseling services
- Pre-registration check-up for students
- Pre-employment check-up for employees
- Group medical check-ups for U.A.E. residency purposes, in cooperation with the Ministry of Health
- Blood tests and vision acuity tests for driving licenses
- Assistance in dealing with medical insurance coverage on life and group medical insurance for employees
- Group Medical insurance for students
- Referrals to outside specialists or insurance network doctors
- Overseeing the safety in the university labs and buildings
- Overseeing cleanliness and hygiene in the food outlets on campus
- Dental services as per AUS Plan for faculty, staff and dependants
- Health Education - self care, first-aid and disease/accident prevention
- Fitness Tests and Certification for Sports
- Medical labratory
- Pharmacy


## Health Insurance Plan for Students

As part of the registration procedures, every student must enroll in one of the two following health insurance plans:

## Plan I

(Compulsory for AUS-sponsored students, but optional for others who are officially enrolled in health insurance plans with their families.)
Benefits include:

- Full medical and hospitalization insurance up to AED 50,000 for hospitalization and AED 7,000 for outpatient expenses
- Coverage throughout the UAE, not only on campus
- 20 percent co-pay on medicines
- AED 25 for consultation of outside specialist
- Health services at the University Health Center on campus (as in Plan II)


## Plan II

(Compulsory for all students who are not enrolled in Plan I.)
Benefits include the following health services provided at the University Health Center on campus:

- Free Basic Primary care - consultation by - internist, GPs, dietitian, dentist, includes examination and basic medication
- Free Basic investigation - blood Sugar, blood grouping, sugar/protein in urine, ECG, pulmonary function test, Sonography
- Free emergency dental services
- Dental services as per AUS Plan -
'Schedule C'
- Laboratory services
- Emergency care and first aid - 24-hours to dorms and campus residents
- Free Ambulance services (available 24hours daily for dorms and campus residents)
- Pre-registration check-up
- Free Vision acuity and blood tests for driving license purposes
- Fitness test and fitness certification for sports
- Follow up care
- Referral to insurance network providers (if insured)
- Pharmacy on campus (insurance network)


## The AUS Clinic Staff and Facilities

The clinic is staffed with a highly qualified medical team, comprised of an internist, two general practitioners with pediatric \& gyn/obst experience, a dentist, assistant dentist, dental hygienist, a psychologist, a nutritionist, a clinical coordinator and three staff nurses. The clinic is equipped with the following:

- All basic medical equipment and basic medications
- ECG machine to monitor heart ailments
- Nebulizers for respiratory problems
- Respiratory Function Test (Spirometer)
- Glucometers - to check blood sugar levels
- Ultrasound
- Observation room (day care) to closely monitor patients
- A fully equipped dental clinic (with latest equipment - digital x-ray, intraoral camera, etc.)
- Fully equipped Laboratory
- Fully equipped ambulance with emergency medical team


## 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. The UHC programs include lectures and awareness campaigns on health-related issues such as:

- First aid training and CPR courses
- Seminars on substance abuse
- Mental Health Workshops
- Newsletter on health related issues


## University Resources

## Architecture and Design Facilities

SA\&D uses the Macintosh operating system in its digital classrooms and studios. Starting with the sophomore year, students benefit from personally assigned workstations in digital studios. Architecture and Interior Design students have dedicated individual work stations composed of drawing tables and desktop computer workstations with network connections. All students have 1:1 access to 100 Mbs Ethernet. Dedicated ancillary spaces, which are shared by all programs, include digital classrooms and closed networked studios, a highend Mac lab, PC lab, input/output labs, a printmaking shop, lighting and photography labs, a woodshop, the Visual Resource Center, the Technical Equipment Center, a wet lab for 3-D making, the Material Resource Room, an exhibitions gallery and dedicated critique rooms. Multimedia, video and sound equipment are featured in the Advanced Digital Laboratory, which includes sound editing booths.

C areer Advising and Placement Services (CAPS)

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

## Centers for Learning Enhancement

AUS offers several special help centers where students can go for extra help with their studies. In these centers, students gain the skills and insights they need to meet educational challenges and achieve success in their learning.
The centers are all program specific and students should contact the departments for information about how they may utilize the following programs:

- General chemistry tutorial sessions
- Math Lab Learning Center
- The Physics Clinic
- The Computer Science Center

Located on the ground floor of the New Academic Building, the Writing Center provides individualized instruction for students at all stages of the writing process and provides both computerassisted and one-to-one instruction on grammar, organization and content. The center also teaches students how to proof-read their own work.

## Computer Laboratories

AUS maintains a variety of specialized computer laboratories that are available for all students. Various training courses are offered throughout the academic year, targeted at helping members of the university community (students, faculty and staff) utilize the computing resources.
The Information Technology Department (ITD) is at the center of AUS's computer needs and acts as the university's gateway to the Internet for academic purposes. The university's computer network uses fiber-optic cables that interconnect the entire campus, including the residence halls and faculty housing. ITD serves the computer-related administrative, instructional, technical, and research needs of students, faculty and staff.

## Engineering Laboratories

The School of Engineering has approximately thirty undergraduate laboratories furnished with state-of-theart equipment. All equipment and instruments are accessible to and extensively used by the students. The centralized computer laboratories have more than sixty computers. Some of the laboratories and key equipment are listed below.
Chemical Engineering has unit operation, software, environmental, petroleum, water, materials, fluid flow and heat transfer laboratories. Included are an automated thin film evaporator, ultraviolet reactors, bio-reactors, distillation columns, absorbers, heat exchangers, dryers with proper data acquisition, desalination units and control units.
The Civil Engineering laboratories are designed for conducting standard construction materials, soil, rocks, water and environmental tests. The equipment includes Instron Universal Testing Machines, a $2000-\mathrm{KN}$ Compression Machine, a Dynamic Triaxial Test MTS Machine and earthquake motion recorders.


Computer Engineering has two general purpose programming, digital systems, microprocessor, embedded systems, high performance computer cluster, computer network, software engineering and database laboratories. Included are high performance computers, embedded systems, programmable logic controllers, electronics accessories, and a wide variety of software packages.
The Electrical Engineering laboratories feature electronics, electric power, control, measurements, machines, communications, nondestructive testing, and medical electronics equipment. Included are analog, digital and optical communications, DSP and telephony kits, oscilloscopes, power supplies, a transmission system, power analyzers, servo trainer, PLCs, an industrial robot, a spectrum analyzer, bio-potentials amplifiers, data acquisition systems, a safety analyzer, an antenna system and a satellite station.
Mechanical Engineering has laboratories for measurements and control, engine testing, advanced manufacturing, fluid mechanics, materials testing, mechatronics, vibrations, computer-aided engineering, refrigeration and air-conditioning, thermodynamics and solar energy. These laboratories include computercontrolled equipment such as a scanning-electron-microscope, a universal testing machine and a CNC machining center.

## Library

The AUS library occupies the third floor of the Main Building. The library's collection is growing by approximately 8,000 items per year and supports the curriculum and the general information needs of the university. The majority of the library's holdings are in English; however, there are also materials available in Arabic. The library is student-oriented and features group study rooms, quiet study areas and access to computers. 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 a number of online
periodical indexes, full-text journals and magazines. Students are taught how to use library resources in a computerized classroom. The library works in conjunction with all parts of the university in order to provide academic resources for all classes taught at AUS. Further information regarding the library is available from http://library.aus.ac.ae.

## Science Laboratories

The science programs benefit from state-of-the-art laboratories and equipment. Chemistry laboratories are equipped with standard chemical instrumentation, including balances, centrifuges, pH -meters, spectrophotometers, rapid kinetic apparatus, and electrochemical and chromatographic equipment. Special labs for polymer chemistry are also available. The environmental sciences laboratory is equipped with the latest sampling and analytical devices, including atomic absorption and GCMS and HPLC equipment. The physics laboratories are supplied with the most modern standard equipment, including computer interfaces, linear air tracks,
photogates, smart timers, digitimers, signal/function generators, magnetic field sensors, a hall effect apparatus, lasers, spectral lamps, photoelectric effect apparatus, Geiger-Muller tubes, radiation counters, interferometers, h/e apparatus, a Frank Hertz apparatus, spectrometers, X-ray machines, and a Millikan oil drop apparatus. The biology laboratories are equipped with the latest stereo and compound microscopes, a microtome, an autoclave, a laminar flow sterile hood, PAGE and agarose electrophoresis, cryostat and microtome units, and a work station with a computer connected to digital microscope cameras.

## Translation Laboratory

The Department of English and Translation has a purpose-built interpreting facility with all the necessary equipment. Included are simultaneous interpreting booths, a consecutive interpreting table, Internet access, and equipment for simulated video teleconferencing. This interpreting facility is also equipped with up-to-date technology and machine translation software, TRADOS and other Internet-based software.



## Undergraduate Studies

## Admissions

The American University of Sharjah places particular emphasis on quality education. Applicants are considered on the basis of their qualifications regardless of race, color, gender, religion, disabilities, age or national origin. The most qualified candidates are selected to fill the places available in any school or college.
The university requires regular attendance at all classes, lectures, studios, laboratory sessions and seminars. Students are not permitted to pursue AUS degrees through correspondence or by merely passing university examinations. AUS does not offer any degrees by distance education.
The Office of Admissions is responsible for admitting students to any division of the university. All inquiries, requests for application forms and subsequent correspondence should be addressed to:

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American University of Sharjah Office of Admissions
P. O. Box 26666
Sharjah, United Arab Emirates
E-mail: admission@ausharjah.edu
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## General Requirements for

 Admission to AUSEvery applicant is required to submit the following documents:
1.An application for admission-every item in the application must be completed
2 . A graduation certificate from a recognized secondary school
3.An official high school transcript or university transcripts (for transferring students only)
3.Four recent photographs
4.A photocopy of the applicant's identity card or passport
5.A non-refundable application fee of AED 150
6. Test of English as a Foreign Language (TOEFL) score, if available at the time of applying

Applicants must score at least 173 on the International TOEFL in order to be admitted to one of the AUS schools or colleges. Scores are only valid for two calendar years. Students who do not attain the minimum score but who otherwise meet AUS admission standards will be admitted to the Intensive English Program (IEP) at AUS. They must study for at least one semester in IEP and score the required 173 on TOEFL to be eligible to matriculate into their chosen field of study.
Note: The AUS TOEFL code is 0526

## Procedure for Applying

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

## Early Admission

A student in his or 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. Admission offered to students who apply early 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 are not allowed to register for classes until the admissions process has been completed.

## Regular Admission

Students who have completed their secondary school education and have a secondary school certificate can apply using the regular admission procedure. To do so, a student must submit a recognized and official secondary school certificate, or equivalent, and the grades of the last three years of secondary schooling showing grade averages and class rank, if available.

Students who sat for official secondary school exit exams must provide certified documentation of their results.

## Deadlines for applying for Regular Admission

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

Fall Semester
July 30, 2003
Spring Semester December 27, 2003

## Admission Deposit

All admitted students are required to pay a non-refundable and nontransferable seat reservation deposit of AED. 5,000 and an AED. 500 dorm room reservation deposit (if applicable).

## Admission Deposits

All admitted students required to pay a non-refundable and non-transferable seat reservation deposit of AED 5,000 and an AED 500 dorm room reservation deposit (if applicable).

## Admission as Transfer

AUS grants admission to transfer applicants subject to the following conditions:

1. They are in good academic standing (i.e. not on probation or dismissed from the institution from which they are transferring).
2. The student is transferring from a recognized institution of higher education offering learning experiences equivalent to those offered at AUS and has successfully completed one or more semesters in that institution.
3.Prior to being admitted to the institution from which the student is transferring, the student met the requirements for admission to AUS.
4.The student meets the AUS English language proficiency requirements.
5.The student submits official transcripts of his/her high school and college/university records along with the syllabi and descriptions of courses that the student seeks to transfer.
3. The student achieved at his/her institution a minimum Cumulative Grade Point Average (CGPA) as required by AUS.

The complete transfer policy is available from the Admissions office.

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 coursework in photographic, digital or original format. Depending on the university/college from which the student is transferring, transfer applicants may be given transfer credit for courses required in his/her major if he/she obtained grades of not less than a B (3.0) in those courses. For courses that are not required by the major, transfer credits may be given if the grades received were not less than a $C$ (2.0). 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 appropriate academic division makes the decision regarding which credits are awarded. Once awarded, transfered courses cannot be re-evaluated.
Courses taken more than five (5) years prior to matriculation as an undergraduate student at AUS are not transferable. Furthermore, at the time of graduation, no course can be more than 8 years old if it is to be counted towards the awarding of a degree. Of the total credits required for a degree, a maximum of 50 percent of the credits completed in residence at another institution can be transferred.

## Deadlines for Admission as Transfer Student

All transfer applications along with materials for evaluation of transferable courses must be on file in the Office of Admissions by the following dates:
Fall Semester
June 21, 2003
Spring Semester November 15, 2003

## Courses will not be evaluated for

 transfer until the official transcript, syllabi and requested work samples are submitted to the Office of the Registrar.
## Non-Degree Admission

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

## Visiting Student Admission

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

## Applicants with Disabilities

Depending on available facilities, the university provides special services to applicants with certain disabilities.
Those who need special services are requested to contact the AUS Dean of Students. This information will be treated confidentially.

## Important notes

- Students who need visas should apply at least one month before the established deadlines.
- Admission is valid only for the semester for which a student applies. If an applicant is granted admission for a certain semester and fails to register, the application may be reconsidered, upon request, for the following semester only.


## Recognized Secondary School Certificates

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

## Examples of Secondary School Certificates

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

## 1.National General Secondary School Certificates:

Arts or Science Track: Must have an equivalent of 70 percent or more in the
best two of the last three years, or 70 percent or more in the final year of secondary education.
2.International Baccalaureate (IB):

Must complete any six subjects, with at least three at the higher level. The School of Engineering requires mathematics or physics at the higher level.
3.Lebanese Baccalaureate: Completion of Part II required.
4.French Baccalaureate or equivalent: Completion of Part II required.
5.Pakistani Board(s) Certificates: Higher Secondary School Certificate (Part II).
6.Indian Board (s) Certificates: Senior Secondary School Certificate (12th Standard).
7. Iranian Certificate: Completion of preuniversity year.
8. German Abitur: Minimum average of four.
9.American-style High School Diploma: Minimum 2.0 GPA on scale of 4.0.
10.IGCSE, GCSE, GCE:
a. Minimum of 11 years of schooling (School Leaving Certificate must be provided.).
b. Minimum of eight different subjects with at least a grade of C for each subject.
c. Students who complete advanced supplementary (AS-level) and advanced level (A-level) are given preference in admissions considerations.
d. Only subjects classified as academic, including arts and creativity group subjects, will be accepted for admission consideration. Subjects submitted must include at least four
different groups such as languages, science, mathematics, arts and design, humanities, social studies, etc. Some majors require subjects in specific groups for admission consideration.
For admission consideration, secondary school grades must meet the minimum established standards as set by the university. Admission to the university is competitive, and the actual minimum score for admission will depend on the number of qualified applicants and the number of available places.

## Advanced Standing

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

## Program Admission Requirements

Types of secondary school certificates and program admission requirements admit to only the following:

## Literary Certificates

1.College of Arts and Sciences, except for computer science and environmental sciences majors
2.School of Architecture and Design, except for architecture and interior design majors
3.Any major offered by the School of Business and Management

## Scientific Certificates

Admit to any of the three schools or the

College of Arts and Sciences.

## Technical and Vocational Secondary School Certificates

Highly motivated and academically qualified students may be admitted to a major that corresponds to the nature of the technical or vocational secondary school program. For example, a holder of a technical secondary school certificate in electricity may apply to the electrical and electronic engineering program.

## Placement Tests

All freshmen 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 chart below. No student is allowed to sit for the placement test more than once for any given admissions session.

## Preparatory Courses

Students who score low on a particular placement test are placed in an appropriate preparatory course (i.e. XXX001, XXX002, XXX003). The course's final grade counts towards the cumulative grade point average but the course's credits do not count towards degree credits. A failing grade in a preparatory course cannot be changed in the student record even if the student passes the placement test at a later date. Students may wish to consider the "Freshmen Forgiveness" policy to improve on the course's grade and their cumulative grade point average (GPA).

| Major | English | Arch. Math | Science/ Eng'g Math | Bus. Math | Physics | Computer |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Engineering (any major) | Yes | No | Yes | No | Yes | No |
| Business (any major) | Yes | No | No | Yes | No | Yes |
| Architecture / Interior Design | Yes | Yes | No | No | No | No |
| Multimedia / Visual Communication/ Design Management | Yes | No | No | Yes | No | No |
| Computer Science / Environmental Sciences | Yes | No | Yes | No | Yes | No |
| All other majors in College of Arts and Sciences | Yes | No | No | Yes | No | No |
| Undeclared Major | Yes | No | * | * | * | * |
| * The appropriate placement test must be taken before a student can enroll in the first year freshman course. |  |  |  |  |  |  |

## Registration

## Orientation Program

Prior to registration, an academic orientation is scheduled for all new students to acquaint them with the general academic university regulations, policies and services. Also, each college/school has an orientation to acquaint students with its specific regulations and the registration process at AUS. During orientation, the Office of Student Affairs provides an introduction to university life through campus tours and visits, meetings, lectures, demonstrations and other activities. Attendance at these programs is mandatory for all new students.

## Registration Procedures

A registration guide is available to every student before the registration period begins. The guide provides pertinent information and indicates the registration steps along with the place, date and time for each step. The guide, published by the Office of the Registrar, lists initial course offerings. A continually updated list of these offerings is also posted on the AUS web page. Students should carefully read the registration guide as they prepare for registration.
Registration involves three main steps:

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

Registration by way of proxy is not permitted. New students must make sure that all documents required for finalizing their admission, particularly those indicated in the letter of admission, are submitted to the Office of Admissions before registration begins.
AUS accepts the following methods of payment of fees:

- Cash in UAE Dirhams only
- Checks drawn on local banks in UAE Dirhams
- Banker's drafts
- Credit cards
- Direct transfers to National Bank of

Sharjah (Account No. 0029-200170001). The student's name and ID number must be noted on the transfer.
Students are not allowed to defer fee payments until after the registration period except with special permission. Exceptions are made only if the following conditions are met:

- A letter is submitted to the Office of Student Accounts by the student's sponsor explaining the reasons for their inability to pay the full fees at registration. This letter must be received before or during the registration period.
- At least 50 percent of the full amount due is paid before or during the registration period.
- Approval for deferment and terms of payment are stated in writing and signed by the authorized university official.
A charge of AED 500 is added to the amount due if a check is returned due to insufficient funds.


## Transfer Student Registration

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

## Non-degree Student Registration

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

## Academic Standards and Regulations for Non-degree Study

Non-degree students are held to the same academic standards as degree students and must maintain a 2.0 GPA to continue to take classes at AUS.

## Audit Registration

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

## C hange of College or Major

Students seeking to change their major within their college/school or to change their college/school must complete the appropriate form available from the Office of the Registrar. Requests for a change of major or change of college/school should be submitted to the Office of the Registrar at least two weeks before the registration time of the affected semester. To be eligible for a change of major, a student must meet the requirements for admission to the new major, and the request must be approved by the dean of the new major. Students transfering to Management Information Systems (MIS) must pay a minimum of four semesters of MIS tuition. Students transfering to Computer Engineering must pay a minimum of six semesters of COE tuition. Those who declare or change their majors to MIS and COE towards graduation time will be required to pay the difference in tuition retroactively. The graduation requirements for any individual student are determined by the catalog that is effective when the student joins the new major. Refer to the college/school for transfer requirements.

## Transferring from Non-degree to Degree Status

Students wishing to transfer from non-

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

## Add and Drop

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

## W ithdrawal from Courses

Students are permitted to withdraw from courses after submitting the appropriate withdrawal form. Students are expected to maintain a minimum of 12 credits but under special circumstances the dean of the college/school may allow students to drop below 12 credits. Withdrawal from courses must occur no later than the end of the 10 th week of classes. A grade of W will be recorded on the transcript for the course from which the student has withdrawn but will not
impact the student's GPA.
As of the 11th week of classes and up to the last day of classes, a grade of WF will be recorded for those who withdraw from a course. The student will receive 0.00 grade points for the WF, and this will be used in calculating the student's GPA.

## W ithdrawal from the University

In the event a student formally withdraws from the university, the following refund schedule will be applied:

| Withdrawal from the University* |  |
| :--- | :--- |
| One week before the first day of classes | Refund <br> 年 <br> deposit of new students |
| Before the end of the first week of classes | $100 \%$ excluding non refundable <br> deposits |
| During the second week of classes | $50 \%$ |
| During the third week of classes | $25 \%$ |
| After the third week of classes | $0 \%$ |

*Refunds for Summer Session Withdrawals are pro-rated.

## University Divisions and Undergraduate Degree Programs

Bachelor's and master's level programs are offered by the four divisions of the university. Graduate degree offerings are listed in the graduate section of this catalog. The undergraduate programs offered lead to the degrees listed below. Detailed information about concentrations within the majors is given in the catalog section of the college/school offering the major.

## College of Arts and Sciences

- Bachelor of Arts in Economics
- Bachelor of Arts in English Language and Literature
- Bachelor of Arts in International Studies
- Bachelor of Arts in Mass Communications
- Bachelor of Arts in Public Administration
- Bachelor of Science in Computer Science
- Bachelor of Science in Environmental Sciences


## School of Architecture and

## Design

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

School of Business and M anagement

- Bachelor of Science in Business Administration with possible concentrations in accounting, finance, management, marketing and management information systems
- Bachelor of Science in Finance
- Bachelor of Science in Management Information Systems


## School of Engineering

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



## University Degree Requirements

Students are governed by the following minimum requirements for the bachelor's degree. Each specific degree program has further major and major-
related requirements that are detailed in the respective discipline sections of this catalog.
Caution: The course offerings and requirements of the American University of Sharjah are under continual examination and revision for improvement. This catalog is not a contract; it merely presents the offerings and requirements in effect at the time of publication and in no way guarantees that the offerings and requirements will not change. The university specifically reserves the right to change requirements for any major during any particular year. The student assumes full responsibility for compliance with all academic requirements.
The graduation requirements for any individual student are determined either by the catalog that was effective when the student joined AUS or changed majors; or the catalog effective for the academic year when the student graduates. In case of major changes in course offerings equivalent graduation requirements are determined by the dean.

## Major Requirements

Each student in a degree program must complete at least 36 credits in the degree major and in related courses. A grade of C - or better is required for each major, major-related, university requirement or minor course. Course grades lower than C - in the major will have to be repeated or an equivalent course will need to be taken in order to satisfy the major requirement involved.
Specific grade requirements are listed under individual degree programs.

## Declaration of Major

Normally, students declare their academic major by applying to a particular college/school and to a major program within that college/school for
admission. If a student is admitted with an undeclared major, he/she must formally choose and declare a major by the end of his/her second year (sophomore year).

## Interdisciplinary Majors

In addition to the established major programs, students may choose to construct their own major program leading to a bachelor's degree in Interdisciplinary Studies. To design and complete an interdisciplinary major, a student must have the approval of three faculty members who represent the various disciplines involved and the dean of the college/school.
Interdisciplinary major programs must include at least 42 credits, including 36 credits carefully selected to form an academically sound, unified and welldefined program and six credits in independent study for a senior thesis. At least 27 of the 36 credits must be upper level as defined by the teaching units that offer them.
For permission to undertake an interdisciplinary major the student must apply to the dean of the college/school in which he or she is enrolled. A maximum of 18 credits of work completed prior to the semester in which the application is made may be included in the program. The independent study for the senior thesis must be supervised by the major advisor and must be focused on the program's central concept.

## Double Majors

To complete a double major, students must satisfy all the degree requirements of the two majors requested. Some courses may be counted towards the fulfillment of both degrees'
requirements. At least 21 credits at the 300 and 400 levels must not be double counted. The student's diploma and transcript will indicate all majors completed at the time of graduation.
To declare a double major, a student must complete a form and submit it to the Office of the Registrar identifying the two majors. The catalog in effect for the student's primary major will be followed for the degree audit of the
second major. One of the two majors must be designated as the primary major, but the student's rights and responsibilities are the same in both majors. If applicable, the higher of the two major tuition fees applies for the minimum number of semesters specified by AUS. The advisor of the primary major will serve as the student's registration advisor. Degree programs and audits must be approved for each major by the appropriate department or college/school, and the Office of the Registrar. One of the two majors may subsequently be canceled using the same form.

## Minors

For those programs offering a minor, the specific course requirements constituting a minor are listed under the departmental programs in this catalog. In general, all minor programs consist of a minimum of 18 credits including at least nine credits in courses at or above the 300 level in the discipline of the minor. Free electives can be taken towards the minor. At least nine credits of the minor must not have counted toward any other degree requirement. At least nine credits of the minor must be taken in residence at AUS. A maximum of nine credits can count toward other degree requirements.
To declare a minor, a student should complete the minor declaration form, available from the Office of the Registrar, in consultation with the department offering the minor. The catalog in effect for the student's major will be followed for the audit of the minor. Minors are noted on the student's permanent record (transcript) at the time of graduation. It does not appear on the degree certificate. Students must complete the minor at the same time as their major. They may subsequently drop the minor prior to graduation by submitting a form to the Office of the Registrar. A grade of C - or better is required for each course used to satisfy the requirements of the minor. The minimum GPA for minor courses is 2.0.
Of the total credits required for a minor, a maximum of 50 percent credits completed in residence at another institution can be transferred. Only
courses with a minimum of a B (3.0) will be accepted for transfer towards a minor.

## Double Minors

To complete a double minor, students must satisfy all the requirements of the two minors requested. The catalog in effect for the student's major will be followed for the audit of the minors or the one in which the minor first appears. Certain courses may be counted towards the fulfillment of both minors. At least nine credits at the 300 and 400 levels must not be double counted. The student's transcript will designate all minors completed at the time of graduation.
To declare a double minor, a student must complete a form and submit it prior to graduation to the Office of the Registrar. Degree programs and audits must be approved for each minor by the appropriate department or college/school, and the Office of the Registrar.

## Minor O fferings

Many programs offer the opportunity to pursue a minor in a selected field. Detailed information about the various minors is given in the catalog section of the department offering the major.

College of Arts and Sciences
Minor in Applied and Computational Mathematics
Minor in Computer Science
Minor in Economics
Minor in Environmental Sciences
Minor in ESL/TEFL
Minor in International Studies
Minor in Language
Minor in Literature
Minor in Mass Communication
Minor in Public Administration
Minor in Translation and Interpreting
School of Architecture and Design
Minor in Architectural Studies
Minor in Design Management
Minor in Interior Design
School of Business and Management
Minor in Accounting
Minor in Finance

Minor in Management
Minor in Management Information Systems
Minor in Marketing

## School of Engineering

Minor in Electrical and Electronic Engineering
Minor in Mechanical Engineering

## Free Electives

To satisfy the free elective requirements, a minimum of nine credits of free electives must be completed. A grade of D or higher is required to obtain credit for a course that has been taken to satisfy the free elective requirement. Some schools may restrict choice of free electives.

## General Education Requirements

Every student must successfully complete the following requirements to graduate:

- Arabic heritage
- English language competency
- Mathematics and/or statistics
- Computer literacy and information access
- Science
- Humanities and Social Science
- Theme courses
- Humanities and/or social sciences

Some General Education courses may count towards fulfilling major requirements. In this case, the particular course cannot be counted as double credit towards the fulfillment of the total credits required towards completing the degree requirements. But General Education courses cannot overlap with each other.

## Arabic Heritage Requirement

All students must satisfy the Arabic heritage requirement by passing with a grade of C - or better any one of the following courses:

- ARA 101 Readings in Arabic Heritage I
- THM 301 or THM 302 Arabs and the West: The Andalusian Symbiosis I and II
- Any other Arabic language or literature course with the approval of the dean of the College of Arts and Sciences.
Students who transfer to the American University of Sharjah may also satisfy the Arabic heritage requirement by transferring three hours of acceptable Arabic credits.


## English Language Competency Requirement

All students must be able to write with a level of mastery equal to the demands of university coursework. In addition, students need to acquire the critical reading and comprehension skills necessary for all their courses.
All matriculating students must take the English Placement Test to determine which COM (communication) course they must take (COM 001, COM 101 or COM 102). To graduate, all students must satisfy the English language competency requirement by completing, with a C-grade or better, 12 credits of level 100 or above in English/Communication courses.
COM 101 (Academic Writing) and COM 102 (Writing and Reading Across the Curriculum) should be completed in the first year (freshman) or before completion of 30 credits. Students should complete their 12 credits in COM courses, including COM 203 or COM 204 (if taken), by the end of their second year (sophomore) or before the completion of 60 credits.
Transfer students may satisfy the English language requirement by transferring up to six credits of acceptable English/communication credits and taking an additional six credits of communication/English courses at the 200 level or higher.
Students transferring to AUS must satisfy the COM 203 or COM 204 requirement at AUS. The Dean of the College of Arts and Sciences must approve exceptions.
A student who receives an exemption from one or two of the required communication courses will be able to take any communication, social science
or humanities course to accumulate the credits required for completing the degree requirements.

## M athematics and/or Statistics Requirement

All students must have mastery of quantitative reasoning and university level mathematical skills. Students should satisfy this requirement by the end of the second year.
All students must satisfy the mathematics and statistics requirement by passing with a grade of C- or better two courses (at least six credits) in mathematics (MTH) and/or statistics (STA/QAN); at least one course must be in mathematics. These courses should be chosen from the list approved by the college/school of the student's major in consultation with the approval of the student's academic advisor.
Transfer students may satisfy the mathematics and statistics requirement by transferring at least six credits of acceptable mathematics and statistics. At least three of these credits must be in mathematics.

## Computer and Information Literacy Requirement

All AUS students must be computer literate and have information literacy skills. Computer skills are taught within the context of many courses and information literacy instruction is incorporated within COM 102, COM 203/COM 204 and several other courses. In addition, students may be required to take additional specific computer courses depending on the requirements of their school or college. Courses satisfying the computer literacy requirement include BIS201, CHE330, COE210, CVE325/MCE325, DES 100, MTH103, MTH104, MTH111, MTH203, MTH341, STA101, STA201, and STA202.

## Science Requirement

All AUS students must have universitylevel knowledge of scientific reasoning
and the experimental sciences. Students may satisfy the science requirement by passing any two (2) of the following courses with a grade of C - or better:

- BIO 101 (General Biology I)
- BIO 102 (General Biology II)
- BIO 103 (Introduction to Life Sciences)
- CHM 101 (General Chemistry I)
- CHM 102 (General Chemistry II)
- CHM 103 (Chemistry and Everyday Life)
- CHM 105 (Chemistry and the Environment)
- ENV 100 (Environmental Issues and Problems)
- ENV 101 (Introduction to Environmental Sciences)
- PHY 100 (Conceptual Physics)
- PHY 101 (General Physics I)
- PHY 102 (General Physics II)
- PHY 103 (Astronomy)
- PHY 104 (Physics for Architecture)

Students who transfer to the American University of Sharjah may also satisfy the Science requirement by transferring at least six credits of acceptable science courses.

## Humanities and Social Sciences Requirement

Students must satisfy the Humanities and Social Sciences requirement by completing at least 15 credits or five courses in the humanities and social sciences curricula with a grade of C - or better. Students must take:

- Nine credits to be selected from the humanities and social science courses listed below
- Six credits in interdisciplinary theme courses (Students must earn a minimum of 60 credits before registering in the theme courses.)
Transfer students may also satisfy the Humanities and Social Sciences requirement by transferring up to 15 credits of acceptable general education courses.
The following can be used in meeting the Humanities and Social Sciences requirements subject areas and courses:
- Arabic literature (H)
- Cultural studies (H)
- Economics (SS)
- English language (H)
- English literature (H)
- Geography (SS)
- History (H)
- Philosophy (H)
- Political science (SS)
- Psychology (SS)
- Sociology (SS)
- Themes Courses (H or SS)

In addition, the following specific courses can be counted as humanities: DES 121, DES 122, HRM 201, HRM 202 and COM 220. MCM 155 and MCM 225 can be counted as social science courses. General Education courses cannot be counted as double credits toward the fulfillment of the total credits required to graduate.



## Undergraduate Fees

## Tuition

Tuition for full-time undergraduate students registering for 12-18 credits is given in the table below. For undergraduate students registering for more than 18 credits there is a supplementary fee of AED. 1,560/credit over 18. Parttime students registering for less than 12 hours are charged AED. 1,820 /credit regardless of their major. Additional undergraduate fees and housing charges are given in the tables that follow.


## Undergraduate Tuition Applicable During the Academic Year 2003-2004

Full time Undergraduate students (12-18 credits)

|  |  | Fees per Semester |  |  |
| :---: | :---: | :---: | :---: | :---: |
| College/School | Major | Returning Students from Fall 2002 | New Students from <br> Fall 2002 onwards** | Fees for Summer |
| College of Arts \& Sciences | Computer Science | AED. 21,780 | AED. 23,340 | AED. 1,820/credit |
|  | Environmental Science | AED. 19,070 | AED. 21,780 |  |
|  | Undeclared Major | AED. 21,780 | AED. 21,780 |  |
|  | All Other Majors | AED. 19,070 | AED. 19,070 |  |
| Intensive English Program |  | AED. 17,500 | AED. 17,500 | AED. 5,750 |
| School of Architecture and Design | All Majors | AED. 21,780 | AED. 23,340 | AED. 1,820/credit |
| School of Business and Management | Management Information Systems | AED. 21,780 | AED. 23,340 | AED. 1,820/credit |
|  | All Other Majors* | AED. 21,780 | AED. 21,780 |  |
| School of Engineering | Computer Engineering | AED. 21,780 | AED. 23,340 | AED. 1,820/credit |
|  | All Other Majors* | AED. 21,780 | AED. 21,780 |  |

[^1]Part-time undergraduate (less than 12 credit hour)
AED. 1,820 per credit hour
Undergraduate registration exceeding 18 credit hour - additional charge of

AED. 1,560 per credit hour over 18 credit hours

## Other Undergraduate Fees for the Academic Year 2003-2004

| Fee Type | Compulsory | Optional | Per semester | For Summer session |
| :--- | :--- | :--- | :--- | :---: |
| Student Activities | All Students | N/A | AED. 100 | AED. 50 |
| Late Registration | If applicable | AED. 400 | AED. 200 |  |
| Health Insurance Plan I | AUS sponsored students | For others | AED. 450 | AED. 150 |
| Health Insurance Plan II | For all students who <br> are not on Plan I | N/A | AED. 200 | AED. 50 |
| Registration <br> Reinstatement Fee | For those who reinstated <br> their registration after <br> being deleted |  | AED. 1000 | AED. 1000 |
| Other Expenses | Costs of textbooks and supplies are the responsibility of the student. <br> Third-year students in the School of Architecture and Design are required to provide their own laptop computer. <br> All new students in the school of Business \& Management are required to provide their own laptop computer as of Spring 2003 |  |  |  |

## Student Housing

AUS has 10 campus residence halls (seven for men and three for women). Living on campus is optional. Students should contact the Office of Student Affairs for information regarding individual cases.
Room Per semester Per Summer session

Non Refundable Dorm Room Reservation Deposit AED. 500
Refundable Dorm Deposit AED. 1,000

| Private | Single occupancy with private bath and kitchenette | AED. 7,875 | AED. 3,150 |
| :---: | :---: | :---: | :---: |
| Semi-Private | Single occupancy with a shared bath and kitchenette | AED. 6,300 | AED. 2,520 |
| Sharing | Double occupancy with a shared bath and kitchenette | AED. 3,940 | AED. 1,580 |
| Single | Single occupancy with a common bath and no kitchenette - for men only | AED. 3,675 | - |
| Double | Double occupancy with a common bath and no kitchenette - for men only | AED. 2,370 |  |
| Internet connection | ion fee (optional) | AED. 400 | AED. 150 |

## Payment Of Fees

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

- Cash in UAE Dirhams only
- Checks drawn on local banks in UAE Dirhams (If one or more checks return due to insufficient funds, checks will no longer be acceptable)
- Banker's Drafts
- Credit Cards
- Direct transfers to National Bank of Sharjah


## Account No. 0029-200170-001

(Student's name and ID number must be noted on transfer.)
A charge of AED. 500 is added if a cheque is returned for insufficient funds.


## Financial Aid and Scholarships

Financial Aid is a major factor in making the American University of Sharjah affordable. Located in the Office of the Registrar, the Financial Aid and Scholarship Office provides a range of aid packages that help undergraduate students finance their education.
Students may apply for financial aid regardless of their race, gender, religion or national origin. University funded financial aid is not available in the summer.
Applications for financial aid and scholarships may be collected diretly from the Financial Aid and Scholarship Office. For more information, please contact 515-2005 or 515-2060.
The following is a brief description of the financial aid policy.

## Tuition Remission

First-time students with limited financial resources who demonstrate academic excellence by achieving a minimum cumulative average grade score of $85 \%$, or the equivalent, in the last three years of secondary education may apply for a tuition remission ranging generally between $25 \%$ to $55 \%$ of the tuition fees. Financial aid applications must be submitted to the Financial Aid Office by July 30th for the fall semester and December 15th for the spring semester.
Full-time students with limited financial resources who have completed a minimum of 12 credits at AUS and who achieve a minimum semester GPA of 2.5 and cumulative GPA of 3.0 may apply for a tuition remission ranging generally between $25 \%$ to $55 \%$ of the tuition fees. Financial aid applications must be submitted to the Financial Aid Office by May 15th for the fall semester and December 1st for the spring semester.

## University Merit Scholarship

First-time students who demonstrate academic excellence by achieving a
minimum cumulative average grade score of $95 \%$, or the equivalent, in the final year of their secondary education may apply for the Merit Scholarship. The scholarship granted in this category is $10 \%$ of the tuition fees. Scholarship applications must be submitted by July 30th for the fall semester and December 15 th for the spring semester.

## Chancellor's Scholarship

## (Highly competitive)

First time students with limited financial resources who demonstrate academic excellence by achieving a minimum average grade score of $95 \%$, or the equivalent, in the last three years of secondary education, have outstanding personal qualities and leadership abilities in school and the community, may apply for the Chancellor's Scholarship. The scholarships granted in this category generally range from $75 \%$ to $100 \%$ of the student's tuition fees. Financial aid applications must be submitted by July 30th for the fall semester.

## Family Tuition Grant

For families that have more than one child enrolled simultaneously in AUS as full time undergraduates in a degree program, a tuition discount of $25 \%$ is given to the second child, $50 \%$ to the third child and $75 \%$ to the fourth child.

## Rules for Maintaining Financial <br> Aid

Students who withdraw from the university, or are dismissed/suspended from the university at any time during the semester will not be eligible for aid/grant in the following semester.

## For Enrolled Students

- Minimum semester GPA of 2.5 in a minimum of 12 credits
- Minimum cumulative GPA of 3.0
- Full-time student status

For 'Chancellor's Scholars'

- Minimum semester GPA of 3.0 in a minimum of 12 credits
- Minimum cumulative GPA of 3.3
- Full-time student status


## For 'Merit Scholarship'

- Minimum semester GPA of 2.5 in a minimum of 12 credits
- Minimum cumulative GPA of 3.0
- Full-time student status


## External Sponsorship

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



## Academic Regulations

## Academic Advising

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

## Student Responsibility

Students are responsible for their behavior, academic or otherwise, at the American University of Sharjah. The university expects that students, as mature members of the academic community, will adhere to the highest standards of personal and academic integrity and propriety.
Students should keep their own records of all transactions with the university (registration schedules and forms, grade reports, payment records, etc.). It is also advisable to keep copies of all tests, digital files, papers, and so forth submitted in fulfillment of course work.

## Courses and Class Schedules

Each discipline or field of study offered by the university is summarized by a three or four letter prefix, followed by a number indicating the level of the course content. Below is an example:
ENG 201 Creative Writing (3-0-3)
In this example, ENG is the course prefix (which represents English) and 201 is the course number. This particular course is a second level course in English literature (denoted by
the 200 level). This course is more advanced than 100 level introductory courses such as ENG 105
(Contemporary World Literature). The numbers in parentheses following the title of a course indicate the contact hours and course credit information. Below is another example:
PHY 101 General Physics I (3-3-4) In this example, the first digit in the parentheses refers to the number of class contact hours per week the course requires (three contact hours), the second digit denotes the number of laboratory or practice hours required weekly (here also three hours), and the third digit refers to the number of credits the student will receive upon successfully completing the course (four credits). The creative writing course above has three contact hours per week, no lab or practice hours, and the student who successfully completes the course receives three credits.
Courses are offered at the discretion of the department. Students should check with the respective academic departments for information on when courses will be offered.
Certain courses also have prerequisites, co-requisites, concurrent prerequisites and/or other criteria that are noted immediately following the course description.

## Course Value

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

## Class Periods

Except for laboratory, workshop and specialized design and studio courses, classes ordinarily meet three days per week in 50-minute sessions or two days per week in 75-minute sessions. The university operates on a five-day
schedule from Saturday through Wednesday. The university is closed for the weekend on Thursday and Friday.
Independent reading or research courses, study projects, internships, practicums and similar kinds of study opportunities meet according to the special arrangements of the school or college, department or faculty members concerned.

## Course Descriptions and Syllabi

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

## Course Prerequisites

Many courses above the introductory level require a minimum background of knowledge, as indicated by prerequisite courses cited in individual course descriptions. Titles and numbers are those of the American University of Sharjah courses. Equivalent courses satisfactorily completed at other institutions may also meet prerequisite requirements by transfer credit. Students need to consult the head of the appropriate academic unit for more information. Students are responsible for entering the class with the required competence.
In general, courses should be taken in an order of increasing difficulty. Credit may not be granted for a lower level course once a more advanced course has been completed. Courses in which a grade below C- was received do not satisfy prerequisite requirements. Specific details for different degree programs are available in the deans' offices.

## Student Academic Load

A student admitted to and enrolled in a degree program usually registers for 15 to 19 credits each semester. The required minimum load for all students is 12 credits per semester, and the maximum load is 19 credits per semester. Under special circumstances, a student with a cumulative GPA of 3.25 or better may secure the permission of his/her dean to register for up to 21 credits in any one semester. All credits exceeding 18 credits will require a supplemental fee.
Freshmen are restricted to five courses
to allow time for their adjustment to the learning environment of AUS.
Exceptions must be approved by the Dean.
The minimum graduation requirements for a bachelor's degree vary from 120 to 172 credits depending on the program of study. Samples of study plans are provided in this catalog for each program. The degree programs have been designed to be completed in four years, except for architecture that is a five year program. However, some students may require additional time.

## Freshman Academic Load

Freshmen students enrolled in two or more preparatory courses (e.g. MTH 001, COM 001, etc.) are encouraged to register for a maximum of 13 credits. Others are encourage to register for a maximum of 16 credits.

## Official Class Standing

| Hours |  | Standing |
| :--- | :--- | :--- |
| $0-30$ | credits | Freshman |
| $31-60$ | credits | Sophomore |
| $61-90$ | credits | Junior |
| $91-120$ | credits | Senior I |
| $121-172$ | credits | Senior II |

## Credits and Residence

Requirements
All bachelor's degrees require completion of between 120 to 172 credits of coursework. Candidates for
the baccalaureate degree are expected to complete their last year in residence at the university. Transfer students are expected to complete approximately 60 hours in residence at AUS. A minimum of 36 credits of 300 and/or 400 level coursework must be successfully completed in residence at AUS to obtain a baccalaureate degree. A minimum of 12 of these 36 credits must be in the major.

## Categories of Students

## Full-time Students

To be considered on full-time status, a student must carry a minimum course load of 12 credits per semester, with the normal load being 15 .
Under special circumstances, the dean of the school or college may allow students to drop below 12 credits.

## Part-Time Students

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

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


## Time Limit on Duration of Study

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

## Grading System

The grade point average (GPA) is computed on a four-point scale. The following grading system is used at the American University of Sharjah:
A equals 4.00 grade points

## Excellent

A- equals 3.70 grade points
B+ equals 3.30 grade points
B equals 3.00 grade points

## Good

B- equals 2.70 grade points
C+ equals 2.30 grade points
C equals 2.00 grade points

## Satisfactory

C- equals 1.70 grade points
D equals 1.00 grade points

## Poor

F equals 0 grade points
Fail
WF equals 0 grade points
Administrative Withdrawal Fail
Grades not calculated in the grade point average are
I Incomplete
IP In Progress
AUD Audit
EX Exempt; no credit
TR Transfer; credit counted
W Withdrawal
N No grade
P Pass; credit counted
AW Administrative Withdrawal

The quality points earned in a course are calculated by multiplying the grade point value of the letter grade by the number of credits the course is worth. The grade point average (GPA) is calculated by dividing the sum of the quality points of the courses taken by their total credits. The grades obtained in non-credit courses are not included in the computation of a grade point average.

## University Guidelines for Lateness and Attendance

Attendance and participation in all class, studio, workshop and laboratory sessions are essential to the process of education at the American University of

Sharjah. Students benefit from the lectures and discussions with their instructors and fellow students. For this reason, students are expected to attend class regularly. Lateness or absence hinders progress for the individual and the class and affects the student's grade.
University guidelines for lateness and attendance are as follows:

- Any absence may affect the student's grade
- Instructors need not give substitute assignments or examinations to students who miss classes
- Three occasions of lateness count as one absence. Lateness is defined by the
individual instructor
- In the event a student misses $15 \%$ of the sessions in a class for any reason, the instructor may initiate withdrawal of the student from the course. If approved by the dean of the student's major, the withdrawal is implemented. A grade of W will be entered on the student's record if the withdrawal is initiated before the end of the tenth week of class. If the withdrawal is initiated after the tenth week of class, a grade of WF will be entered on the student's record and will be calculated in the GPA. Instructors are to keep attendance records and to draw students' attention to attendance requirements noted in the
course syllabus. The specific application of the attendance guidelines is at the instructor's discretion


## Examinations

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


## Incomplete Grades and Make-Up Examinations

The work for a course must be completed on the day the semester ends. No incomplete grade (I) is given as a final grade in any course unless there is a compelling medical or other such emergency certified in writing by a medical or other professional. In the case of unexcused incomplete work, an F grade is given for the missing work with the course grade computed accordingly. Only in exceptional cases (such as the emergencies noted above), with written approval of the instructor, chair and the dean, is a student allowed to make up incomplete work within a period of two weeks from the first day of classes of the next regular semester. An I grade pending beyond this time limit will revert into an F grade.
It is the responsibility of the student to find out from his/her professor the specific dates by which requirements must be fulfilled. The deadline for the submission of incomplete grades for a course by the instructor is within 72 hours after the date of the make-up examination.

## Freshman Forgiveness

Freshman Forgiveness applies to students who received grades of $\mathrm{D}, \mathrm{F}$ or WF in their first two semesters of study at AUS. The policy relates to probation policy only with respect to the calculation of the student's cumulative average at the end of the semester in which a course has been repeated and a new grade recorded. No grade is removed from the student's record. Freshman Forgiveness is applied once per course.
To benefit from Freshman Forgiveness, a student who receives a grade of $\mathrm{D}, \mathrm{F}$ or WF in a course during his/her first two semesters of study needs to repeat the course within the calendar year thereafter.
Transfer students with two regular semesters of attendance at another
university (inclusive of two summer sessions) do not qualify for Freshman Forgiveness.

## Placement on Academic

## Probation

Students in the Intensive English Program (IEP) will be placed on academic probation at the end of any semester in which their grade point average (GPA) is below 2.0. IEP students on probation will have one semester in which to achieve a GPA (non-cumulative) of 2.0 or higher. If they do so in their subsequent semester, they will be removed from academic probation. Failure to do so will result in dismissal from the program.
Other students are placed on academic probation if at the end of a semester the student's cumulative average falls below C (2.0 GPA).
A full-time student on probation for the first time is allowed to carry a load of five courses with a maximum of 16 credits. A full-time student who is on a second consecutive probation may only register for four courses with a maximum of 13 credits.

## Removal of Probation and Dismissal

Probation will be removed at the end of any semester in which the student attains a cumulative GPA of 2.0. Students on probation are advised to repeat courses in which they have obtained failing grades.
A student may be dismissed if he/she fails to remove his/her probation by the end of the second semester on probation. Actions involving academic probation and dismissal are entered on the student's permanent record.

## Reinstatement

Students who left AUS not in good standing and have been out of the university for no more than two semesters may submit a written request for reinstatement to the Office of the Registrar. The request should outline activities since leaving AUS that contribute to the student's academic
development. Courses taken at another institution during this interim period are not transferable. Students who have been out of the university for more than two semesters must submit a new application for admission to the Office of Admissions. Dismissed students may also be considered for reinstatement.

## Academic Achievement Program

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

## Repeating Courses

In order to raise one's average or meet graduation requirements, a student may repeat courses which he/she has failed or has received a grade lower than a CA required course should not be repeated more than once without the approval of the dean. The original grade and the repeated course grade will be counted in the calculation of the cumulative GPA.

## Study at Another Institution

AUS students are not allowed to take courses at other institutions within the UAE.
An enrolled student who plans to take courses at another college or university for transfer credit to AUS is encouraged to seek prior approval from his or her dean. Failure to do so may result in no credit being awarded for the transfer work. The host institution must be recognized by the ministry of education of the country and/or accredited and must provide learning experiences similar to those offered by AUS. The "Permission to Take Courses Outside of AUS" form is available from the Office of the Registrar.

## Permanent Record

A permanent record, reflecting academic achievement, is maintained in the Office of the Registrar for each student who registers at the university.

## Students' Privacy Rights

Students have the right to:

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


## Student Records

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

## Transcripts

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

## Names on Diplomas and Degrees

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

## Graduation

Normally, the university confers degrees at the end of the spring semester. Candidates for degrees file an "Application for Graduation" form in the Office of the Registrar during the registration period of the last expected term of study. Only after an application for graduation has been filed can the Office of the Registrar begin processing the necessary information for final certification for graduation. Students who fail to complete all degree requirements by the end of the term for which they apply to graduate need not reapply for graduation. Their previous application will be automatically forwarded to the following semester.

## Participation in the

## Commencement Exercises

Only students who have successfully completed degree requirements and have no holds by the end of the term for which they have applied to graduate are certified for conferral of a degree. In witness of the degree conferred, the permanent record of the graduate is appropriately noted with a statement and date of graduation before his/her diploma is released.
Only degree candidates whose academic records indicate that they satisfy degree requirements and have no holds are permitted to participate in commencement ceremonies.

## University Honors and Awards

## Dean's List

The Office of the Registrar issues a dean's list of honor students at the end of each semester. To be placed on the dean's list, a student must

- Have registered and completed a minimum of 15 hours in the semester
- Have at least a semester 3.5 GPA
- Be in good academic standing
- Rank in the top ten percent of students in his/her school
- Have no failing grades in any of his/her courses during that semester
- Have no incomplete grades
- Have no disciplinary action against him/her


## Graduation Honors

The university grants Latin honors at graduation. To be eligible for graduation honors, students must have completed at least 60 credits required for their degree in residence at the American University of Sharjah and have achieved the requisite GPA. These are

Summa cum laude:3.90 GPA
Magna cum laude: 3.70-3.89 GPA
Cum laude: $\quad 3.50-3.69$ GPA
Latin honors are listed in the commencement program and on the student's diploma and permanent record.

## Student Petitions and Appeals

## Petitions

Students may petition the Office of the Vice Chancellor for Academic Affairs for exceptions to academic policies of the university. Petitions are received by the Vice Chancellor's office through the Office of the Registrar.
Students who think they want to petition the Vice Chancellor are advised to consult first with the Registrar to determine whether a petition is actually required in their case or whether the matter can be handled through those offices.
The petition requires the Registrar's signature in order for it to be transmitted to the Vice Chancellor for Academic Affairs. It should be noted, however, that the Registrar's signature does not necessarily mean that the Registrar recommends approval by the

Vice Chancellor, but merely that the Registrar has been consulted in the petitioning process. The Registrar is free to comment more fully on the matter, either on the petition form or in a separate letter, and may wish to add attachments. Other signatures may be appropriate in certain types of petitions, e.g., the university physician, a member of the Counseling Services staff, a course instructor, etc.

## 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. Misunderstandings have traditionally been resolved, informally, in discussion between students and faculty members, and this manner of resolving problems is deemed appropriate in this academic community.
Should students believe they have a legitimate grievance that has not been reconciled by such private conversation, they may pursue the matter by consulting with the department chair, associate dean and/or dean of the college/school in which the course is offered. Each college/school may have their own internal method of dealing with these matters.
After having exhausted all these means to resolve the matter informally and having found the grievance still unreconciled and still believing the grievance to be legitimate, the student may file a petition with the Assistant Vice Chancellor of Academic Affairs, setting forth a full, fair account of the incident or circumstances giving rise to the grievance.
Alternately, if, in the judgement of the dean of the college/school and the Assistant Vice Chancellor for Academic Affairs, the grievance is of such gravity or its resolution would have such impact on the welfare of students
generally, or on the conduct of professional responsibilities in the university as to require even more formal safeguards for the aggrieved student and faculty member involved, the Vice Chancellor for Academic Affairs shall prescribe an appropriate procedure consonant with the university's mission.

## Appeal of Other AcademicRelated Issues

In the event that a student wishes to discuss an issue pertaining to a course, instructor or other academic-related issues, he/she may direct his/her concern to the chair of the department and/or dean of the college/school. If the issue continues to exist, the student may choose to file a petition with the Office of the Vice Chancellor for Academic Affairs. Petition forms are available from the Office of the Registrar.

## Student Academic Integrity Code

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

The first obligation of a student is to pursue conscientiously the academic objectives that he or she has chosen. Accordingly, each student is required to conform to the regulations of the university, of the college or school in which he or she has enrolled and of the classes in which he or she is registered.

It is further expected that all examinations, tests, papers and other assignments will be completed according to the standards set forth in this code.
By registering as a student at the American University of Sharjah, all students acknowledge their awareness of the academic integrity code and university registration policies and procedures. At the beginning of the academic year students will be asked to sign a statement agreeing to abide by the academic integrity code.
Students are responsible for becoming familiar with their rights and responsibilities as defined by the academic integrity code and for understanding the requirements for their particular courses (regarding such issues as collaborative work, use of study aids or take-home examinations). Students are also responsible for learning the conventions of documentation and acknowledgment of sources required in academic discourse.

## Definition of Academic Violations

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

## Plagiarism

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

## Inappropriate Collaboration

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

## Inappropriate Proxy

Students must attend their own classes and be present for all examinations. Impersonates 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, or use of mechanical or marking devices or procedures for the purpose of achieving false scores on machinegraded examinations. Specific policies regarding examinations may vary with individual professors. Students are prohibited from submitting any material prepared by, or purchased from another person or company.

## Work Completed for One Course and Submitted to Another

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

## Deliberate Falsification of Data

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

## Interference with Other Students' Work

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

## Copyright Violations

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

## Complicity in Academic Dishonesty

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


## Adjudication of Academic Offenses

## Jurisdiction

Academic cases resulting from alleged violations of the university's academic integrity code are within the jurisdiction of either a faculty member or the dean of a college or school.
All charges are brought through the university faculty. Faculty members or students wishing to bring charges should do so through the faculty member in whose course or academic activity the alleged code violation occurred. In the case of students bringing charges against other students, the student bringing the charge must identify himself or herself to the faculty member.

## The Adjudication Process

One of two procedures may be followed in the adjudication process. The first grants authority to the faculty member to exercise discretion in those cases involving a student's judgmental error rather than willful dishonesty. The second grants jurisdiction to the dean of the school or college 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 in which the offense has occurred. That dean will then notify the student's dean, if the student is
enrolled in another college, that the offense has occurred. Through this process, the university can monitor multiple occurrences of such errors of judgment by particular students.

## 2. Administrative Jurisdiction

In all other circumstances, the following procedures will be observed:
a.Faculty members reporting an allegation of dishonesty must do so within ten (10) working days of the date of discovery of the alleged offense. The report should be supported by such documentation as is appropriate and delivered to the dean (or appointed designee).
b.The dean (or appointed designee) will promptly notify the student of the charge and will arrange to discuss the charge with the student at a preliminary meeting. The dean (or appointed designee) will also notify the chair of the department or unit in which the offense occurred and the student's dean (if the student is a member of another school or college) that an allegation has been made.
c. At the preliminary meeting, the student will be presented with the charge and the evidence submitted by the faculty member. $\mathrm{He} /$ 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 ten (10) 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 (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 (or appointed designee) may dismiss the case or refer
the case to the faculty member bringing the charge. For cases not dismissed or referred, the dean may assign a penalty. The dean may request a meeting with the student at any time.

## Other Adjudication Issues

While the assignment of penalties is the province of the dean of the college or school, the faculty member making the charge may recommend a grading penalty or other sanctions.
If the student fails to attend the scheduled meeting, made known in advance to him or her, the college 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.
d. A failing grade of F or WF or denial of credit for the course in which the offense occurred. A notation of the academic integrity code violation will be entered on the student's permanent record.
e. Suspension for one or more academic terms, including the term in which the offense occurred. A notation of the
academic integrity code violation will be entered on the student's permanent record.
f. Dismissal (for a specified term or permanently) from the university. A notation of the academic integrity code violation will be entered on the student's permanent record.
4. Penalties (a) - (c) are levied by the dean hearing the case only with the concurrence of the faculty member bringing the charge. Penalties (d) - (f) are levied by the dean hearing the case only with the concurrence of the student's dean. If consensus cannot be reached, the vice chancellor for academic affairs, or his/her representative will adjudicate.
5. If the penalty levied is (e) or (f), the dean of the college or school to which the student belongs will take the appropriate academic action. Disciplinary actions (d) - (f) will become a permanent part of the student's academic record, with appropriate notation indicating that there has been a violation of the "Student Academic Integrity Code".
6. The student may not withdraw from a course in which an infraction has been found and a penalty applied. No refund or cancellation of tuition fees will be permitted in such cases.

## Notifications and Appeals

1. The dean (or appointed designee) will notify the student in writing of the findings and, as appropriate, the assigned penalty. The faculty member
bringing the charge will also be notified in writing of these results, as will the chair of the department in which the case occurred, and the student's dean if the student is a member of another major teaching unit.
2. In cases concerning notation to the permanent record [penalties (d) - (f) in 3. See above], students will be notified in writing of their right of appeal. Appeals must be made in writing within thirty 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 review panel meeting. Appeals will be reviewed by the vice chancellor for academic affairs who may consult the written record of the case, the appeal request and any person involved in the adjudication process. Following the review, the vice chancellor for academic affairs may deny the appeal or may lower the sanction or remand the matter to the appropriate dean in the event of improper procedure or new evidence.

## Suspension and Dismissal

1. The decision as to whether suspension or dismissal is appropriate in a given instance will necessarily depend on the circumstances of each case and usually on the total academic record of the student involved.
2. Suspension is effective for not less than the session in which the sanction is taken or for not more than one calendar year. The length of a suspension is to be specified precisely at the time the action
is taken. A student who is suspended is ordinarily entitled to resume studies in the same college or school at the conclusion of the period of suspension, provided he or she has satisfied all requirements imposed by the dean when the original action was implemented.
3. Dismissal is a penalty invoked in cases of serious infractions of rules and regulations, and when circumstances indicate that a student's association with the university should be terminated in the interests of maintaining the standards of behavior and conduct normally expected in a university community. A student, who has been dismissed but who has not been denied the privilege of returning to the university at a later time, may apply for readmission after the expiration of one calendar year. Action will be taken on the application after a total re-evaluation of the record and in accordance with the admission and readmission practices in effect at the time of application. A readmitted student is governed by the academic requirements in effect at the time of readmission.
4. The calendar year that must elapse before an application for readmission may be considered is interpreted as beginning on the final day of the session during which the disciplinary action was taken.

## Records of Disciplinary Actions

1. All records pertaining to student infringement of the code will be maintained for a period of five (5) years after the student's last registration at the



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## Office of Student Affairs

## Dean

Moza Al Shehhi

## Mission Statement

The mission of the Office of Student Affairs is to provide state-of-the-art services and a congenial atmosphere to a multicultural AUS student body in order to bring about all around personality development and help them fulfill their educational and personal goals.
Creating a healthy learning environment and enriching the learning experiences for students have always been at the heart of Student Affairs' work. The Office of Student Affairs (OSA) at AUS is dedicated to facilitating cultural, social, emotional, physical, ethical and intellectual development of all students so that they may become responsible and effective individuals. Student Affairs engages students in active learning, so as to develop coherent values and ethical standards. OSA fosters learning and personal development by providing support, counseling and accessibility. Student Affairs makes a positive difference in the lives of students and provides ample opportunities to exhibit talents leading to personal growth regardless of a student's background, stage of life or abilities. OSA advises students on issues related to diversity, adjusting to the AUS environment, developing their leadership skills. It also guides them at every step to enhance their personal growth, providing a variety of quality student services and encouraging them to participate actively in co-curricular activities so that students' energy is channelized in the right direction.
The services and programs provided by OSA are designed to support the academic mission of AUS. OSA is the main hub for welcoming national and international students. OSA enforces the rules and regulations concerning student life at the university. This office has the moral and legal responsibilities
of upholding and promoting the highest academic and behavioral standards among its students.
The Office of Student Affairs has two main divisions:

Student Activities comprising Athletics and Sports Complex, Student Activities and Community Services.
Student Services comprising Judiciary Affairs, Residential Life, and Learning and Counseling Services.

## Division of Student Activities

This Division is responsible for providing various opportunities to students through its state-of-art facilities and resources responsible for the all round development of students intellectually, culturally and socially.

## AUS Sports and Athletics

The AUS athletic facilities are designed to benefit the entire university community. The AUS Sports Complex endeavors to foster the continuing development of collegiate sports in the UAE through athletic championships, symposia and training courses. The Sports Complex is open for students, staff and faculty members of the university to practice indoor soccer, basketball, handball, volleyball, table tennis, tennis, squash, track and field games, self-defense sports and many others.
The university believes that students should be provided with opportunities to develop their talents through a wide variety of sports. To achieve this goal, the Sports Complex staff members provide guidance and assistance and help students develop team play, sportsmanship and healthy lifestyles. More than 20 activities are offered, featuring both team and individual competitions. AUS campus sports offer each student the opportunity to participate regardless of ability.

## AUS Sports Teams

Sports Teams offer broad-based competitive and instructional programs for both genders. The teams are:

- Aerobics
- American Football
- Badminton
- Basketball
- Billiards
- Bowling
- Chess
- Cricket
- Football
- Horse Riding
- Karate
- Scuba Diving
- Self Defense
- Snooker
- Soccer
- Squash
- Swimming
- Table Tennis
- Taekwondo
- Tennis
- Track and Field
- Volleyball


## AUS Sports Complex

The Sports Complex facilities include:
Indoor Sports Courts \& Multipurpose
Halls: The gymnasium features two indoor basketball, two tennis and two volleyball courts for use in both organized sports and free recreation. Swimming Pool: a 50-meter indoor pool for lap swimming, diving and instruction.
Sauna: The saunas are an added amenity for people who want to relax and unwind.
Fitness Center: the $15 \mathrm{~m} \times 15 \mathrm{~m}$ room features both free weights and a wide range of exercise machines.
Exercise Hall: this room includes aerobics equipment and is also used for self-defense events.
Squash Courts: two courts are available on the south corner of the complex.
Outdoor Courts: six tennis courts, two volleyball courts, two basketball courts, a soccer field, a cricket practice net and ground plus changing rooms.
Gymnastics Hall: gymnastic equipment, mats, bars, and all fitness related equipment.

## Student Activities

AUS students take an active role in governing and shaping campus life. The Office of Student Activities, located in the Student Center, plays an important part in providing students with extracurricular opportunities to gain experience in leadership and develop their intellectual curiosity. The Office of Student Activities supports the student population by organizing various programs and offering varied services, creating an environment that extends beyond the classroom and encourages students' personal growth.
Under the sponsorship of the Office of Student Activities, students are encouraged to organize many events that offer cultural and entertainment fare to the entire university community. These events and programs include: the Global Day festivities, the Charity Festival, Environment Day, Music Festival Concert, Interuniversity Quiz Championship, Student of the Year, UAE National Day celebration and many more.

## Student Center

The Student Center plays a broad role in the extracurricular life of the university. It acts as the central headquarters for the Student Activities Office, as well as for offices of the various clubs and organizations on campus. It is also a place where students get together to relax and meet to discuss academics and campus activities.

The Student Center contains several meeting rooms, student lounges, activity rooms, multi-purpose rooms, an arcade, a student courtyard, a tabletennis room, bowling alley, billiards, the Leopard Mini Mart, an electronics store, and a Starbuck's coffee shop. All of these areas are furnished in order to provide students with a comfortable and inviting atmosphere where they can unwind.
Inaugurated by His Highness Sheikh Dr. Sultan Bin Mohammed Al Qassimi on January 26, 2002, the new section of the Student Center boasts attractive additions such as an information desk, a
women's lounge, a TV room, a Dunkin' Donuts outlet as well as a food court with international franchise fast food outlets.

## Student Orientation

At the beginning of each semester, prior to registration, the Office of Student Affairs through the Office of Student Activities conducts an orientation program for all new students. The program is aimed at helping new students get acclimated to AUS, meet other new students and speak with senior students who assist with the orientation program. Orientation includes campus tours, meetings, lectures, and other activities. Incoming freshmen are expected to participate in all activities, as information provided during the orientation program is designed to ensure a successful first-year experience.

## The Student Union

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

## Student Employment

Opportunities for on-campus employment are available for all AUS students. Student Employment enhances the students' awareness of their surroundings and provides them with a chance to learn new skills outside the classroom. Students gain hands-on experience while working in

various departments on campus. This helps in honing their job-related skills and gets them accustomed to an office environment. In addition to working in the various colleges, schools and departments around campus, students can work in the various outlets and facilities located on campus.
Students are not allowed to work more than 10 hours per week. Students are paid monthly. Further information on all campus employment opportunities is available through the Office of Student Activities. Student employment is open to all students and is based on financial need, GPA, seniority, past work experience and involvement in student extracurricular activities.

## Lost and Found

The Lost and Found desk is located within the Student Center. Items that are turned in are tagged and kept safely for students and staff who have lost items on campus.

## Student Publications

Practical journalism experience is available to AUS students through two student publications, The Leopard and Realms. Students interested in contributing to or working on these publications are advised to contact the AUS English Department for further information.

## The Leopard Newspaper: "A Reason to Roar"

The Leopard is is an official biweekly university newspaper and a voice of AUS students. All students are encouraged to contribute articles, poems, features or artwork to this publication. The Leopard is the official mascot of AUS 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 fellow students, as well as to contribute with their creative work. Realms aims
to foster an interest in creative writing and in literature and to help students view the English language as a means of expressing their thoughts and feelings and not merely as an academic tool.

## Student Clubs

Student-sponsored clubs 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 Office of Student Activities acts as the central support for the numerous clubs and organizations on campus. Its role includes supervising and providing assistance with program planning and implementation. The clubs at AUS span a wide range of interests, including sports, music, literature, recreation, culture, and social issues. There are also many ethnic/national clubs that reflect the varied backgrounds of AUS students. These clubs offer students opportunities for leadership development and for involvement in university life.
AUS currently has the following interest-oriented clubs registered with the Office of Student Affairs:

- Accounting Club acctng@aus.ac.ae
- Al Jalsah Club jalsah@aus.ac.ae
- Architecture \& Design Club design@aus.ac.ae
- Arts Club art@aus.ac.ae
- Astronomy Club astronomy@aus.ac.ae
- Business Club business club@aus.ac.ae
- Chess Club chess@aus.ac.ae
- Cinematixs cinema@aus.ac.ae
- Computer Club cmp@aus.ac.ae
- Cultural Club culture@aus.ac.ae
- Debate Club debate@aus.ac.ae
- Drama Club drama@aus.ac.ae
- Eight Ball Club
- Engineering Club engineers@aus.ac.ae
- Environment Club environment@aus.ac.ae
- Horse Back Riding Club hbr@aus.ac.ae
- IEEE Club
- International Community Club icc@aus.ac.ae
- International Students Club
- International Women’s Club iwc@aus.ac.ae
- Intensive English Program Club
iepc@aus.ac.ae
- Islamic Club islam_club@aus.ac.ae
- Leopard Club leopards@aus.ac.ae
- Marshals
- Martial Arts Club
- MIS Club
- Music Club
- Photography Club
- Power Hit Radio marshal@aus.ac.ae
m arts@aus.ac.ae mis@aus.ac.ae music@aus.ac.ae photo@aus.ac.ae radio@aus.ac.ae
- Psychology Club psychologyclub@aus.ac.ae
- Realms realms@aus.ac.ae
- Rangers Club
rangers@aus.ac.ae
- Scuba Diving Club diving@aus.ac.ae
- Traditional Poetry Club t poetry@aus.ac.ae
- Ushers Club
ushers@aus.ac.ae
The ethnic/national clubs represent the diversity of nationalities and cultures in the AUS community. They organize numerous cultural activities throughout the academic year, and play a vital role in creating and fostering a rich multicultural environment on campus.

AUS currently has the following ethnic/national clubs registered with the Office of Student Affairs:

- Afghanistan Cultural
- African Unity Club africa@aus.ac.ae
- American Cultural Clubamerica@aus.ac.ae
- Arabian Club arabia@aus.ac.ae
- Bahraini Cultural Club bahrain@aus.ac.ae
- Chechneyan Cultural Club chechneya club@aus.ac.ae
- Chechnya Cultural Club chechen@aus.ac.ae
- Egyptian Cultural Club egypt@aus.ac.ae
- Emarati Cultural Club emirate@aus.ac.ae
- Heritage Club heritage@aus.ac.ae
- Indian Cultural Club india@aus.ac.ae
- Iranian Cultural Club iran@aus.ac.ae
- Iraqi Cultural Club iraq@aus.ac.ae
- Jordanian Cultural Club jordan@aus.ac.ae
- Kuwaiti Cultural Club kuwait@aus.ac.ae
- Lebanese Cultural Club lebanon@aus.ac.ae
- Libya Cultural Club libya@aus.ac.ae
- Oman Cultural Club oman@aus.ac.ae
- Palestinian Cultural Club palestine@aus.ac.ae
- Pakistani Cultural Club pakistan@aus.ac.ae
- Qatari Cultural Club qatar@aus.ac.ae
- Russian Cultural Club russia@aus.ac.ae
- Saudi Cultural Club saudi@aus.ac.ae
- Sudanese Cultural Club sudan@aus.ac.ae
- Syrian Cultural Club syria@aus.ac.ae
- Turkish Cultural Club turkey@aus.ac.ae
- Yemeni Cultural Club yemen@aus.ac.ae

Participation in these and other groups is strongly encouraged. Students are also encouraged to form clubs that promote their interests and hobbies and help shape their extracurricular activities.

## Community Services

AUS Community Services allows students to experience first-hand the value of serving others and the community through volunteer programs. Students' lives are enriched through invaluable opportunities that allow them to apply their academic knowledge in real-life settings. Participation in Community Services broadens students' understanding of the working environment and helps them recognize their responsibility to their local community and to humanity at large.
Community Services coordinates a variety of volunteer programs and strongly encourages students to contribute to the development of new ones. Current volunteer programs include:

- Adopt a Grandparent: Volunteers have the opportunity of helping the elderly in overcoming psychological and physical disabilities. The program is conducted in collaboration with several specialized organizations.
- Adult Literacy Program: Volunteers prepare and employ materials aimed at eradication of adult illiteracy. These materials include language proficiency as well as computer literacy. This program is mainly implemented to strengthen the literacy of the staff who work for humanitarian organizations, which in turn enhances their serivices and performance. This program also develops students' skills in communication and public speaking.
- Awareness Raising Campaigns: The volunteers work on raising public awareness on issues such as dangers of smoking, drug abuse and environmental awareness. These campaigns are set either as on-campus or outreach programs.
- Autistic Children Aid: Students who volunteer for this program are trained to help autistic children before they actually get involved in teaching and assisting them. The training and its implementation are done in specialized centers for autism.
- Healthcare: Community Services is active in tackling issues related to public
health. The annual on-campus blood donation campaigns are one of the series of events organized within this theme.
- Orphans' Aid: Student volunteers visit orphans and organize entertainment and educational activities for them. The volunteers assist the orphans through giving them caring and communal sense of belonging.
- Red Olive: Students volunteer in this program to help the Palestinian people. This program has on-going process of fund raising and collection of donations that mainly include clothing. Different types of functions are organized within this program to support its aim.
- Serving the Disabled: Community Services volunteers are trained to help physically and mentally disabled individuals. The Community Services has partnership with several specialized organizations that deal with disabilities.
Students who are interested in learning more about any of these programs should visit the Community Services Office located in the Student Center.


## Services for Students with Disabilities

The Office of Student Affairs Community Services is the primary agent for providing access for AUS students with physical and learning disabilities The office works with persons who have temporary or permanent disabilities in order to promote their full participation in academic programs and on-campus activities. The campus of AUS is designed with ramps and elevators to facilitate the needs of the disabled.

## Division of Student Services

This division helps students adjust to university life and smooth the way toward the successful completion of their educational programs.
Judiciary Affairs is responsible for educating students on their rights and responsibilities and the university rules they must follow.

## Student Code of Conduct

The American University of Sharjah is a community of individuals living, working and studying together in order to create the ideal conditions for learning. Mutual respect and responsibility are imperative if each individual is to flourish and grow in this environment.
In order for the purpose of the university and its community to be realized, the rights, responsibilities and reasonable standards of conduct essential to a university community must be delineated. The legally established principles, rules and regulations of the university constitute the basic standards and guidelines for conduct on and off campus. The Office of Student Affairs establishes and enforces those rules and regulations. The basic tenants of these rules and regulations are given below, and the full text of the Student Code of Conduct is in the Student Handbook.

## Rights and Responsibilities

## PART I

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

## PART II

Code of Conduct
Misconduct under this code for which students are subject to university discipline is defined as follows:
a. Physical abuse of any person, including, but not limited to, assaults and abuse, on
university premises or at universitysponsored events or functions.
b. Physical contact between males and females is strictly prohibited in keeping with the cultural norms of Sharjah and the UAE.
c. Inappropriate dress for both males and females is prohibited. This includes tank tops and clothing that is tight, suggestive or provocative.
d. Conduct that threatens or endangers the health or safety of any person on university premises or at university sponsored events or functions.
e. Theft or unauthorized taking of university property or other property belonging to an AUS student, faculty member, staff member or visitor on university premises.
f. Possession of stolen or unauthorized property on university premises or at university-sponsored events or functions.
g. Willful, wanton or reckless damage to university premises or property.
$h$. In nonacademic university matters, dishonesty or knowingly furnishing false information.
i. Fraud, forgery, alteration or unauthorized use of documents, university records, or instruments of identification with the intent to defraud or deceive.
j. Possession or sale of fraudulent, forged or altered instruments of identification on university premises or at universitysponsored events or functions.
k . Intentional obstruction or disruption of teaching, research, administration, disciplinary proceedings or other university activities, including public service functions and other authorized activities on university premises.

1. Tampering with or unauthorized or fraudulent use of campus telephones or access codes or falsely using telephone credit cards. This includes accessing the answering machines of any other student, faculty or staff member on campus.
m. Entry or attempting to enter without lawful authority any dwelling, building or facility on university premises, against the will of the lawful occupant or of the person lawfully in charge
thereof; or being therein or thereon, without lawful authority to remain, and refusing to quit the same on demand of the lawful occupant or of the person lawfully in charge thereof. Entering or utilizing university academic buildings after official university working hours are over without written permission
from the dean of that college or school.
n. Failure to comply with published university policies or regulations including rules governing the residence halls, the residence hall contract or regulations relating to use of university facilities.

o. Alcohol and drug violations as defined by university policy and the laws of Sharjah and the UAE.
p. Keeping, using, possessing, selling or distributing of any firearms, fireworks, explosives or weapons on university premises or at university-sponsored functions; or of any other materials or substances that are prohibited by law, with the sole exception of law enforcement officials duly authorized by law to possess firearms for the performance of their duties.
q. Distributing or posting any printed materials (including in electronic form) in the name of the American University of Sharjah, or from any registered organization on campus without the prior approval of the Office of Public Relations and the Office of the Chancellor.
r. Gambling or other illegal or unauthorized games or contests of chance on university premises and in university residence halls or at university-sponsored functions.
s. Unauthorized soliciting or canvassing by any individual, group or organization on university premises or in university residence halls.
t. Unauthorized use of the university's corporate name, which is the property of the university, by any person, persons or organizations. This includes any offcampus functions, which may not be reserved in the name of the university.
u. Failure to be fully responsible for the behavior of guests during university functions or activities, and on university premises or in university residence halls. A guest is defined as any person who is not a university staff member, student or faculty member.
v. Harassment or intimidation.
w. Abuse of computer equipment, (e.g. computer stalking and harassment, stealing, deleting information, and Internet theft or knowingly introducing a computer virus), or gaining unauthorized access to computer resources on campus. Tampering with or unauthorized or fraudulent use of university computers, network systems or computer files as defined by university policy. (See university policy on the abuse of Internet technology).
$x$. Failing to comply with the direction of
university officials acting in performance of their duties.
y. Violations of traffic laws including reckless driving and parking in unauthorized spaces.
z. Violations of Sharjah or UAE law.

Regulations for student conduct in the American University of Sharjah residence halls are based on AUS Code of Conduct and are incorporated into the Student Handbook.

## Residence Life

Because residence hall living is seen as a positive educational experience, students are encouraged to live on campus unless they are commuting from home.

The AUS residential halls offer a unique multicultural environment in which students from different parts of the world have the chance to meet and learn from one another. Living on campus complements the overall learning experience by fostering independence and tolerance of others. The residential halls offer a variety of rooms for different prices to give students more choices for their residence hall experience. All residence hall rooms have Internet and direct telephone connections. In addition, the dorms offer students a wide variety of resources and facilities including study rooms, computer labs, dining areas, recreational areas, TV rooms, laundry facilities and fitness centers.
Living on campus is encouraged because it allows students to make the most of what AUS has to offer. Student housing is conveniently located for the many activities that take place during the day and in the evenings.

The university offers a convenient bus shuttle service between the residential halls and other areas on campus. Transportation facilities are also available for students from campus to the cities of Sharjah, Dubai, Abu Dhabi and Al Ain.
The residential halls for male and female students are completely separate and both maintain curfew hours that all
residents must follow. All residents of the halls 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, dorms are protected by security patrols. At all times, each hall is staffed by a supervisor who is responsible for the safety and comfort of all residents.

## International Student Services (ISS)

The Office of Student Affairs will be offering an additional service established for counseling and welfare of International Students on campus. This sub-division will coordinate and administer programs that will serve international students at AUS.

The Dean of Students will be supervising ISS.
ISS will provide the following services:

- Accommodation - assistance with finding temporary and permanent accommodation.
- On campus employment services advising on the available opportunities and procedures to follow.
- Financial Assistance - coordinating student needs with office of the registrar and the Chancellor.
- Disability Services - in cooperation with community services.
- Career Advising - with the help of our counselors and CAPs
- Unimates - One of the major benefits in another country is making new friends. Unimates will offer new international students an opportunity to meet both international and UAE students.

All international students are encouraged to visit the Dean of Students Office in the Main Building, 2nd Floor-M218 for more details.

## The Learning and Counseling Services

For most students their time at the

University represents a significant period of transition. Although transitions can be quite exciting, they also require change and adjustment, which can sometimes be difficult. Learning and Counseling Services offers quality, cost-free support services to help students make the most of their time at the American University of Sharjah, by promoting their academic, social and emotional wellbeing. The services offered include:
Individual counseling is available for students who may be experiencing difficulties, such as adjusting to university life, concerns about relationships with important people in their life, stress management, depression, making important decisions, academic and study skills problems, career and life goals, or coping with psychological or physical illness or disability. Also, students who have begun counseling at home or away from campus may want to continue their counseling now that they are here at university. Students are helped to work through current difficulties, to develop self-awareness, and to identify and apply effective coping strategies.

- Self-help resources in the form of written handouts are available for students. These handouts cover a wide range of subjects and are useful in helping students understand issues they are facing, and are often used alongside individual counseling.
- Consultation services are available for students, staff and faculty who want advice about helping another student.
- Student workshops or seminars are held throughout the academic year covering many diverse topics including time management, study skills, communication skills, and stress management.


## Confidentiality

Learning and Counseling Services adheres to strict professional standards for confidentiality.

Learning and Counseling Services is located in the first floor of the Student Center. Office hours are 8:00 a.m. to 5:00 p.m. Saturday to Wednesday.



## College of Arts and Sciences

## Dean

Robert D. Cook
Associate Dean
Ibrahim El Sadek

## Mission Statement

The mission of the College of Arts and Sciences is to provide students with the intellectual, cultural and scientific foundation for academic and professional education and training. Its programs, including the general education programs, are designed to inspire and invigorate the intellectual and creative potential of students and to encourage them to conceptualize, reflect and act. Through the university graduation requirements, including the general education program that is provided by the college, students learn to examine the many varied aspects of Arab, Islamic, Western and non-Western cultures. They also master written and oral expression in English, learn to appreciate quantitative reasoning, scientific inquiry and method and to develop the critical ability to analyze and synthesize data and information. Finally, they build an understanding of moral and ethical dimensions that create a foundation for individual and collective lifelong decision-making. Graduates of the College of Arts and Sciences at the American University of Sharjah will not only be prepared to achieve their personal and professional aspirations in the short term; they will also be well qualified to pursue their studies and professional training towards a master's or doctoral degree in their chosen fields.

## Faculty

The College of Arts and Sciences has distinguished teacher-scholar faculty members who are experts in their fields. They come from all over the world and comprise a group of diverse, multicultural academic practitioners. They provide the training and preparation our students need to meet the challenges of living and working in the global community.

## Professor

Muhsin Al-Musawi (Arabic) Fatima Badry (English)
Andy H. Barnett (Economics)
Robert D. Cook (Chemistry)
Ibrahim El Sadek (Mathematics)
John Fox (Anthropology)
William Haney II (English)
Mahboub Hashem (Mass Communication)
Basil Hatim (Translation)
Fawwaz Jumean (Chemistry)
Yousef Salamin (Physics)
Kassem A. Saleh (Computer Science)
Hassan Tayim (Environmental Sciences)
Winfred L. Thompson (History)
Peter Walker (Mathematics)

## Associate Professor

Kamal Abdel-Malek (Arabic)
Zayid Abdul Hadi (Mathematics)
Yusuf Abu-Muhanna (Mathematics)
Imad Abu-Yousef (Chemistry)
Hussam Al-Mohamad (Computer Science)
Gasser Auda (Computer Science)
Ayman Badawi (Mathematics)
Hamid Baghestani (Economics)
Basim Raif Bulos (Physics) - on leave Fall 03
Judith Caesar (English)
Paul Chevedden (History)
Said Faiq (Translation)
James Fallon (English)
Nidhal Guessoum (Physics)
Nasser Hamdan (Physics)
Asad Hasan Jaidi (Physics)
Suheil Khoury (Mathematics)
David Lea (Philosophy)
Peter Mitias (Economics)
Nada Mourtada Sabbah (Political Science)
Dennis Russell (Biology)
Ali Sayfy (Mathematics)
Rodney Tyson (English)
Joseph Wallis (Economics/Public
Administration)
Lawrence Woods (International Relations)
Mohamed Zayani (English)
Assistant Professor
Bassam Abu Al-Foul (Economics)
Taher Abualrub (Mathematics)
Marwan Abukhaled (Mathematics)
Saiyad Ahmad (Arabic)
Ghada Alobaidi (Mathematics)
Afaf Badr Al Bataineh (Arabic)
Ahmad Al-Issa (English)
Mahmoud Anabtawi (Mathematics)
Maher Bahloul (English)
Gerassimos Barlas (Computer Science)
Aaron Bartholomew (Biology)
Kim Bigelow (Mass Communication)
John Chilton (Economics)
Khalid El Fakih (Computer Science)

Gregg Frasco (Economics) - on leave Fall 03
William Gallois (History)
Joseph Gibbs (Mass Communication)
Nawar Golley (English)
Cindy Gunn (English)
Ann Hamilton (Mass Communication)
Karim Jallad (Chemistry)
Jainaba Kah (Economics/Public
Administration) - January 2004
Sofian Kanan (Chemistry)
Jalal Kawash (Computer Science)
Samer Kherfi (Economics)
Ismail Kucuk (Mathematics)
Aref Nayed (Arabic and Philosophy)
James Onley (History)
Rana Raddawi (Translation)
Anil Rupasingha (Economics)
Said Sakhi (Physics)
Bassel Salloukh (Political Science)
Antonio Saravia (Economics)
Tamer Shanableh (Computer Science)
John Shannon (English; IEP)
Mohamed Soliman (Economics)
Hana Sulieman (Statistics)
Samuel K. Tesunbi (Mass Communication)
Hugo Toledo (Economics)
Daniel Zachary (Physics)

## Instructor

Aftab Ahmed (IEP)
Raja Bahloul (IEP)
Lesley Barbara Blake (English)
Edward Carlstedt (IEP)
David Colbert (IEP)
John Connell (IEP)
Richard Crain (English)
Jerald Cumbus (English)
Tina Joyce Driscoll (IEP)
Leslie Giesen (IEP)
Milton Gilbertson (IEP)
Sharon Gilbertson (IEP)
Jaswinder Gill (IEP)
David Gugin (English)
Jennifah Hassan (IEP)
John Hicks (IEP)
Christopher Horger (English)
Dennis Lewis (English)
Ann McCallum (English)
Richard McClane (IEP)
Sylvie Raymond (IEP)
Tina Richardson (English)
Olivia Riordan (IEP)
Scott Rousseu (IEP)
Thomas Schmitt (IEP)
Robert Schorr (IEP)
Pelly Shaw (IEP)
Ann Shine (English)
Israa Rifat Sirri (Physics)
Brian Skelton (IEP) - on leave 2003-04
Mark Stevens (IEP)

## Angela Waigand (IEP)

Noelle Wallace (English)
Amanda Ward (IEP)
Jason Ward (English)
Krystie Wills (IEP)
Deborah Wilson (IEP)

## Visiting Faculty

Ronald Sheen (English)

## General Education Requirements

- English language competency requirement (four Courses):
- For all Majors: COM 101, COM 102, COM 203 or COM 204, and COM 2XX; students who have advance placement in the COM sequence must replace the exempted course(s) by a course(s) in COM or ENG or in humanities and social sciences.
- Arabic heritage requirement (one Course):
- For all Majors: from ARA 101 or THM 301 or THM 302 or another approved course in Arabic.
- Mathematics and/or statistics requirement (two courses)
- For B.S. degree: MTH 103 and STA 201.
- For B.A. degree: MTH 100 or MTH 101 and STA 202.
- Science requirement (Two courses):
- For B.S. degree: from CHM 101, CHM 101, PHY 101, PHY 102, BIO 101, BIO 102.
- For B.A. degree: from BIO 103, CHM 103, ENV 100, PHY 100, PHY 103
- Humanities and Social Sciences requirement (five courses):
- For all Majors: Two theme courses from: THM 301, THM 302, THM 310, THM 311, and three other courses from humanities and/or social science; if one of the theme courses taken is listed as satisfying the Arabic heritage requirement, such as THM 301 or THM 302 , then it must be replaced by another course in humanities and social sciences.
- Computer literacy requirement:
- For all Majors: Satisfied through one of the courses listed in the Computer Literacy requirements.


## Department of Arab and International Studies

John Fox, Chair<br>The International Studies Program

Sharjah's history as an important trading center and meeting place of many cultures makes the American University
of Sharjah an especially appropriate place for International Studies. The AUS 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 produces students who are uniquely well qualified for positions in international business, international agencies, and government service.

## Bachelor of Arts in International Studies

## Graduation Requirements for the B.A.I.S. Degree

A total of 120 credits, including

- Forty-two credits of general education requirements
- Sixty-three credits of major requirements
- Fifteen credits of free electives


## Major Requirements

Students majoring in International Studies must complete 78 credits of major requirements with a grade C - or better in each course. These major requirements are divided as follows:

## Core Courses ( 27 credits)

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

All core courses have COM 102 as a prerequisite, except those in Arabic. Students are expected to have completed at least four of the eight core courses including ECO 201 and ECO 202 by the end of the sophomore year.

## Major Electives ( $\mathbf{1 2}$ credits)

Students must take a minimum of 12 credits of advised electives as approved by the chair of the department.

## Concentrations:

a. Concentration in International Relations ( 24 credits)
Students who select the International Relations concentration will examine the many ways in which the people of different cultures and citizens of nations interact with each other. The purpose of this concentration is to provide 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.

## Required Courses

- POL 301 Globalization
- POL 304 International Organizations
- POL 305 Public International Law
- POL 307 Wars, Conflicts and Diplomacy
- ECO 305 International Trade
- INS 495 Senior Seminar

Students select two electives from the following:

- ECO 306 International Finance
- ECO 310 Development Economics
- POL 300 Comparative Chief Executives of Nation-States
- INS 494 Special Topics
- INS 497 Internship in International Studies


## Proposed Course Sequence of Study

## Bachelor of Arts in International Studies (B.A.I.S.)

Concentration: International Relations

|  |  |  | FIRST YEAR (30 CREDITS) |  | Fulfills |
| :--- | :--- | :--- | :---: | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite | GE |
| Fall | ARA 101 | Readings in Arabic Heritage I | 3 |  | GE |
|  | SCI XXX | Science Elective | 3 |  | GE |
|  | COM 101 | Academic Writing | 3 | EPT 4 or COM 001 | MR |
|  | ECO 201 | Principles of Microeconomics | 3 |  | GE |
|  | MTH 101 | Mathematics for Business I | 3 | MPT or MTH 002 |  |
|  |  | Total | $\mathbf{1 5}$ |  | MR |
| Spring | GEO 201 | World Cultural Geography | 3 | COM 102 or (concurrent) | GE |
|  | COM 102 | Writing and Reading Across the Curriculum | 3 | EPT 5 or COM 101 | MR |
|  | ECO 202 | Principles of Macroeconomics | 3 |  | GTH100 or MTH101 or MTH 111 |
|  | STA 202 | Introduction to Statistics for Social Sciences | 3 | ME |  |
|  | XXX | Science Elective | 3 |  | GE |
|  |  | Total | $\mathbf{1 5}$ |  |  |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | POL 201 | Introduction to Political Studies | 3 | COM 102 | MR |
|  | COM 203 or 204 | Genre Analysis or Advanced Academic Writing | 3 | COM 102 | GE |
|  | XXX | Humanities / Social Sciences I | 3 |  | GE |
|  | HIS 206 | World History II | 3 | COM 102 | MR |
|  | XXX | Humanities / Social Sciences II | 3 |  | GE |
|  |  | Total | 15 |  |  |
| Spring | POL 202 | International Relations | 3 | POL 201 | MR |
|  | COM XXX | Communication Requirement | 3 |  | GE |
|  | XXX | Advised Elective | 3 |  | AE |
|  | HIS 221 | History of Science and Technology | 3 | COM 102 or (concurrent) | MR |
|  | CSC 205 | World Cultures | 3 | COM 102 or (concurrent) | MR |
|  |  | Total | 15 |  |  |


| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | THM XXX | Theme course I | 3 | Junior Standing | GE |
|  | POL 304 | International Organizations | 3 | POL 202 | MR |
|  | POL 307 | Wars, Conflicts and Diplomacy | 3 | POL 202 | MR |
|  | ECO 305 | International Trade | 3 | ECO 201, ECO 202, COM 102 MR |  |
|  | POL 301 | Globalization | 3 | POL 202 | MR |
|  |  | Total | 15 |  |  |
| Spring | THM XXX | Theme course II | 3 | Junior Standing | GE |
|  | POL 305 | Public International Law | 3 | POL 202 | MR |
|  | INS 322 | Global Political Economy | 3 | POL 202, ECO 201, ECO 202 | MR |
|  | XXX | Humanities / Social Sciences III | 3 |  | GE |
|  | XXX | Elective Within the International Relations Concentration | 3 |  | MR |
|  |  | Total | 15 |  |  |



Abbreviations: GE: University Requirement; ME: Major Elective; FE: Free Elective; MR: Major Requirement;
EPT: English Placement Test; MPT: Math Placement Test

## b. Concentration in International Economics (24 credits)

The International Economics concentration offers students a sound foundation in the principles of economics combined with specialized study in international trade, finance, political economy, and economic development. The objective of the program is two fold. First, for terminal degree students, it 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 continue into post-
graduate education, the objective is to prepare them for the more rigorous requirements of graduate programs in international economics and related subjects.

## Required Courses

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

Students select two electives from the following:

- ECO 315 Economics of the Middle East
- ECO 318 Economics of Water Resources
- ECO 325 Public Economics
- ECO 326 Economics and the Law
- ECO 335 Economic History of the World Economy
- ECO 403 Economics of Natural and Energy Resources
- ECO 404 Economics of Environmental and Natural Resources
- ECO 405 Introduction to Econometrics
- POL 301 Globalization
- POL 304 International Organizations
- POL 305 Public International Law
- INS 413 Political Economy of the Arab World
- INS 494 Special Topics
- INS 497 Internship International Studies


## Proposed Course Sequence of Study

## Bachelor of Arts in International Studies

Concentration: International Economics

| FIRST YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ARA 101 | Readings in Arabic Heritage | 3 |  | GE |
|  | XXX | Science Elective | 3 |  | GE |
|  | COM 101 | Academic Writing | 3 | EPT 4 or COM 001 | GE |
|  | ECO 201 | Principles of Microeconomics | 3 |  | MR |
|  | MTH 101 | Mathematics for Business I | 3 | MPT or MTH 002 | GE |
|  |  | Total | 15 |  |  |
| Spring | ACC 201 | Fundamentals of Financial Accounting | 3 |  | AE |
|  | COM 102 | Writing and Reading Across the Curriculum | 3 | EPT 5 or COM 101 | GE |
|  | ECO 202 | Principles of Macroeconomics | 3 |  | MR |
|  | STA 202 | Introduction to Statistics for Social Sciences | 3 | MTH100 or MTH101 or MTH 111 | GE |
|  | XXX | Science Elective | 3 |  | GE |
|  |  | Total | 15 |  |  |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | POL 201 | Introduction to Political Studies | 3 | COM 102 | MR |
|  | COM 203 or 204 | Genre Analysis or Advanced Academic Writing | 3 | COM 102 | GE |
|  | HIS 206 | World History II | 3 | COM 102 | MR |
|  | CSC 205 | World Cultures | 3 | COM 102 or (concurrent ) | MR |
|  | GEO 201 | World Cultural Geography | 3 | COM 102 or (concurrent) | MR |
|  |  | Total | 15 |  |  |
| Spring | POL 202 | International Relations | 3 | POL 201 | MR |
|  | XXX | Humanities / Social Sciences I | 3 |  | GE |
|  | COM XXX | Communication Requirement | 3 |  | GE |
|  | HIS 221 | History of Science and Technology | 3 | COM 102 or (concurrent) | MR |
|  | XXX | Advised Elective | 3 |  | AE |
|  |  | Total | 15 |  |  |


| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | THM XXX | Theme Course I | 3 | Junior Standing | GE |
|  | ECO 302 | Intermediate Macroeconomics | 3 | ECO 201, 202, COM 102 | MR |
|  | ECO 305 | International Trade | 3 | ECO 201, 202, COM 102 | MR |
|  | XXX | Humanities / Social Sciences II | 3 |  | GE |
|  | XXX | Elective Within the International Economics Concentration | 3 |  | MR |
|  |  | Total | 15 |  |  |
| Spring | THM XXX | Theme Course II | 3 | Junior Standing | GE |
|  | ECO 301 | Intermediate Microeconomics | 3 | ECO 201, 202, COM 102 | MR |
|  | ECO 306 | International Finance | 3 | ECO 201, 202, COM 102 | MR |
|  | ECO 310 | Development Economics | 3 | ECO 201, 202, COM 102 | MR |
|  | INS 322 | Global Political Economy | 3 | POL 202, ECO 201, ECO 202 | MR |
|  |  | Total | 15 |  |  |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | INS 495 | Senior Seminar | 3 | Senior standing | MR |
|  | XXX | Elective Within the International Economics Concentration | 3 |  | MR |
|  | XXX | Humanities / Social Sciences III | 3 |  | GE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |
| Spring | XXX | Advised Elective | 3 |  | AE |
|  | XXX | Advised Elective | 3 |  | AE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |

[^2]c. Concentration in Arab Studies in a Global Context ( 24 credits)

Arab studies in a Global Context is an interdisciplinary program that aims to enhance understanding, especially among non-native 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 take this concentration will be prepared for careers in journalism and the media, diplomacy, government, international business, and travel and tourism.


## Required Courses

- ARA 302 Arab Identity and Thought
- ARA 303 Classical Arab/Islamic Culture
- ARA 213 Contemporary Arabic Literature
- ECO 413 Political Economy of the Arab World
- HIS 204 Modern Arab Histories
- INS 413 Political Economy of the Arab World
- INS 495 Senior Seminar

Students select two electives from the following:

- ARA 104 Arabic as a Second Language I
- ARA 200 Arabic as a Second Language II
- ARA 305 Arabic Literature of the Gulf
- ENG 315 East Meets West: Colonial and Post-Colonial Encounters
- HIS 207 History of Modern Palestine
- HIS 210 History of the Modern Arab Gulf
- INS 494 Special Topics
- INS 497 Internship International Studies


# Proposed Course Sequence of Study 

## Bachelor of Arts in International Studies

Concentration: Arab Studies in a Global Context

|  |  |  | FIRST YEAR (30 CREDITS) |  | Credit |
| :--- | :--- | :--- | :---: | :---: | :---: |
| Term | Course \# | Title | Prerequisite | Fulfills |  |
| Fall | ARA 101 | Readings in Arabic Heritage | 3 |  | GE |
|  | XXX | Science Elective | 3 |  | GE |
|  | COM 101 | Academic Writing | 3 | EPT 4 or COM 001 | GE |
|  | ECO 201 | Principles of Microeconomics | 3 |  | MR |
|  | MTH 101 | Mathematics for Business I | 3 | MPT or MTH 002 | GE |
|  |  | Total | $\mathbf{1 5}$ |  | AE |
| Spring | ARA 102 | Readings in Arabic Heritage (Advised Elective) | 3 |  | GE |
|  | COM 102 | Writing and Reading Across the Curriculum | 3 | EPT 5 or COM 101 | MR |
|  | ECO 202 | Principles of Macroeconomics | 3 |  | GE |
|  | STA 202 | Introduction to Statistics for Social Sciences | 3 | MTH100 or MTH101 or MTH111 GE |  |
|  | XXX | Science Elective | 3 |  | Ge |
|  |  | Total | $\mathbf{1 5}$ |  |  |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | POL 201 | Introduction to Political Studies | 3 | COM 102 | MR |
|  | CSC 205 | World Cultures | 3 | COM 102 or (concurrent) | MR |
|  | COM 203 or 204 | Genre Analysis or Advanced Academic Writing | 3 | COM 102 | GE |
|  | GEO 201 | World Cultural Geography | 3 | COM 102 or (concurrent ) | MR |
|  | HIS 206 | World History II | 3 | COM 102 | MR |
|  |  | Total | 15 |  |  |
| Spring | POL 202 | International Relations | 3 | POL 201 | MR |
|  | XXX | Humanities / Social Sciences I | 3 |  | GE |
|  | ARA 213 | Contemporary Arab Literature | 3 |  | MR |
|  | HIS 204 | Modern Arab History | 3 | COM 102 | MR |
|  | HIS 221 | History of Science and Technology | 3 | COM 102 or (concurrent) | MR |
|  |  | Total | 15 |  |  |


| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | THM XXX | Theme Course I | 3 | Junior Standing | GE |
|  | ARA 302 | Arab Identity and Thought | 3 |  | MR |
|  | COM XXX | Communication Requirement | 3 | POL 202, ECO 201, ECO 202 | MR |
|  | INS 322 | Global Political Economy | 3 |  | MR |
|  | XXX | Humanities / Social Sciences II | 3 |  | GE |
|  |  | Total | 15 |  |  |
| Spring | THM XXX | Theme Course II | 3 | Junior Standing | GE |
|  | ARA 303 | Classical Arab/Islamic Culture | 3 |  | MR |
|  | INS 413 | Political Economy of the Arab World | 3 | POL 202, ECO 201, ECO 202 | MR |
|  | XXX | Humanities / Social Sciences III | 3 |  | GE |
|  | XXX | Advised Elective | 3 |  | AE |
|  |  | Total | 15 |  |  |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | INS 495 | Senior Seminar | 3 | Senior Standing | MR |
|  | XXX | Elective within Arab Studies Concentration | 3 |  | MR |
|  | XXX | Elective within Arab Studies Concentration | 3 |  | MR |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |
| Spring | XXX | Advised Elective | 3 |  | ME |
|  | XXX | Advised Elective | 3 |  | ME |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |

[^3]
## d. Concentration in Western Studies (24 credits)

Despite its importance, there is no institution or academic program in the Arab world devoted to the systematic, scholarly study of the West. This concentration seeks to fill this gap with a course of study focused on the West: its ideologies, systems of belief, history, political and administrative systems, economics, social life, culture and traditions. Designed especially for students from the Arab world, this course of study will give students an understanding of Western societies and peoples. Students who select this concentration will be prepared for careers in law and diplomacy, international business, travel and tourism, government and the media. Students will also be prepared for graduate studies in Western academic institutions.

## Required Courses

- CSC 201 Western Cultural Studies I
- CSC 204 Belief Systems and Ideology
in the Western Tradition
- ECO 311 Capitalism
- HIS 220 The Modern History of Europe and North America
- POL 306 Theories of Democracy
- INS 495 Senior Seminar

Students select two electives from the following:

- CSC 202 Western Cultural Studies II
- ECO 305 International Trade
- ECO 306 International Finance
- ENG 315 East Meets West: Colonial and Post-Colonial Encounters
- PBA 302 Comparative Public Administration Systems
- POL 304 International Organizations
- POL 305 Public International Law
- INS 494 Special Topics
- INS 497 Internship International Studies
- Any other relevant course in the International Studies curriculum offered in the area of expertise of new faculty


## Minor in International Studies

A Minor in International Studies consists of twenty-one (21) credits and contains the following courses:
12 lower-division credits comprised of one course taken from each of the following four groups:

- ECO 201 (Principles of Microeconomics)
- POL 201 (Introduction to Political Studies)
- CSC 205 (World Cultures), GEO 201 (World Cultural Geography), or SOC 201 (Introduction to Sociology)
- HIS 205 (World History I), HIS 206 (World History II), or PHI 201 (Introduction to Philosophy).
In addition, students must complete 9 upper-division credits (with the course prefix of $3 X X$ or $4 X X$ ) selected from the offerings in the Arab and International Studies curriculum as approved by the chair of the department.

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

|  |  |  | FIRST YEAR (30 CREDITS) |  | Culfills |
| :--- | :--- | :--- | :---: | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite |  |
| Fall | ARA 101 | Readings in Arabic Heritage | 3 |  | GE |
|  | XXX | Science Elective | 3 |  | GE |
|  | COM 101 | Academic Writing | 3 | EPT 4 or COM 001 | GE |
|  | ECO 201 | Principles of Microeconomics | 3 |  | MR |
|  | MTH 101 | Mathematics for Business I | 3 | MPT or MTH 002 | GE |
|  |  | Total | $\mathbf{1 5}$ |  |  |
| Spring | GEO 201 | World Cultural Geography | 3 | COM 102 or (concurrent ) | MR |
|  | COM 102 | Writing and Reading Across the Curriculum | 3 | EPT 5 or COM 101 | GE |
|  | ECO 202 | Principles of Macroeconomics | 3 |  | MR |
|  | STA 202 | Introduction to Statistics for Social Sciences | 3 | MTH100 or MTH101 or MTH111 | GE |
|  | XXX | Science Elective | 3 |  | GE |
|  |  | Total | $\mathbf{1 5}$ |  |  |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | POL 201 | Introduction to Political Studies | 3 | COM 102 | GE |
|  | COM 203 or 204 | Genre Analysis or Advanced Academic Writing | 3 | COM 102 | GE |
|  | CSC 201 | Western Cultural Studies I | 3 | COM 102 | MR |
|  | HIS 206 | World History II | 3 | COM 102 | MR |
|  | XXX | Humanities / Social Sciences I | 3 |  |  |
|  |  | Total | 15 |  |  |
| Spring | POL 202 | International Relations | 3 | POL 201 | MR |
|  | XXX | Advised Elective | 3 |  | AE |
|  | CSC 204 | Belief Systems \& Ideology in the Western Tradition | 3 | COM 102 | MR |
|  | HIS 221 | History of Science and Technology | 3 | COM 102 or (concurrent ) | MR |
|  | HIS 220 | The Modern History of Europe and North America Total | $\begin{aligned} & 3 \\ & 15 \end{aligned}$ | COM 102 | MR |


| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\frac{\text { Term }}{\text { Fall }}$ | Course \# | Title | Credit | Prerequisite | Fulfills |
|  | THM XXX | Theme | 3 | Junior Standing | GE |
|  | ECO 311 | Capital | 3 | ECO 201, 202, COM 102 | MR |
|  | COM 208 | Public | 3 | COM 102 | GE |
|  | CSC 205 | World | 3 | COM 102 or (concurrent) | MR |
|  | POL 306 | Theorie | 3 | POL 202 | MR |
|  |  | Total | 15 |  |  |
| Spring | THM XXX | Theme | 3 | Junior Standing | GE |
|  | XXX | Human | 3 |  |  |
|  | INS 322 | Global | 3 | POL 202, ECO 201, ECO 202 | MR |
|  | XXX | Human | 3 |  | GE |
|  | XXX | Elective Within the Western Studies Concentration 3 |  |  | MR |
|  |  | Total | 15 |  |  |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\frac{\text { Term }}{\text { Fall }}$ | $\begin{aligned} & \text { Course \# } \\ & \hline \text { INS } 495 \end{aligned}$ | Title | Credit | Prerequisite | Fulfills |
|  |  | Senior Seminar | 3 | Senior Standing | MR |
|  | XXX | Elective Within th | on 3 |  | MR |
|  | XXX | Advised Elective | 3 |  | AE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |
| Spring | XXX | Advised Elective | 3 |  | AE |
|  | XXX | Advised Elective | 3 |  | AE |
|  | $\begin{aligned} & \text { XXX } \\ & \text { XXX } \end{aligned}$ | Free Elective | 3 |  | FE |
|  |  | Free Elective | 3 |  | FEFE |
|  | XXX | Free Elective | 3 |  |  |
|  |  | Total | 15 |  | FE |

[^4]
## Department of Biology and Chemistry

Fawwaz Jumean, Chair

## Department of Physics

Nidhal Guessoum, Chair

## The Environmental Sciences Program

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

- a concentration in biology and ecosystems,
- a concentration in environmental chemistry and analysis,
- a concentration in environmental physics
- a double concentration in any two of the above areas.
Recent events and current issues have raised major concerns related to the preservation of the environment. Local governments and private industries have begun to recognize the importance of conservation, recycling, and environmental awareness. The environmental sciences major at the American University of Sharjah will give 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 science.


## Career Opportunities

Environmental scientists can work in
four general areas:

- Environmental protection targets air, water and land quality and often has a human and environmental health and safety perspective
- Conservation and protection of natural resources deals 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 is relevant to both public and private sectors
- Environmental research includes developing analytical methods for detecting environmental pollutants and improving prediction of environmental and geophysical changes. This field is 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 area 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 and through the creation of realistic alternatives to environmentally hazardous practices.

## Bachelor of Science in Environmental Sciences

## Graduation Requirements for the B.S.E.S. Degree

A total of 128 credits divided as follows:

- Forty-four credits in general education requirements
- Fifteen credits of additional basic science and mathematics requirements
- Twenty-one credits in core requirements
- Twenty-four credits in required courses
- Nine credits in advised electives
- Fifteen credits in free electives
- 6-8 weeks of full-time, satisfactory internship in environmental science with a business or governmental organization


## Basic Science and Mathematics Requirements

- BIO 101 General Biology I
- CHM 101 General Chemistry I
- CHM 102 General Chemistry II
- MTH 103 Calculus I
- MTH 104 Calculus II
- PHY 101 General Physics I
- PHY 102 General Physics II
- STA 201 Introduction to Statistics


## Core Requirements ( 21 credits)

- ENV 101 Introduction to Environmental Science
- CHM 251 Environmental Chemistry
- ENV 311 Environmental Modeling
- ENV 351 Environmental Monitoring and Analysis Techniques
- ENV 411 Environmental Assessment and Management
- CHM 445 Instrumental Analysis
- ENV 491 Senior Project I

Concentrations:
a. Concentration in Biology and Ecosystems ( $\mathbf{3 0}$ credits)

## Required Courses ( 24 credits)

- BIO 102 General Biology II
- CHM 215 Organic Chemistry I
- CHM 215L Organic Chemistry Lab I
- BIO 230 Ecosystems Management
- BIO 251 Environmental Ecology
- BIO 260 Genetics
- BIO 331 General Microbiology
- ENV 361 Evolution and Biodiversity

Major Electives (9 credits)

- PHI 204 Ethics for Professionals
- ENV 231 Transition Metals and their Compounds in the Environment
- CHM 241 Quantitative Analysis
- ENV 261 Physical Geography

- PHY 301 Energy Sources
- ENV 335 Environmental Microbiology
- ENV 421 Aquatic Environments
- ENV 430 Environmental Systems in the Arabian Peninsula
- ENV 451 Waste Treatment
- ENV 492 Senior Project II


## Proposed Course Sequence of Study

Bachelor of Science in Environmental Sciences (B.S.E.S.)
Environmental Biology and Ecosystems Concentration

| FIRST YEAR (35 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | MTH 103 | Calculus I | 3 | MPT or MTH 001 | MR |
|  | BIO 101 | General Biology I | 4 |  | MR |
|  | COM XXX | Communication I | 3 |  | GE |
|  | PHY 101 | General Physics I | 4 | PPT or PHY 001 and MTH 103 Concurrent | MR |
|  | CHM 101 | General Chemistry I | 4 |  | MR |
|  |  | Total | 18 |  |  |
| Spring | MTH 104 | Calculus II | 3 | MTH 103 | MR |
|  | ENV 101 | Introduction to Environmental Science | 3 | CHM 101 | CR |
|  | PHY 102/PHY 105 | General Physics II / Physics for Environmental Sciences | 4 | PHY 101 | MR |
|  | COM XXX | Communication II | 3 |  | GE |
|  | CHM 102 | General Chemistry II | 4 | CHM 101 | MR |
|  |  | Total | 17 |  |  |


| SECOND YEAR (32 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | BIO 102 | General Biology II | 4 | BIO 101 | MR |
|  | CHM 215 | Organic Chemistry I | 3 | CHM 102 Concurrent | MR |
|  | ENV 252 | Environmental Chemistry | 3 | CHM 102 | CR |
|  | ARA 101 | Readings in Arabic Heritage | 3 |  | GE |
|  | COM XXX | Communication III | 3 |  | GE |
|  |  | Total | 16 |  |  |
| Spring | ENV 251 | Environmental Ecology | 3 | BIO 102 | MR |
|  | XXX | Humanities / Social Sciences I | 3 |  | GE |
|  | CHM 215L | Organic Chemistry Lab I | 1 | CHM 215 | MR |
|  | BIO 230 | Ecosystems Management | 3 | BIO 102 | MR |
|  | COM XXX | Communication IV | 3 |  | GE |
|  | XXX | Advised Elective | 3 |  | AE |
|  |  | Total | 16 |  |  |


| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Fall | Course \# | Title | Credit | Prerequisite | Fulfills |
|  | STA 201 | Introduction to Statistics for Engineering |  |  |  |
|  |  | \& Natural Sciences | 3 |  | GE |
|  | XXX | Advised Elective | 3 |  | ME |
|  | THM XXX | Theme Course I | 3 | Junior Standing | GE |
|  | BIO 260 | Genetics | 3 | BIO 102 | MR |
|  | ENV 311 | Environmental Modeling | 3 | MTH 104, ENV 252 | CR |
|  |  | Total | 15 |  |  |
| Spring | ENV 361 | Evolution and Biodiversity | 3 | BIO 260 | MR |
|  | ENV 351 | Environmental Monitoring and Analysis Techniques | 3 | STA 201, ENV 252 | CR |
|  | XXX | Free Elective | 3 |  | FE |
|  | CHM 445 | Instrumental Analysis | 3 | CHM 102Junior Standing | $\begin{aligned} & \mathrm{CR} \\ & \mathrm{GE} \end{aligned}$ |
|  | THM XXX | Theme course II | $3$ |  |  |
|  |  | Total | 15 |  |  |


| FOURTH YEAR (31 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ENV 491 | Senior Project I | 3 | Senior Standing | CR |
|  | ENV 335 | General Microbiology | 4 | BIO 101 | MR |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Humanities / Social Sciences II | 3 |  | GE |
|  | XXX | Free elective | 3 |  | FE |
|  |  | Total | 16 |  |  |
| Spring | XXX | Advised Elective | 3 |  | ME |
|  | ENV 411 | Environmental Assessment and Management | 3 | ENV 252 | CR |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Humanities / Social Sciences III | 3 |  | GE |
|  |  | Total | 15 |  |  |

Abbreviations: GE: University Requirement; ME: Major Elective; FE: Free Elective; MR: Major Requirement; PPT: Physics Placement Test; MPT: Math Placement Test; CR; Core Courses

## b. Concentration in Environmental Chemistry and Analysis (at least 30 credits)

## Required Courses ( 24 credits)

- CHM 215 Organic Chemistry I
- CHM 215L Organic Chemistry Lab I
- CHM 216 Organic Chemistry II
- CHM 216L Organic Chemistry Lab II
- CHM 231 Physical Chemistry I
- ENV 231 Transition Metals and their Compounds in the Environment
- CHM 241 Quantitative Analysis
- CHM 331 Physical Chemistry II
- ENV 451 Waste Treatment

Major Electives (at least 9 credits)

- PHI 204 Ethics for Professionals
- PHY 251 Meteorology
- ENV 261 Physical Geography
- PHY 303 Atmospheric Physics
- CHM 335 Physical Chemistry Lab
- ENV 421 Aquatic Environments
- CHE 442 Corrosion
- ENV 452 Soil and Water Chemistry
- ENV 492 Senior Project II


## Proposed Course Sequence of Study Bachelor of Science in Environmental Sciences (B.S.E.S.) <br> Environmental Chemistry and Analysis Concentration

| FIRST YEAR (35 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | MTH 103 | Calculus I | 3 | MPT or MTH 001 | MR |
|  | BIO 101 | General Biology I | 4 |  | MR |
|  | COM XXX | Communication I | 3 |  | GE |
|  | PHY 101 | General Physics I | 4 | PPT or PHY 001 and MTH 103 Concurrent | MR |
|  | CHM 101 | General Chemistry I | 4 |  | MR |
|  |  | Total | 18 |  |  |
| Spring | MTH 104 | Calculus II | 3 | MTH 103 | MR |
|  | ENV 101 | Introduction to Environmental Science | 3 | CHM 101 | CR |
|  | PHY 102/PHY 105 | General Physics II / Physics for Environmental |  |  |  |
|  |  |  |  | PHY 101 | MR |
|  | COM XXX | Communication II | 3 |  | GE |
|  | CHM 102 | General Chemistry II | 4 | CHM 101 | MR |
|  |  | Total | 17 |  |  |


| SECOND YEAR (32 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | XXX | Humanities / Social Sciences I | 3 | CHM 102 (concurrent) <br> CHM 102 | GE |
|  | CHM 215 | Organic Chemistry I | 3 |  | MR |
|  | ENV 252 | Environmental Chemistry | 3 |  | CR |
|  | ARA 101 | Readings in Arabic Heritage | 3 |  | GE |
|  | COM XXX | Communication III | 3 |  | GE |
|  |  | Total | 15 |  |  |
| Spring | CHM 241 | Quantitative Analysis | 4 | CHM 102 | MR |
|  | CHM 216 | Organic Chemistry II | 3 | CHM 215 | MR |
|  | CHM 215L | Organic Chemistry Lab I | 1 | CHM 215 | MR |
|  | CHM 231 | Physical Chemistry I | 3 | CHM 102, MTH 104 | MR |
|  | COM XXX | Communication IV | 3 |  | GE |
|  | XXX | Advised elective | 3 |  | ME |
|  |  | Total | 17 |  |  |


| THIRD YEAR (31 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | STA 201 | Introduction to Statistics for Engineering \& Natural Sciences | 3 |  | GE |
|  | ENV 231 | Transition, Metals and Their Compounds in the Environment | 3 | CHM 102 | MR |
|  | THM XXX | Theme Course I | 3 | Junior Standing | GE |
|  | XXX | Free Elective | 3 |  | FE |
|  | CHM 216L | Organic Chemistry lab II | 1 | CHM 215L, CHM 216 | MR |
|  | ENV 311 | Environmental Modeling | 3 | MTH 104, ENV 252 | CR |
|  |  | Total | 16 |  |  |
| Spring | ENV 351 | Environmental Monitoring and Analysis Techniques | 3 | STA 201, ENV 252 | CR |
|  | XXX | Humanities / Social Sciences II | 3 |  | GE |
|  | CHM 445 | Instrumental Analysis | 3 | CHM 102 | CR |
|  | THM XXX | Theme Course II | 3 |  | GE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |


|  |  |  | FOURTH YEAR (30 CREDITS) |  | Fulfills |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite | ( |
| Fall | ENV 491 | Senior Project I | 3 | Senior Standing | CR |
|  | ENV 451 | Waste Treatment | 3 | ENV 252 | MR |
|  | CHM 331 | Physical Chemistry II | 3 | CHM 231 or CHE 204 | MR |
|  | XXX | Advised Elective | 3 |  | ME |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | $\mathbf{1 5}$ |  |  |
| Spring | XXX | Advised elective | 3 |  | ME |
|  | ENV 411 | Environmental Assessment and Management | 3 | ENV 252 | CR |
|  | XXX | Humanities / Social Sciences III | 3 |  | GE |
|  | XXX | Free Elective | 3 | FE |  |
|  | XXX | Free Elective | 3 | FE |  |
|  |  | Total | $\mathbf{1 5}$ |  |  |

Abbreviations: GE: University Requirement; ME: Major Elective; FE: Free Elective; MR: Major Requirement; PPT: Physics Placement Test; MPT: Math Placement Test; CR; Core Courses

## c. Concentration in Environmental Physics (at least 30 credits)

## Required Courses ( 24 credits)

- PHY 201 Modern Physics
- MTH 203 Calculus III
- CHM 231 Physical Chemistry I
- PHY 251 Meteorology
- PHY 301 Energy Sources
- PHY 304 Issues in Environmental Physics
- PHY 351 Analytical Techniques

Major Electives (9 credits)

- PHI 204 Ethics for Professionals
- CVE 231 Environmental Geology
- ENV 261 Physical Geography
- PHY 303 Atmospheric Physics
- CHM 331 Physical Chemistry II
- ECO 403 Economics of Natural Energy Resources
- ECO 404 Economics of Environmental and Natural Resources
- ENV 451 Waste Treatment
- ENV 492 Senior Project II


## Proposed Course Sequence of Study

Bachelor of Science in Environmental Sciences (B.S.E.S.)
Environmental Physics Concentration

| FIRST YEAR (35 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | MTH 103 | Calculus I | 3 | MPT or MTH 001 | MR |
|  | BIO 101 | General Biology I | 4 |  | MR |
|  | COM XXX | Communication I | 3 |  | GE |
|  | PHY 101 | General Physics I | 4 | PPT or PHY 001, <br> MTH 103 (concurrent) | MR |
|  | CHM 101 | General Chemistry I | 4 |  | MR |
|  |  | Total | 18 |  |  |
| Spring | MTH 104 | Calculus II | 3 | MTH 103 | MR |
|  | ENV 101 <br> PHY 102/PHY 105 | Introduction to Environmental Science | 3 | CHM 101 | CR |
|  |  | General Physics II / Physics for Environmental Sciences | 4 | PHY 101 | MR |
|  | COM XXX | Communication II | 3 |  | GE |
|  | CHM 102 | General Chemistry II | 4 | CHM 101 | MR |
|  |  | Total | 17 |  |  |


|  |  |  | SECOND YEAR (32 CREDITS) |  | Credit |
| :--- | :--- | :--- | :---: | :--- | :--- |
| Term | Course \# | Title | Prerequisite | Fulfills |  |
| Fall | COM XXX | Communication III | 3 |  | GE |
|  | PHY 201 | Modern Physics | 4 | PHY 102, PHY 105 | MR |
|  | ENV 252 | Environmental Chemistry | 3 | CHM 102 | CR |
|  | ARA 101 | Readings in Arabic Heritage | 3 |  | GE |
|  | XXX | Humanities / Social Sciences I | 3 |  | GE |
|  |  | Total | $\mathbf{1 6}$ |  |  |
| Spring | CHM 231 | Physical Chemistry I | 3 | PHY 101, CHM 102, MTH 104 | MR |
|  | PHY 251 | Meteorology | 3 |  | MR |
|  | COM XXX | Communication IV | 3 |  | GE |
|  | MTH 203 | Calculus III | 3 | MTH 104 | MR |
|  | XXX | Advised elective | 3 |  | ME |
|  |  | Total | $\mathbf{1 6}$ |  |  |


|  |  |  | THIRD YEAR (31 CREDITS) |  | Fulfills |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite |  |
| Fall | STA 201 | Introduction to Statistics for Engineering |  |  | GE |
|  |  | \& Natural Sciences | 3 |  | GE |
|  | THM XXX | Theme Course I | 3 | Junior Standing | MR |
|  | PHY301 | Energy Sources | 3 | PHY 102 or PHY 105 | MR |
|  | ENV 311 | Environmental Modeling | 3 | MTH 104, ENV 252 | MR |
|  | PHY 304 | Issues in Environmental Physics | 3 | PHY 102, PHY 105 | MR |
|  |  | Total | $\mathbf{1 5}$ |  | MR |
| Spring | PHY 351 | Analytical Techniques | 4 | PHY 201 | FE |
|  | XXX | Free Elective | 3 |  | CR |
|  | CHM 445 | Instrumental Analysis | 3 | CHM 102 | GE |
|  | THM XXX | Theme Course II | 3 | Junior Standing | CR |
|  | ENV 351 | Environmental Monitoring and Analysis Techniques | 3 | STA 201, ENV 252 |  |
|  |  | Total | $\mathbf{1 6}$ |  |  |
|  |  |  |  |  |  |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ENV 491 | Senior Project I | 3 | Senior Standing | CR |
|  | XXX | Humanities / Social Scienes II | 3 |  | GE |
|  | XXX | Advised Elective | 3 |  | ME |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |
| Spring | XXX | Advised Elective | 3 |  | MR |
|  | ENV 411 | Environmental Assessment and Management | 3 | ENV 252 | CR |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Humanities / Social Sciences III | 3 |  | GE |
|  |  | Total | 15 |  |  |

Abbreviations: GE: University Requirement; ME: Major Elective; FE: Free Elective; MR: Major Requirement; PPT: Physics Placement Test; MPT: Math Placement Test; CR: Core Courses

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

Students fulfill the requirements of both concentrations, as detailed in sections (a) and (b) above.

## Minor in Environmental Sciences

Students who minor in Environmental Sciences take a minimum of 18 credits distributed as follows:

## 9-12 credits from the following:

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

6-9 credits from the following:

- ENV 231 Transition Metals and their Compounds in the Environment
- ENV 451 Waste Treatment
- ENV 452 Soil \& Water Chemistry
- ENV 491 Senior Research Project I
- CHM 445 Instrumental Analysis
- BIO 230 Ecosystems Management
- BIO 251 Environmental Ecology
- BIO 335 Environmental Microbiology
- CHE 460 Wastewater Treatment
- CHE 461 Air Pollution
- CHE 467 Corrosion
- CHE 474 Environmental Transport

At least 9 credits must be in courses of at least the 300 level. No credit can be given to both ENV 451 and CHE 460.

## Department of Computer Science

Kassem A. Saleh, Chair

## The Computer Science Program

The Department of Computer Science offers a four-year program leading to a Bachelor of Science in Computer Science. The program is designed to meet the growing needs for computer science experts in the rapidly evolving 21st century economy. Its mission is to provide graduates with a strong computer science base that will enable them to capitalize on the increasing careers opportunities in the information technology sector, to expand the limits of their knowledge by pursuing further studies, and to explore innovative approaches to computer-related problems. A computer science degree from AUS is an extremely valuable commodity. It provides a highly demanded expertise, a great mobility and flexibility, and an impressive range of possible career choices in the information technology industry. The program provides students with a solid exposure to the fundamental concepts of computer science and their applications to solve concrete problems.
The highlights of the program goals are to develop:

- An understanding of the context and applications of computing and the structure, logic, and organization of modern computers
- Software application development skills involving most aspects of the software development process, including, analysis, design, implementation, testing and maintenance of quality software
- Strong soft skills, including interpersonal and group communication, presentation skills, and writing skills
- An understanding and appreciation of the ethical and social issues involved in the computing field and profession
- An understanding and appreciation of the economics of computing, including software project management and feasibility, and software complexity analysis
- A strong ability to grasp and learn new software and information technologies,
and to further develop themselves professionally in their future careers
- Strength in specific areas of computer science through the choice of electives


## Bachelor of Science in Computer Science

## Admission to the Program

Formal admission to the program in computer science requires a cumulative grade point average (GPA) of 2.0 or higher.

## Graduation Requirement for the B.S.C.S. Degree

A total of at least 130 credits, including

- Forty-four credits of general education requirements (GE)
- A minimum of seventy-one credits of major requirements (MR)
- Fifteen credits of free electives (FE)


## Major Requirements

Students majoring in computer science must complete 71 credits of major requirements with a grade C - or better in each course. Those major requirements are divided as follows:

## Core Requirements

Students must take the following 55 credits as core requirements:

- MTH 104 Calculus II
- MTH 221 Linear Algebra
- MTH 341 or CMP 341 Computational Methods
- CMP 111 Computing Fundamentals
- CMP 120 Introduction to Computer Science I
- CMP 210 Digital Systems
- CMP 211 Digital Systems Laboratory
- CMP 213 Discrete Structures or MTH 213 Discrete Mathematics
- CMP 220 Introduction to Computer Science II
- CMP 232 Data Structures and Algorithms
- CMP 235 Social and Professional Issues
- CMP 240 Introduction to Computer Systems
- CMP 310 Introduction to Operating Systems
- CMP 320 Database Systems
- CMP 321 Programming Languages


## Laboratory

- CMP 340 Design and Analysis of Algorithms
- CMP 350 Introduction to Software Engineering
- CMP 416 Internet and Network Computing
- CMP 490 Project in Computer Science


## Computer Elective Requirements

After consultation with their academic advisors, students should take 12 credits as computer science elective courses from the following areas:
Computer Systems

- CMP 410 Computer System Architecture
- CMP 411 Performance Evaluation of Computer Systems
- CMP 412 Introduction to Distributed Systems
- CMP 415 Computer Networks
- CMP 417 Parallel Computing Systems
- CMP 418 Introduction to Simulation and Modeling
- COE 370 Data Communications
- COE 423 Computer Networks II

Information Processing

- CMP 430 Computer Graphics
- CMP 431 File Processing
- CMP 432 Image Processing
- CMP 433 Artificial Intelligence
- CMP 434 Information Theory
- CMP 435 Computer Security
- CMP 436 Introduction to Symbolic Computation
- CMP 437 Introduction to Neural Network
Software Engineering/Programming
Languages
- CMP 450 Object-oriented Analysis and Design
- CMP 452 Compiler Construction
- CMP 453 Organization of Programming Languages
- CMP 454 Software Testing and Quality Engineering
- CMP 455 Human Computer Interactions Theory of Computation
- CMP 470 Formal Languages and Computability I
- CMP 472 Multimedia Computing

Others

- CMP 494 Topics in Computer Science
- CMP 496 Independent Study
- CMP497 Intership in Computer Science


## Science Elective Requirement

Students must take a four-credit hour science elective course from the biology, chemistry or physics offerings.

## Minor in Computer Science

In order to minor in computer science, students of arts and sciences,
architecture and design, business, and engineering must take 18 credits of which 9 credits must be at 300 -level and above:

- Requirements for College of Arts and Sciences students: CMP 220, CMP 232, CMP 340, CMP 2XX or higher and two CMP 3XX or higher.
- Requirements for School of Architecture and Design students: CMP 120, CMP 220, CMP 430, CMP 473 or CMP 2XX or higher and CMP 3XX or higher.
- Requirements for School of Business and Management students: CMP 220,

CMP 232, CMP 340, CMP 2XX or higher and two CMP 3XX or higher.

- Requirements for School of Engineering students: CMP 220, CMP 232, CMP 235, CMP 320, CMP 340 and CMP 3XX or higher.
Exeptions require the approval of the chair of the Department of Computer Science.


## Proposed Course Sequence of Study

Bachelor of Science Degree in Computer Science (B.S.C.S.)

| FIRST YEAR (33 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | MTH 103 | Calculus I | 3 | MPT or MTH 001 | GE |
|  | XXX | Science Elective: Physics, Chemistry or Biology | 4 |  | GE |
|  | COM XXX | Communication I | 3 |  | GE |
|  | XXX | Humanities / Social Sciences I | 3 |  | GE |
|  | CMP 111 | Computing Fundamentals | 3 |  | CR |
|  |  | Total | 16 |  |  |
| Spring | MTH 104 | Calculus II | 3 | MTH 103 | CR |
|  | XXX | Science Elective: Physics, Chemistry or Biology | 4 |  | GE |
|  | ARA 101 | Readings in Arabic Heritage | 3 |  | GE |
|  | COM XXX | Communication II | 3 |  | GE |
|  | CMP 120 | Introduction to Computer Science I | 4 | CMP 111 or CPT | CR |
|  |  | Total | 17 |  |  |


| SECOND YEAR (34 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM XXX | Communication III | 3 |  | GE |
|  | MTH 221 | Linear Algebra | 3 | MTH 104 | CR |
|  | CMP 210 | Digital Systems | 3 | CMP 120 | CR |
|  | CMP 211 | Digital Systems Laboratory | 1 | CMP 210 or concurrent | CR |
|  | CMP 213 or MTH 213 | Discrete Structures | 3 | MTH 103 | CR |
|  | CMP 220 | Introduction to Computer Science II | 3 | CMP 120 | CR |
|  |  | Total | 16 |  |  |
| Spring | COM XXX | Communication IV | 3 |  | GE |
|  | XXX | Humanities / Social Sciences II | 3 |  | GE |
|  | XXX | Science Elective: Physics, Chemistry or Biology | 4 |  | SR |
|  | STA 201 | Introduction to Statistics for Engineering and Natural Sciences | 3 | None | GE |
|  | CMP 232 | Data Structures and Algorithms | 3 | CMP 220, CMP 213 or concurrent | CR |
|  | CMP 235 | Social and Professional Issues | 2 | CMP 120 | CR |
|  |  | Total | 18 |  |  |


| THIRD YEAR (33 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | XXX | Humanities / Social Sciences III | 3 |  | GE |
|  | XXX | Free Elective | 3 |  | GE |
|  | CMP 240 | Introduction to Computer Systems | 3 | CMP 210 | CR |
|  | CMP 320 | Database Systems | 3 | CMP 232 | CR |
|  | CMP 350 | Introduction to Software Engineering | 3 | CMP 232 | CR |
|  | CMP 340 | Design and Analysis of Algorithms | 3 | CMP 232 | CR |
|  |  | Total | 18 |  |  |
| Spring | THM XXX | Theme Course I | 3 | Junior Standing | GE |
|  | CMP 341/MTH 341 | Computational Methods | 3 | MTH 221 or concurrent | CR |
|  | CMP 310 | Introduction to Operating System | 3 | CMP 232, CMP 240 | CR |
|  | CMP 321 | Programming Languages Laboratory | 3 | CMP 232 | CR |
|  | CMP XXX | Computer Elective | 3 |  | CE |
|  |  | Total | 15 |  |  |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | CMP 416 | Internet and Network Computing | 3 | CMP 310 | CR |
|  | CMP XXX | Computer Elective | 3 |  | CE |
|  | CMP XXX | Computer Elective | 3 |  | CE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |
| Spring | THM XXX | Theme Course II | 3 | Junior Standing | GE |
|  | CMP 490 | Project in Computer Science | 3 | CMP 350 | CR |
|  | CMP XXX | Computer Elective | 3 |  | CE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |

Abbreviations: GE: University Requirement, CR: Core Requirement, FE: Free Elective, PT: Placement Test, MPT: Math Placement Test, EQ: Equivalent, ME: Major Elective, CPT: Computer Placement Test, CE: Computer elective.

## Department of Economics and Public Administration

John Chilton, Chair

## The Economics Program

Resources are limited. Choice is inevitable. Economics is about making the best choices given those limits. Economics studies how consumers, businesses, non-profit organizations, and governments choose. It studies how markets coordinate economic activity, reconciling the independently planned choices of individual consumers, firms, and other organizations. It examines the scope for government in devising regulations and institutions that would improve upon the results of the market. Subject areas in economics include international trade, capitalism, market failure, unemployment, inflation, economic growth, pollution, economic development, central banking, government taxing and spending, economic data analysis, utilizing natural resources, conservation of the environment, the effects of law upon economic behavior, collective decisionmaking, and history of economics.
Students who major in economics will learn to reason logically and systematically about the problems and subjects described above and to analyze economic data and other information that is relevant. This will enable the student to pursue rewarding career paths in private businesses, government agencies, and non-profit organizations. Alternatively, they may go on to graduate school in a number of disciplines, including economics, business administration, public administration, law, and various interdisciplinary fields like international studies and environmental studies.

## Bachelor of Arts in Economics

## Admission to the Program

Formal admission to the major in
economics requires a cumulative grade point average (GPA) of 2.0 or higher.
Graduation Requirements for B.A.E. Degree

A total of 120 credits, including

- Forty-two credits of general education requirements (GE)
- Sixty-three credits in the major requirements (MR)
- Fifteen credits of free electives


## Designated General Education

 Requirements- STA 202 Introduction to Statistics for Social Sciences
- Either MTH 101(Mathematics for Business I) or MTH 103 (Calculus I or their equivalent, if approved by the Department of Economics)


## Major Requirements

Students majoring in Economics must complete 54 credits of major requirements with a grade no less than
C-. Those major requirements are divided as follows:

## Core Requirements ( $\mathbf{2 4}$ credits)

- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics
- ECO 305 International Trade
- ECO 310 Development Economics
- ECO 330 Money and Banking
- ECO 495 Senior Seminar in Economics


## Economics Elective Requirements

 ( 18 credits)The student is free to choose these courses from among any of the other economics courses at the 300 level or above (not listed under the core requirements).

## Major Electives (21credits)

Courses in Related Fields or for a minor in any field. Certain courses are excluded (see below). Students must obtain the approval of his or her advisor before selecting courses in Related Fields.

## Related Fields

- Accounting (any course)
- Computer science (any course)
- Finance (any course)
- History (any course at the 200 level or higher)
- International Studies (any course)
- Management (any course)
- Management Information Systems (any course)
- Marketing (any course)
- Mathematics (any course other than MTH 100 or MTH 111)
- Political Science (any course)
- Psychology (any course)
- Statistics (any course other than STA 201 or STA 202)
Minor in Economics


## Required Courses

Students who minor in economics take 21 credits of Economics (seven courses), and must achieve a grade of C - or better in each course. Twelve of the 21 credits consist of the following required courses:

- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics

The remaining courses for the minor in

## Proposed Course Sequence of Study

Bachelor of Arts in Economics (B.A.E.)

|  |  | FIRST YEAR (30 CREDITS) |  |  | Credit |
| :--- | :--- | :--- | :---: | :--- | :--- |
| Term | Course \# | Title | Prerequisite | Fulfills |  |
| Fall | XXX | Science Elective | 3 |  | GE |
|  | ARA 101 | Readings in Arabic Heritage | 3 |  | GE |
|  | ECO 201 | Principles of Microeconomics | 3 |  | CR |
|  | COM 101 | Academic Writing | 3 | EPT 4 or COM 001 | GE |
|  | MTH 101 | Mathematics for Business I | 3 | MPT or MTH 002 | GE |
|  |  | Total | $\mathbf{1 5}$ |  | ME |
| Spring | XXX | Advised Elective | 3 |  | GE |
|  | COM 102 | Writing and Reading Across the Curriculum | 3 | EPT 5 or COM 101 | CR |
|  | ECO 202 | Principles of Macroeconomics | 3 |  | GE |
|  | XXX | Science Elective | 3 |  | GE |
|  | STA 202 | Introduction to Statistics for Social Sciences | 3 | MTH 100 or 101 or 111 |  |
|  |  | Total | $\mathbf{1 5}$ |  |  |


|  |  |  | SECOND YEAR (30 CREDITS) |  |  |
| :--- | :--- | :--- | :---: | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | XXX | Humanities / Social Sciences I | 3 |  | GE |
|  | COM 225 | Global Business Communication | 3 | COM 203 or COM 204 | GE |
|  | XXX | Free Elective | 3 |  | FE |
|  | ECO 302 | Intermediate Macroeconomics | 3 | ECO 201, ECO 202, COM 102 | CR |
|  | ECO 310 | Economic Development | 3 | ECO 201, ECO 202, COM 102 | CR |
|  |  | Total | $\mathbf{1 5}$ |  |  |
| Spring | XXX | Humanities / Social Sciences II | 3 |  | GE |
|  | COM 208 | Public Speaking | 3 | COM 102 | GE |
|  | XXX | Humanities / Social Sciences III | 3 |  | GE |
|  | ECO 301 | Intermediate Microeconomics | 3 | ECO 201, ECO 202, COM 102 | CR |
|  | ECO 330 | Money and Banking | 3 | ECO 201, ECO 202, COM 102 | CR |
|  |  | Total | $\mathbf{1 5}$ |  |  |
|  |  |  |  |  |  |


| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ECO 305 | International Trade | 3 | ECO 201, ECO 202, COM 102 | CR |
|  | ECO XXX | Economics Elective | 3 | ECO 201, ECO 202, COM 102 | ME |
|  | THM XXX | Theme Course I | 3 | Junior Standing | GE |
|  | XXX | Advised Elective | 3 |  | ME |
|  | XXX | Advised Elective | 3 |  | ME |
|  |  | Total | 15 |  |  |
| Spring | XXX | Advised Elective | 3 |  | ME |
|  | ECO XXX | Economics elective | 3 | ECO 201, ECO 202, COM 102 | ME |
|  | THM XXX | Theme Course II | 3 | Junior Standing | GE |
|  | ECO XXX | Economics Elective | 3 | ECO 201, ECO 202, COM 102 | ME |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | XXX | Advised Elective | 3 |  | ME |
|  | ECO 495 | Senior Seminar in Economics | 3 | ECO 301, ECO 302, COM 102 | CR |
|  | ECO XXX | Economics Elective | 3 | ECO 201, ECO 202, COM 102 | ME |
|  | XXX | Advised Elective | 3 |  | ME |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |
| Spring | ECO XXX | Economics Elective | 3 | ECO 201, ECO 202, COM 102 | ME |
|  | ECO XXX | Economics Elective | 3 | ECO 201, ECO 202, COM 102 | ME |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Advised Elective | 3 |  | ME |
|  |  | Total | 15 |  |  |

Abbreviations: GE: General Education Requirement; FE: Free Elective; CR: Core Requirement; EPT: English Placement Test; MPT: Math Placement Test; ME: Major elective

economics must be at the 300 level or above.

## Public Administration Program

A Bachelor of Arts in Public
Administration provides students with a strong foundation in administration, interpersonal relations, policy analysis and leadership skills. The program prepares students to manage the various aspects of government by providing them with professional training in the discipline of public administration/public policy. Students will learn managerial, political, and legal theories and processes to fulfill the legislative, executive, and judicial governmental mandates of providing regulatory and service functions for society. The Public Administration Program studies public management, public policy and policy analysis, organization theories and decision making, human resources, evaluation, public finance, administrative law, public economics, rules and regulations, political science, urban management, and public sector ethics.

## Bachelor of Arts in Public

Administration

## Admission to the Major

Formal admission to the major in public
administration requires a cumulative grade point average of 2.0 or higher.

## Graduation Requirement for the

B.A.P.A. Degree

A total of 120 credits, including

- Forty-two credits of general education requirements (GE)
- Sixty-three credits in the major requirements (MR)
- Fifteen credits of free electives (FE)


## Designated University Requirements

- STA 202 Introduction to Statistics for Social Sciences
- MTH 101 (Mathematics for Business I) or MTH 102 (Mathematics for Business II)


## Major Requirements

Students majoring in Public
Administration must complete 63 credits of major requirements with a grade C or better in each course. Those major requirements are divided as follows:

## Core Requirements ( 24 credits)

The following eight courses are the required core:

- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- ECO 325 Public Economics
- ECO 345 Economics of Collective Decision Making
- PBA 101 Introduction to Public

Administration

- PBA 306 Human Resources Management in Public Organizations
- PHI 204 Ethics for Professionals
- POL 201 Introduction to Political Studies

Public Administration Elective Requirements ( $\mathbf{3 0}$ credits)
The student is free to choose these from courses from among any other course in public administration. Other courses that count towards this requirement are:

- ECO 312 Economics of Labor
- ECO 326 Economics and the Law
- ECO 327 Competition, Free Markets and Antitrust
- ECO 328 Government Regulation of Business
- PSY 205 Industrial Psychology


## Major Electives (9 credits)

Students must take a minimum of 9 credits of advised electives from any course 200 level or above in:

- Economics
- Psychology
- International Studies
- Political Science
- History
- Geography
- Cultural Studies
- Sociology
- Mathematics
- Statistics
- Mass Communications
- Theme Courses
- Courses offered in the School of Business and Management

These credits may not also be counted towards any other degree requirement. The Major Elective requirement is waived if the student takes a minor outside of Public Administration.
$\frac{\text { Minor in Public Administration }}{\text { A total of } 21 \text { credits are required for a }}$
minor in Public Administration.
Core Courses (A total of 15 credits)

- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- ECO 325 Public Economics
- PBA 101 Introduction to Public Administration


## Proposed Course Sequence of Study

Bachelor of Arts in Public Administration (B.A.P.A)

|  |  | FIRST YEAR (30 CREDITS) |  | Credit | Prerequisite |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Term | Course \# | Title | 3 | MPT or MTH 002 | Fulfills |
| Fall | MTH 101 | Mathematics for Business I | 3 | EPT 4 or COM 001 | GE |
|  | COM 101 | Academic Writing | 3 |  | GE |
|  | PBA 101 | Introduction to Public Administration | 3 |  | MR |
|  | XXX | Science Elective | 3 |  | GE |
|  | ECO 201 | Principles of Microeconomics | MR |  |  |
|  |  | Total | $\mathbf{1 5}$ |  |  |
| Spring | COM 102 | Writing and Reading Across the Curriculum | 3 | EPT 5 or COM 101 | GE |
|  | ARA 101 | Readings in Arabic Heritage | 3 |  | GE |
|  | STA 202 | Introduction to Statistics for Social Sciences | 3 | MTH100, MTH101 or MTH111 | GE |
|  | XXX | Science Elective | 3 |  | GE |
|  | ECO 202 | Principles of Macroeconomics | 3 |  | MR |
|  |  | Total | $\mathbf{1 5}$ |  |  |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM 225 | Global Business Communication | 3 | COM 203/204 | GE |
|  | XXX | Humanities / Social Sciences I | 3 |  | GE |
|  | PBA XXX | PBA Elective | 3 | PBA 101, COM 102 | MR |
|  | PHI 204 | Ethics for Professionals | 3 | COM 102 | MR |
|  | PBA 306 | Human Resources Mgt. in Public Org. | 3 | PBA 101, COM 102 | MR |
|  |  | Total | 15 |  |  |
| Spring | POL 201 | Introduction to Political Studies | 3 | COM 102 | MR |
|  | XXX | Humanities / Social Sciences II | 3 |  | GE |
|  | COM 208 | Public Speaking | 3 | COM 102 | GE |
|  | PBA XXX | PBA Elective | 3 | PBA 101, COM 102 | MR |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |


|  |  |  | THIRD YEAR (30 CREDITS) |  | Fulfills |  |
| :--- | :--- | :--- | :---: | :--- | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite | GE |  |
| Fall | XXX | Humanities / Social Sciences III | 3 |  | MR |  |
|  | PBA XXX | PBA Elective | 3 | PBA 101, COM 102 | MR |  |
|  | PBA XXX | PBA Elective | 3 | PBA 101, COM 102 | MR |  |
|  | ECO 325 | Public Economics | 3 | ECO 201 | GE |  |
|  | THM XXX | Theme Course I | 3 | Junior Standing |  |  |
|  |  | Total | $\mathbf{1 5}$ |  | MR |  |
| Spring | PBA XXX | PBA Elective | 3 | PBA 101, COM 102 | MR |  |
|  | PBA XXX | PBA Elective | 3 | PBA 101, COM 102 | ( | 3 |
|  | ECO 345 | Economics of Collective Decision-Making | ECO 201, ECO 202, COM 102 | MR |  |  |
|  | THM XXX | Theme Course II | 3 | Junior Standing | GE |  |
|  | XXX | Free Elective | 3 |  | FE |  |
|  |  | Total | $\mathbf{1 5}$ |  |  |  |


|  |  |  | FOURTH YEAR (30 CREDITS) |  | Fulfills |
| :--- | :--- | :--- | :---: | :--- | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite | MR |
| Fall | PBA XXX | PBA Elective | 3 | PBA 101, COM 102 | MR |
|  | PBA XXX | PBA Elective | 3 | PBA 101, COM 102 | ME |
|  | XXX | Advised Elective | 3 |  | ME |
|  | XXX | Advised Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | MR |
|  |  | Total | $\mathbf{1 5}$ |  | MR |
| Spring | PBA XXX | PBA Elective | 3 | PBA 101, COM 102 | ME |
|  | PBA XXX | PBA Elective | 3 | PBA 101, COM 102 | FE |
|  | XXX | Advised Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  |  |
|  | XXX | Free Elective | $\mathbf{3}$ |  |  |
|  |  | Total | $\mathbf{1 5}$ |  |  |

Abbreviations: GE: General Education Requirement; FE: Free Elective; MR: Major Requirement; ME: Major elective; EPT: English Placement Test; MPT: Math Placement Test

- PBA 201 Public Management

Plus any two PBA courses (six credits) with at least one course at 300 -level or above.

# Department of English \& Translation 

Said Faiq, Chair

## English \& Translation Program

The mission of the Department of English and Translation at the American University of Sharjah is to cultivate student mastery in English Language/ Literature and in Translation.
The English Program teaches students the creative use of English, enables them to understand its structure and functions, fosters an appreciation for the literary tradition in English and equips graduates with the knowledge and skills required for effective communication. Our goal is to become the premier program in the area, in the Gulf, and in the Middle East in preparing students to become active members of the English-speaking global society.
To qualify for the Bachelor of Arts in English/Arabic Translation and Interpreting degree program, students must demonstrate fluency in English and Arabic. In tandem with a solid grounding offered by the Department in communicative skills, linguistic analysis and literary appreciation, the translation track focuses on basic written translation skills in a variety of settings such as government, private sector and international organizations and across a diverse range of fields (commercial and economic, scientific and technical, political and legal).

## Bachelor of Arts in English Language and Literature

## Program Description

The four-year program in English language and literature provides a comprehensive knowledge of the structure and use of English.

Furthermore, it enables the student to understand English within its historical and cultural context, without which one cannot fully understand the literature or the society of the present Englishspeaking world. Above all, the program teaches students the research tools, critical processes, and analytic skills necessary for functioning effectively in today's English based information environment.
The courses required for the major are arranged in a sequence of increasing depth and complexity. The forty eight (48) specialized credits required for the major in the English language and literature program consist of a balanced foundation in both language and literature studies ( 18 credits in each), 12 credits in core departmental courses, and 18 credits in either literature or language.
The language component of the major helps students understand the history and structure of English and the interrelationship between society and language. This is particularly helpful to non-native speakers of English, who can compare English formations with those in their native language and gain insights into the reasons for these differences.
The language component includes courses which address underlying fundamental issues in language and linguistics studies, such as Introduction to Language Study, Development of the English Language, Phonetics, Phonology, and Morphology, Structure and Function of English, Semantics and Pragmatics, Discourse Analysis, Second Language Acquisition, Language in Society and Psycholinguistics. The language program is thus designed not only to provide proficiency in the structure of English, but also to lead the student to explore the way in which language shapes thought and affects society.
In the literature concentration, the texts studied focus on British and American literature and literature written in English throughout the world. However, because literature does not exist in isolation, the program also includes translations of major writers who have influenced literature in

English. Through this program, students come to understand the change of ideas from one time period to another and the exchange of ideas from one society to another.
Students begin their study of literature by learning the literary history of the United States and Great Britain, international English-language literature, the styles and elements of a particular genre, and the basic elements of critical and creative writing. They learn to use the English language as the medium for expressing their own thoughts and feelings, and they come to understand its richness and nuances. They also explore the philosophical and critical theories that underlie both the understanding of literature and the writing of literature itself.

## Objectives

An English language concentration prepares its graduates for further studies in linguistics and for careers in communication, a fast growing sector in today's societies. Also, by receiving a solid grounding in the English language, graduates are well prepared to become teachers of English as a foreign language. All these outlets are current growth areas in the region and will be increasingly useful as the educational and communications systems in the UAE become more Emiratized.
A literature concentration prepares the student for professions requiring the highest levels of English language skills, research skills, and critical and analytical abilities. Moreover, it prepares students for any position requiring interaction with educated native speakers of English. Some of the specific professions for which the English literature major is qualified are in media, publishing, editing, research, teaching and diplomacy. A major in English literature is also an excellent preparation for graduate work in an English speaking country.

## Admission to the Program

Formal admission to the English language and literature program by the Department of English requires a cumulative GPA of 2.0 or higher.

## Graduation Requirement for the B.A.E.L.L. Degree

A total of at least 120 credits, including

- General Education requirements: forty-two credits
- Major requirements: forty-eight credits
- Major electives: fifteen credits
- Free electives: fifteen credits


## Major Requirements

Both concentrations within the English language and literature major require students to take 48 credits of coursework. All students in this major will take thirty common credits as follows:

- Twelve credits of departmental core courses
- Nine credits of courses in language
- Nine credits of courses in literature

In addition, eighteen credits of concentration must be taken in language or literature.

## Departmental core requirements (12 credits)

- COM 220 Intercultural Communication
- ENG 105 or ENG 108 Contemporary World Literature or Introduction to Genre
- ENG 123 Introduction to Language Study
- ENG 420 Seminar: Bridging the Disciplines

Common required courses language and literature ( $\mathbf{1 8}$ credits)

- ENG 126 Development of the English Language
- ENG 201or ENG 203 Creative Writing or Introduction to Literary Theory
- ENG 209 Survey of English Literature I
- ENG 219 Survey of American Literature I
- ENG 224 Structure and Function of English
- ENG 234 Language in Society


## Concentrations:

a. Concentration in Language ( 18 credits)

- ENG 221 Phonetics, Phonology and Morphology
- ENG 334 Semantics and Pragmatics
- ENG 336 Discourse Analysis
- ENG 338 or ENG 400 Psycholinguistics or Second Language Acquisition
- ENG 401 or ENG 406 Advanced English Grammar or Survey of Topics in Linguistics and Communication
- ENG 495 Seminar in English Language
b. Concentration in Literature ( 18 credits)
- ENG 213 or ENG 205 Survey of English Literature II or Modern Drama and Beyond
- ENG 315 East Meets West: Colonial and

Post Colonial Encounters

- ENG 303 Shakespeare and his Contemporaries
- ENG 309 or ENG 311 or ENG 313 The American Novel or Early English Novel or Modern British Novel
- ENG 411 or ENG 413 or ENG 415 Seminar in English Literature or Seminar in American Literature or Seminar in Post Colonial Literature
- ENG 490 Senior Research Project

Major Electives ( 15 credits)
After consultation with their academic advisors, students should take 15 credits from the following courses

- For literature:

ENG 105 if ENG 108 taken as requirement
ENG 201 if ENG 203 taken as requirement.
ENG 205 if ENG 213 taken as requirement
ENG 309 if ENG 311 or ENG 313 taken as requirement
ENG 313 if ENG 309 or ENG 311 taken as requirement

DES 100 TRA 101

- For language:

ENG 340 if ENG 338 taken as requirement

## Proposed Course Sequence of Study

Bachelor of Arts in English Language and Literature (B.A.E.L.L.)

| FIRST YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM 101 | Academic Writing | 3 | EPT 4 or COM 001 | GE |
|  | MATH 100 | Fundamentals of Logic and Geometry | 3 |  | GE |
|  | XXX | Advised Elective | 3 |  | ME |
|  | XXX | Science Elective | 3 |  | GE |
|  | ARA101 | Readings in Arabic heritage | 3 |  | GE |
|  |  | Total | 15 |  |  |
| Spring | COM 102 | Writing and Reading | 3 | EPT 5 or COM 101 | GE |
|  | XXX | Advised Elective | 3 |  | ME |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Science Elective | 3 |  | GE |
|  | STA 202 | Introduction to Statistics for Social Sciences | 3 | MTH 100 or 101 or 111 | GE |
|  |  | Total | 15 |  |  |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM 208/209 | Public Speaking/Dramatic Expression | 3 | COM 102 | GE |
|  | ENG 123 | Introduction to Language Study | 3 | COM 203 or 204 or 231 | MR |
|  | XXX | Humanities / Social Sciences I | 3 |  | GE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Advised Elective | 3 |  | ME |
|  |  | Total | 15 |  |  |
| Spring | COM 203/204 | Writing about Literature/ |  |  |  |
|  |  | Advanced Academic English | 3 | COM 102 | GE |
|  | ENG 105/108 | Contemporary World Literature/ |  |  |  |
|  |  | Introduction to Genre | 3 | COM 203 or 204 or 231 | MR |
|  | COM 220 | Intercultural Communication | 3 | COM 102 | MR |
|  | XXX | Humanities / Social Sciences II | 3 |  | GE |
|  | XXX | Humanities / Social Sciences III | 3 |  | GE |
|  |  | Total | 15 |  |  |

## Language Concentration

| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ENG 201/ENG 203 | Creative Writing or |  |  |  |
|  |  | Introduction to Literary Theory | 3 | COM 203 or 204 or 231 <br> ENG 105 or 108 | MR |
|  | ENG 224 | Structure \& Function of Language | 3 | COM 102 | MR |
|  | ENG 209 | Survey of English Literature | 3 | COM 203 or 204 (concurrent) | MR |
|  | ENG 126 | Development of the English Language | 3 | COM 203 or 204 or 231 | MR |
|  | THM XXX | Theme Course I | 3 | Junior Standing | GE |
|  |  | Total | 15 |  |  |
| Spring | ENG 234 | Language in Society | 3 | ENG 123 | MR |
|  | ENG 219 | Survey of American Literature | 3 | COM 203 or 204 (concurrent) | MR |
|  | ENG 221 | Phonology and Morphology | 3 | ENG 123 | MR |
|  | THM XXX | Theme Course II | 3 | Junior Standing | GE |
|  | XXX | Advised elective | 3 |  | ME |
|  |  | Total | 15 |  |  |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ENG 336 | Discourse Analysis | 3 | ENG 224 | MR |
|  | ENG 400/ENG 338 | Second Language Acquisition/Psycholinguistics | 3 | ENG 224, COM 204 | MR |
|  | ENG 406 | Survey of Topics in Linguistics and |  |  |  |
|  |  | Communication | 3 | ENG 336 | MR |
|  | XXX | Advised Elective | 3 |  | ME |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |
| Spring | ENG 334 | Semantics and Pragmatics | 3 | ENG 224 | MR |
|  | ENG 495 | Seminar in English Language | 3 | ENG 401 or 406 | MR |
|  | ENG 420 | Seminar: Bridging the Disciplines |  | ENG 401 or 406 or 411 |  |
|  |  |  | 3 | or 413 or 415 | MR |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |

## Literature Concentration

| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ENG 201/ENG 203 | Creative Writing/Introduction to Literary Theory |  | COM 203 or 204 or 231 |  |
|  |  |  | 3 | ENG 105 or 108 | MR |
|  | ENG 224 | Structure \& Function of Language | 3 | COM 102 | MR |
|  | ENG 209 | Survey of English Literature | 3 | COM 203 or 204 (concurrent) | MR |
|  | ENG 126 | Development of the English Language | 3 | COM 203 or 204 or 231 | MR |
|  | THM XXX | Theme Course I | 3 | Junior Standing | GE |
|  |  | Total | 15 |  |  |
| Spring | ENG 234 | Language in Society | 3 | ENG 123 | MR |
|  | ENG 219 | Survey of American Literature | 3 | COM 203 or 204 (concurrent) | MR |
|  | ENG 213/ENG205 | Survey of English Literature II/ |  |  |  |
|  |  | Modern Drama and Beyond | 3 | ENG 105 or 108 | MR |
|  | $\begin{aligned} & \text { THM XXX } \\ & \text { XXX } \end{aligned}$ | Theme Course II | 3 | Junior Standing | GE |
|  |  | Advised Elective | 3 |  | ME |
|  |  | Total | 15 |  |  |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title C | Credit | Prerequisite | Fulfills |
| Fall | ENG 303 | Shakespeare and his Contemporaries | 3 | ENG 209 | MR |
|  | ENG 309/ENG 311/ |  |  |  |  |
|  | ENG 313 | The American Novel/Early English Novel/ Modern British Novel | 3 | ENG 219 or 209 | MR |
|  | ENG 315 | East Meets West: Colonial and Post |  |  |  |
|  |  | Colonial Literature | 3 | ENG 201 or 203 | MR |
|  | XXX | Advised Elective | 3 |  | ME |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |
| Spring | ENG 411/ENG 413/ | Seminar in English Literature/Seminar in American |  | ENG 311 or 313 or 309 |  |
|  | ENG 415 | Literature/Seminar in Post-Colonial Literature | 3 | or 315 | MR |
|  | ENG 490 | Senior Research Project | 3 | ENG 411 or 413 or 415 | MR |
|  | ENG 420 | Seminar: Bridging the Disciplines | 3 | ENG 401 or 406 or 411 <br> 413 or 415 | MR |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |

Abbreviations: GE: General Education Requirement; FE: Free Elective; MR: Major Requirement; ME: Major Elective; EPT: English Placement Test; MPT: Math Placement Test

ENG 401 if ENG 406 taken as requirement

ENG 400
ENG 402
TRA 101
DES 100

## Minor in Literature

(21 credits)

- ENG 105 or ENG 108 Contemporary World Literature or Introduction to Genres
- ENG 209 Survey of English Literature I
- ENG 219 Survey of American Literature I
- ENG 213 or ENG 205 Survey of English Literature II or Modern Drama and Beyond
- ENG 303 Shakespeare and his Contemporaries
- ENG 309 or ENG 311 or ENG 313 The American Novel or Early English Novel or Modern British Novel
- ENG 315 East Meets West: Colonial and Post-Colonial Encounters


## Minor in Language

(21 credits)

- ENG 123 Introduction to Language Study
- ENG 126 Development of the English Language
- ENG 221 or ENG 336 Phonetics, Phonology and Morphology or Discourse Analysis
- ENG 224 Structure and Function of English
- ENG 334 Semantics and Pragmatics
- ENG 400 or ENG 338 Second Language Acquisition or Psycholinguistics
- ENG 402 Applied Linguistics


## Minor in ESL/TEFL (2I credits)

- ENG 123 or ENG 224 Introduction to Language Study or Structure and Function of English
- ENG 234 or ENG 336 Language in Society or Discourse Analysis
- ENG 400 Second Language Acquisition
- ENG 404 or ENG 406 Using Literary Texts in TEFL Classrooms or Survey of Topics in Linguistics and Communication
- ENG 401 or 408 Advanced English Grammar or Reading and Writing in ESL/TEFL
- ENG 410 Language Teaching Methodology
- ENG 412 Curriculum Development

Minor in English/Arabic Translation and Interpreting

## Program Description

To qualify for a Minor in English/Arabic Translation and Interpreting, students must demonstrate fluency in English and Arabic. In tandem with a solid grounding offered by the Department of English in communicative skills and linguistic analysis, the minor in translation and interpreting focuses on written translation skills in a variety of settings and across disciplines. The interpreting further enhances the grounding gained in translation but focuses particularly on the community. Throughout the program, students are provided with relevant theoretical input that establishes a framework for the study of translation and interpreting and offers the tools to identify, analyze and resolve translation and interpreting
problems. Interpreting is another track pursued in the degree program.
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 between the world of their education, in English, and their community.

## Required Courses

To satisfy the requirements for the Minor in English/Arabic Translation \& Interpreting, students must complete a sequence of study of 6 courses ( 18 credit hours).

- TRA 101 Introduction to Translation
- TRA 201 Theoretical and Practical Issues in Translation
- TRA 203 Modern Media Translation and Interpreting
- TRA 303 Interpreting I: Focus on the Community
- TRA 401 Translation Evaluation and History
- TRA 494 Special Topics in Translation


## Intensive English Program

John Shannon, Director

## Mission Statement

English is the medium of instruction at the American University of Sharjah. Competence in English is a prerequisite for student success. The mission of the Intensive English Program (IEP) is to prepare learners to enter the university and excel as students. The main goals of the program are to increase student language proficiency to a level suitable for study in courses taught in English and to enhance their academic skills in order for them to function successfully in first year course work.

## Admission and Placement

Students who score below 173 on the Test of English as a Foreign Language (TOEFL) and who otherwise qualify for admission to AUS are eligible for admission into the IEP. Assignment to one of the five proficiency levels of the program is based on placement and standardized proficiency test scores.

## Academic Credit

Each level of study in the IEP carries with it three academic credits, except for
the Basic level, which carries 1 credit. These credits are applied in addition to the student's other degree requirements. Only the grades of the last two IEP levels count toward the students' cumulative grade point average once students begin their studies in their majors. IEP credits are not transferable.

## Organization of the Program

The IEP consists of six levels and is graded in terms of language proficiency. The aim of instruction is to improve the English language skills of each student

| IEP Program Organization |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :---: | :---: |
| Level | Inst. | Self- |  | Total Uni. Cr. |  |  |
| Access |  |  |  |  |  | Time Courses |
| BSC | 20 hours | 5 hours | 25 hours | 0 |  |  |
| 001 | 20 hours | 5 hours | 25 hours | 0 |  |  |
| 002 | 20 hours | 5 hours | 25 hours | 0 |  |  |
| 003 | 20 hours | 5 hours | 25 hours | 0 |  |  |
| 004 | 20 hours | 5 hours | 25 hours | 0 |  |  |
| 005 | 20 hours | 0 hours | 20 hours | 1 |  |  |

in the areas of reading, writing, listening and speaking, and in the use of grammar and vocabulary. The instruction is also tailored to meet the individual academic learning needs of the students. The IEP program levels are detailed in the IEP program organization table that follows below.

## Bridge Level: IEP 005

Students who are placed in Level 5 of the IEP may take one course in mathematics, physics, chemistry or business mathematics as determined by placement test results in these subjects.

## Pedagogical Format

The focus of instruction at the lower levels is on general English. As language proficiency increases, IEP courses become more academic in nature. By the advanced level, course work begins to simulate full academic, credit-bearing courses. In addition, throughout all of the levels, courses are given in reading and writing. The core skill components of the program are summarized in the text that follows.

## Reading

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

## Writing

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

## Listening

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

## Speaking

The focus of the speaking component is to prepare students to communicate successfully in the social and academic environments of the university.
Improving both fluency and accuracy are the goals of all courses in this area. Instruction will be given in how to express an opinion articulately, agree or disagree effectively and persuade and argue a point convincingly. The emphasis will be on developing the
ability of each student to make speeches and oral presentations, to gather information, to participate in classroom and panel discussions, and to use computer technology for research and presentations.

## Grammar

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

## Vocabulary

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

## Instructional Hours

On average, students receive 20 hours of classroom instruction a week. In addition, all students except those in level five are required to participate in a self-access program for five hours each week. This program consists of completing independent learning modules in the computer lab, reading lab and audio-visual lab.

## Methods

All instructors are specially trained and experienced in teaching English across the curriculum. The methods, materials and equipment used are all
state-of-the art and are targeted to meet student needs. As much individual attention as possible is given to students.

## Evaluation

Progress tests are administered regularly. Practice tests, quizzes, midterms and final examinations are given to assess student progress in the English courses. Promotion to freshman status or to a higher level in the program is determined by examination and instructor assessment.

## Academic Probation Policy

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

## Duration

The length of time required to complete the program varies with the linguistic background and performance of the student. Students who enter with scores below 97 on the TOEFL will most likely require more than two semesters to complete the English language program.

## Attendance

Classes meet daily, Saturday through Wednesday. Because of the intensive nature of the program, regular attendance in all courses is expected, and as a matter of policy, students are required to attend at least $85 \%$ of all IEP courses. If students miss $15 \%$ of the total classes for the semester, they will be dismissed from the program. Also, an absence, whether excused or unexcused, is still an absence. Therefore, missing
class for any reason (e.g., illness, traffic accident, visa problem) will count as an absence from class.

## Tardiness

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

## Department of Mass Communications

Mahboub Hashem, Chair

## Mass Communications Program

The AUS Mass Communication department comprises a basic, general communications program, which also draws upon courses in three professional-concentration areas: Advertising, Journalism, and Public Relations. It builds upon acquisition of technical, oral, and written communication competencies. A graduate receives a Bachelor of Arts degree in Mass Communication. Those who tailor their studies in a concentration area receive the same degree with the addendum: "concentration in ..." the corresponding track.
(This program is awaiting initial accreditation from the UAE.)

## Bachelor of Arts in Mass <br> Communications

## Advertising

The Advertising curriculum is designed to prepare students for a career in ad creation, sales, management or production with advertising agencies or company advertising departments. Advances in computer and communication technologies are opening unprecedented opportunities for advertising professionals.

## Journalism

The Journalism curriculum prepares students for careers in newspapers, magazines, broadcasting, wire services, special interest publications and on-line publications. This curriculum can help
students find careers as print- and broadcast-reporters, editors, producers, copywriters, scriptwriters, news/project managers, copy editors, correspondents, columnists or editorial writers. In addition, the training can lead to entrylevel writing and editing jobs in specialized fields.

## Public Relations

Students in the Public Relations curriculum are exposed to the art of communication that works from within, for, and about an organization to both create and maintain its positive image. Students will study and practice varied communication activities: special event planning, media relations, public speaking, and creation of news releases, brochures and newsletters. Graduates find jobs in major public relations firms, professional associations, non-profit agencies, health care companies and international corporations. The field of public relations has become stronger and more respected over the years, and in the United States, employment of public relations specialists is expected to increase as fast as the average for all occupations combined through the year 2005 (1996/97 Occupational Outlook Handbook).

## Admission to the Program

Students transferring into the Program must have a cumulative GPA of at least 2.0 .

## Graduation Requirement for the B.A.M.C. Degree

To be eligible for graduation, a student must complete a total of at least 120 credit hours as follows:

- Forty-two credit hours of University Requirements (GE)
- Thirty-six credit hours of MCM Major Requirements (MR)
- Twelve credit hours of MCM Program (MP) classes over and above those taken to satisfy MRs (students may opt to take these credit hours in a concentration-area sequence)
- Fifteen credit hours of advised electives (ME)
- Fifteen credit hours of free electives(FE)

MCM accepts/recommends literaturebased substitutes in place of some GE COM requirements:

- COM 204 requirement (MCM students may substitute COM 203)
- COM 208 requirement (MCM students may substitute MCM/COM 209)

Major Requirements (30 credits)

- DES 100 Digital Media in Design
- PHI 204 Ethics for Professionals
- MCM/COM 150 Introduction to Mass Media Studies (formerly MCM 223)
- MCM/COM 155 Introduction to Film Studies I (or MCM/COM 156 Intro to Film Studies: The Sequel)
- MCM 225 Theories of Mass Communication
- MCM 227 Principles of Public Relations
- MCM/COM 231 Writing for the Media
- MCM 255 Principles of Advertising (formerly COM 235)
- MCM 275 Principles of Journalism
- MCM 280 Mass Communications Research Methods
- MCM 281 Principles of Media Production
- MCM 497 Mass Communication Internship


## Mass Communications Program (MP) Track

In this phase, students take 12 MCM credit hours above MR and advised elective requirements. Students pursuing the general mass communications degree must take nine of these credits at 300level or above. If they opt to do these in a concentration area, they should follow a four-course track in consultation with the corresponding program adviser. Suggested concentration tracks in each area are described below; substitutions may beapproved by the adviser and MCM administration.

## a. Concentration in Advertising

 ( 12 credits)- MKT 201 Fundamentals of Marketing (note: ECO 201 or 202 - done as an elective -- is a prerequisite for MCM majors taking this course)
- MCM 351 Advertising Copy and Layout
- MCM 353 Direct Response Advertising

And one of the following:

- MCM 453 Advertising Media Planning
- MCM 454 Case Studies in Advertising (formerly MCM 353)
b. Concentration in Print Journalism
( 12 credits)
- MCM 371 News Writing for Print and Broadcast
- MCM 372 Advanced News Writing and two of the following:
- MCM 321 Mass Media Law and Policy
- MCM 373 Scriptwriting
- MCM 374 Feature Writing
- MCM 375 Editing for the Print Media
- MCM 377 Photojournalism
- MCM 410 Media Producing and Project Management
- MCM 470 Writing and Reporting for Broadcast News
- MCM 477 Print Media Project
c. Concentration in the Public Relations
(12 credits)
- MCM 269 Public Relations Writing
- MCM 360 Public Relations Crisis Management
- MCM 361 Case Studies in Public Relations
And one of the following:
- MCM 463 International Public Relations, or
- MCM 467 Public Relations for NonProfit Organizations


## Major Electives

Advised electives include all 200-level or above COM, DES, ENG, MCM, MGT, MKT, MUM, TRA and VIS classes.

## Double Concentration

(For MCM majors only)
The University allows students to pursue a second concentration. Such students must fulfill the course requirements in both concentration areas. Students may opt to do their second concentration using free electives; however doubleconcentration students may have to take more than 120 hours to meet graduation requirements. Decisions regarding graduation requirements rest with the Department.

## Minor in Mass Communication

AUS students in good standing are eligible to pursue a minor in Mass

## Proposed Course Sequence of Study

## Bachelor of Arts in Mass Communication (B.A.M.C.)

| FIRST YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM 101 | Academic Writing | 3 | EPT 4 or COM 001 | GE |
|  | MTH 100 | Fundamentals of Logic and Geometry | 3 |  | GE |
|  | ARA 101 | Readings in Arabic Heritage | 3 |  | GE |
|  | XXX | Science Elective | 3 |  | GE |
|  | XXX | Humanities / Social Sciences I | 3 |  | GE |
|  |  | Total | 15 |  |  |
| Spring | COM 102 | Writing and Reading | 3 | EPT 5 or COM 101 | GE |
|  | DES 100 | Digital Media in Design | 3 |  | MR |
|  | XXX | Humanities / Social Sciences II | 3 |  | GE |
|  | XXX | Science Elective | 3 |  | GE |
|  | STA 202 | Introduction to Statistics for Social Sciences. Total | $\begin{aligned} & 3 \\ & 15 \end{aligned}$ | MTH 100 or 101 or 111 | GE |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM 203/204 | Writing about Lit./Adv. Acad. English | 3 | COM 102 | GE |
|  | XXX | Humanities / Social Sciences III | 3 |  | GE |
|  | MCM 150 | Survey of Mass Communication | 3 | COM 102 | GE |
|  | PHI 204 | Ethics for Professionals | 3 |  | GE |
|  | MCM 155/156 | Film Studies I/II | 3 | COM 102 | GE |
|  |  | Total | 15 |  |  |
| Spring | COM 208/MCM/ |  |  |  |  |
|  | COM 209 | Public Speaking/Dramatic Expression | 3 | COM 102 | MR |
|  | MCM 225 | Theories of Mass Communication | 3 | MCM 150 | MR |
|  | XXX | Advised Elective | 3 |  | ME |
|  | MCM/COM 231 | Writing for Media | 3 | COM 102 | MR |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |


| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | THM XXX | Theme Course | 3 | Junior Standing | GE |
|  | MCM 227 | Principles of P | 3 | MCM 150 | MR |
|  | MCM 255 | Principles of A | 3 | MCM 150 | MR |
|  | XXX | Advised Electi | 3 |  | ME |
|  | MCM 275 | Principles of J | 3 | MCM 150 | MR |
|  |  | Total | 15 |  |  |
| Spring | THM XXX | Theme Course | 3 | Junior standing | GE |
|  | MCM 280 | Mass Commun | 3 | MCM 150 | MR |
|  | MCM 281 | Principles of M | 3 | MCM 150 | MR |
|  | MCM XXX | MCM Elective | am 3 |  | MP |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 15 |  |  |



Abbreviations: GE: General Education Requirement; FE: Free Elective; MR: Major Requirement; ME: Major elective; MP: Mass Communication Program Track; EPT: English Placement Test; MPT: Math Placement Test

Communication. To complete a minor, a student must complete a minimum of 18 MCM credit hours. Nine credits should involve 100/200-level MCM classes; the other nine credit hours must be at 300 -level or above. Admission requirements into a minor are the same as those specified for MCM majors. Priority in all MCM courses will be given to MCM majors.

## Department of

## Mathematics and Statistics

Ali Sayfy

## Minor in Applied and

 Computational MathematicsThe department of Mathematics and Statistics offers a minor in Applied and Computational Mathematics.

## Required Courses ( $\mathbf{1 8}$ credits)

In order to minor in Applied and


# School of Architecture and Design 

## Dean

Martin Giesen
Associate Dean
Amer Moustafa

## Mission Statement

Our mission is to educate architects and designers who will advance the world of built environment and visual culture with consideration, creativity and skill.
The School of Architecture and Design (SA\&D) grounds its curriculum in the conviction that good design results from a combination of a deep understanding of culture, ethical engagement in society and a respect for the creative skills needed to build a sustainable material culture.
Against this background, the school is committed to the primary objective of providing its students with relevant, professional instruction in the fields of architecture, design management, interior design, multimedia design and visual communication.
The School is dedicated to inquiry and to the development of hands-on technical skills and competence in digital and other advanced media. SA\&D also fosters in its students a regional and cultural awareness and the responsibility for creating humane environments. The School seeks to contribute to the development of professional standards and innovation in architecture and design.
The School of Architecture and Design meets its objectives through a program that features the following:

- An environment that encourages achievement and personal growth
- A faculty of professionals who balance continuing scholarship and creative work with their desire for excellence in teaching
- A comprehensive advisement and student counseling system that tracks student development and progress
- A general education curriculum that offers a solid foundation
- A clear and consistent philosophy 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 the limits imposed by feasibility, culture, traditions and needs of society


## Faculty

The faculty members serving in the School of Architecture and Design have been selected on the basis of their familiarity with a university education based on the American model. All members of the teaching staff combine mastery in teaching with continuing growth in their respective disciplines and thus are well equipped to serve as role models for students in their quest for an empowering and professional education. The majority of the teaching load in foundations is shared by professors from the various majors.

## Professors

Martin Giesen

## Associate Professors

Nadia Alhasani (Architecture)
Bruce Lonnman (Architecture)
Amer Moustafa (Architecture)
Samia Rab (Architecture)
Jay Randle (Architecture)
Mehdi Sabet (Architecture)
Dirk Van Wyk (Design)
Gregor Weiss (Architecture)

## Assistant Professors

Shoaib Nabi Ahmad (Design)
Tarek Al Ghoussein (Design)
Claude Bérubé (Architecture)
John Botthoff (Design)
Matthew Egan (Foundations)
Mona El-Mousfy (Architecture)
Eirik Heintz (Foundations)
David Hewitt (Foundations)
George Katodrytis (Architecture)
Muqeem Khan (Design)
Chris Kienke (Foundations)
Dinah Lazor (Architecture)
Gisela Loehlein (Architecture)
Kevin Mitchell (Architecture)
Ahmed Mokhtar (Architecture)

David Parker (Architecture)
Mark Pilkington (Design)
Rula Sadik (Urban Planning, Spring 04)
Ali Shakarchi (Architecture)
Phil Sheil (Design)
John Swanstrom (Design)
Florian Techel (Architecture)

## Instructors

Paul Bantey (Design)
Masood Khan (Design)

## Career Opportunities

The SA\&D prepares students for careers in a wide variety of fields:

- Architecture, environmental design, landscape architecture, interior design, urban design
- Graphic design, advertising, packaging design, illustration, digital media, animation, computer simulations, video
- Communications and public relations, fine arts and cultural arts administration, gallery management, exhibit design, advertising campaign planning, client services specialist


## Special Notes

## Space Availability (Studio Majors)

Admission to the School of Architecture and Design is competitive and limited to 144 students in first-year studio courses. The number of available places in second-year studio majors in architecture, interior design, multimedia design and visual communication is limited to the following:

- Architecture 32
- Interior design 16
- Multimedia design/Visual communication 48

The number of available places in design management is not limited. The School of Architecture and Design accepts new and transfer students only in the fall semester.

## Selection for Promotion

Selection for promotion to second-year studios is competitive. Criteria for promotion may include an assessment of:

- GPA in the foundations studio sequence
- GPA in non-studio first-year courses including mathematics, communication, english, history and digital design
- Portfolio review

Year status in the School of Architecture and Design is determined by enrollment in the major studio, regardless of the total number of credits earned.

## Computer Requirements

At the beginning of the third year, all students of architecture, interior design, multimedia design and visual communication are required to have a laptop computer available for their use. SA\&D will provide software for student-owned laptops to students enrolled in upper level studio courses in these four majors. The laptop must meet specifications published by the School in order to be used within the program. Laptops that do not meet specifications published by the School may not adequately run software required to complete course work.

## Course Selection

Students are cautioned that the specific selection of courses available for a chosen major at the time of initial registration is subject to change. The School of Architecture and Design will make every effort to monitor student progress through the advisement process. Students are encouraged to make course selections based on the stated degree requirements, subject to the listed prerequisites.

## Studio Supplies

Supply expenses for studio courses are additional to tuition cost, and lab fees may apply for some courses. Students are given a limited account for printing.

## Ownership of Student Work

The School of Architecture and Design reserves the right to retain, indefinitely, selected examples of student work for archiving, publicity and exhibition.

## Responsibility for Equipment

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

## Programs Offered

The School of Architecture and Design offers the following undergraduate degrees:

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


## Foundations Year

## Kevin Mitchell, Director

The foundations year is an autonomous one-year program that supports the common educational requirements for all fields of study within the School of Architecture and Design. As such, the program provides the basic design education that will enable students to function on appropriate practical, theoretical and critical levels in their sophomore (second) year. All students in the School of Architecture and Design are required to successfully complete the major-required courses in this first year to be considered for advancement to the second year of their chosen major.
The foundations year aims to achieve three instructional objectives:

- Students will demonstrate competence in the fundamental skills and concepts of design analysis, representation and presentation through studio-based exercises and projects.
- Students will develop familiarity with the historical implications and chronology of design conventions through in-class lectures and written assignments.
- Students will demonstrate a basic proficiency in computer-aided design technology through exercises and project work in an information technology lab setting.

The foundations year utilizes three distinct teaching formats in order to provide a broad and inclusive introduction to design methods and practice.
Studio courses, which form the core of the foundations program, encourage one-on-one student/professor interaction and allow the student to develop individual and creative responses to design problem solving.
History courses are taught in a lecture context where information and ideas are disseminated in a classroom setting using visual images to support academic discourse.
Digital courses are taught using a combination of class lectures and information technology. Professors interact with students on various levels through the use of traditional lectures, digital media, network software and digital storage systems.
Within the foundations year, students are encouraged to develop a basic practical and critical understanding of design principles. Experimentation and exploration with materials, tools and techniques are fostered in the realization of two and three dimensional concepts and ideas. The foundations year consists of the following courses, which are major requirements in all studio programs. Successful completion of these courses is required to advance to the second year of the chosen studio major:
DES 100, Digital Media in Design
DES 111, Descriptive Drawing I
DES 112, Descriptive Drawing II
DES 121, History of Material Culture I
DES 122, History of Material Culture II
DES 131, Design Foundations I
DES 132, Design Foundations II
Design Management students are required to complete all foundations courses listed above, except DES 112 and DES 132, which may be taken as major electives.
Although some faculty specialize as foundations professors, the majority of the teaching load in foundations is shared by professors from various majors including architecture, interior design, multimedia design, and visual communication. This professional
collaboration between disciplines at the foundations level initiates early student dialogue with senior level faculty and provides the program with a healthy influx of cross-disciplinary expertise and discourse. It is this important aspect of the foundations program that ensures a balanced response to the needs of the various degree programs it supports.

## Architecture

Bruce Lonnman, Chair

Architecture arises from the same wellspring of civilization as other universal manifestations of material culture: arts, histories, letters, religion and commerce. Still, the artifacts we designate as architecture possess a scale, permanence and a pervasive influence unique among human endeavors. These qualities endow the discipline with a cultural prominence few other professions enjoy.
In its contemporary university setting, the study of architecture is naturally concerned with complex, interdisciplinary issues. Some matters are primarily individual and practical: the basic human need for shelter and the desire to contrive efficient, adequate forms for the patterns of daily life. Architecture, in this sense, may concern aspirations and meanings, but its primary intent is to attain a practical advantage for us, here and now.
Architecture also has a transcendent motive, arising from an imperative to articulate, physically and spatially, the social, ceremonial and environmental choices a given culture makes within a given setting. Architecture expresses our living values. It gives abiding form, order and proportion to our activities. Architecture is a message to the world about our certainties and doubts, our values and beliefs, our preoccupations and our neglects. It both expresses and reveals.
The practice of architecture today, as in the past, requires coordinated contributions from a multiplicity of fields. The craft of the architect runs a gamut of expertise and awareness: technical, environmental, aesthetic,

cultural, historical and commercial.
Consequently, the study of architecture inquires into 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.

## Bachelor of Architecture (B.Arch.)

The Bachelor of Architecture (B. Arch.) 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 one hundred seventy-two (172) credits comprise the degree program, including a minimum of 121 credits of required coursework in architecture and closely associated fields. These courses represent the irreducible core of the discipline of architecture.
Each student is required to extend the core curriculum with 15 credits of approved Architecture electives. The intent is to balance the concern for indepth professional competence with another for the individual's interest and aptitude. These courses should be
selected in consultation with the student's advisor.
The specialized professional curriculum is supported by a minimum of 42 credits of general education requirements. Designed to ensure a broad educational foundation, this base is held in common among all graduates of the American University of Sharjah.
University studies present a unique opportunity to explore other fields of interest. Based solely on individual interests, each architecture student must select nine credits of free electives from general university offerings. Students in the Department of Architecture must take the thematic option with Arabic content. Some major required courses count towards General Education requirements. In such cases both requirements are considered as being met but the credits only count once towards total degree hours.
The curriculum is designed to meet the requirements for licensure that prevail in the United Arab Emirates and to prepare the graduate for professional practice throughout the region. Some students may aspire either to advanced study in the field or to practice in a broader global setting. Accordingly, the curriculum follows established international norms for a first professional degree in architecture.

## Advancement in the Professional Degree Program

The number of seats in architecture is limited. Formal advancement is competitive. Only the most highly qualified foundations students will be promoted. To be considered for advancement to the second year of the Bachelor of Architecture program a student must successfully complete the following requirements:

- All four foundations studio courses (DES 111, 112, 131, 132) with a minimum grade point average (GPA) of 2.0 out of 4.0 in each sequence (design and drawing)
- Both courses in history of material culture (DES 121 and DES 122)
- Digital Media in Design (DES 100)
- Mathematics for Architects (MTH $111)$ or its prerequisite (MTH 003) or Calculus (MTH 103)
- At least one course in the university communication sequence (COM 101, 102 or higher)
- A minimum of 27 semester hours of university credit (including the above courses)
- An overall grade point average (GPA) of 2.0
Formal notification of advancement in the program will be given by SA\&D two weeks after release of final grades by the Registrar's Office at the end of the spring semester. In the event that there are more students who qualify for advancement than available spaces, candidates will be promoted in the major based on academic achievement, and a wait-list will be established. In the event of a tie, students with the highest GPA in all four foundations studio courses will advance to second year. In the event of a second tie, students with the highest GPA in History of Material Culture and Mathematics for Architects will advance to the second year. If there are available spaces at the time of fall registration, consideration will be given to those students who fulfilled requirements during summer session or who wish to change majors, based on the same advancement criteria as noted above. Students who need to repeat a second-year studio course will also be
competing for the limited number of seats in the major.


## Promotion Reviews in Architecture

As an extension of the regular advisement process, the performance of each architecture student is reviewed following the completion of each of the second, third and fourth years in the program. A student must pass each review to continue in the major and must:

- Have attained a minimum cumulative grade point average (GPA) of C+ (2.3) in all university courses
- Have attained a minimum major studio average of 2.5 in each year of the architectural design studio sequence (ARC $201 \& 202$, ARC 301 \& 302, ARC $401 \& 402$ )


## Note:

- A grade of C- (1.70) is the minimum passing grade in a studio course. The minimum major studio average must be achieved to continue in the program.
- A student with a fall semester grade of D (1.00) may not continue into the spring semester of the studio sequence.
- A student who does not attain the required major studio average may repeat any studio in which a grade of less than $\mathrm{C}+(2.30)$ was earned.
- Any studio may be repeated only once for credit.
- To determine the new major studio average, the grade earned in a repeated studio replaces the previous grade [Note: All studio grades are used to calculate the cumulative GPA.]
- A repeating student who fails to achieve the minimum studio average necessary for promotion is dismissed from the program.
- Have attained a minimum grade of 2.5 in ARC 505 for enrolment in ARC 506 or ARC 592.
If the review has a negative outcome, the department will assist an unsuccessful candidate in transferring to a field that holds better promise for the student.


## Degree Requirements

A minimum of 172 credits, including the following:

- A minimum of 42 credits of general education requirements
- A minimum of 121 credits of architecture and architecture-related courses in the major including 15 credits of approved architecture electives
- Nine credits of free electives
- Fourteen weeks of approved professional training
In order to graduate with a Bachelor of Architecture degree, a student must have attained a major studio average of 2.5 in the final studio sequence (ARC $505 \&$ ARC 506).


## General Education Requirements

- English language competency requirement (12 credits): COM 101, COM 102 (or higher), and 2 other 200level COM
- Arabic heritage requirement (3 credits): THM 301 or THM 302
- Mathematics and/or statistics requirement ( 6 credits): MTH 103 or MTH 111 and MTH XXX or STA XXX
- Science requirement ( 6 credits): PHY 104 and one other Science
- Humanities and Social Sciences requirement ( 15 credits): DES 121 and DES 122, and THM 301 or THM 302 (whichever is not used to fulfill the Arabic heritage requirement), plus six credits designated humanities or social science;
- Computer literacy requirement: DES 100

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

## Major Requirements

In addition to the foundations courses, the following courses constitute the major requirements for the Bachelor of Architecture degree:
ARC 201 Architectural and Interior Design Studio I
ARC 202 Architectural and Interior Design Studio II
ARC 213 Analysis and Methods in
Architecture
ARC 224 Modern Foundations of Art and Architecture
ARC 232 Survey of Materials and Practices in Construction
ARC 242/CVE 272 Statics and Mechanics for Architecture

ARC 301 Architectural Design Studio III ARC 302 Architectural Design Studio IV
ARC 325 Ideas in Architecture
ARC 333 Rough Construction Processes
ARC 343/CVE 371 Structural Analysis for Architecture
ARC 344/CVE 372 Structural Design for Architects
ARC 354 Environmental Energies and Building Form
ARC 364 Introduction to Computer-Aided Drawing
ARC 397 Internship I (6 weeks)

ARC 401 Architectural Design Studio V
ARC 402 Architectural Design Studio VI
ARC 434 Finish Construction Processes
ARC 455 Environmental Control Systems
ARC 461 Project Management
ARC 462 Design Management
ARC 497 Internship II (8 weeks)
ARC 505 Architectural Design Studio VII
ARC 563/CVE 561 Construction
Management
ARC 506 Architectural Design Studio VIII or
ARC 592 Final Project Research

## Major Electives

All ARC and IDE courses not listed above as major requirements count as major electives (MEs).
Please see the proposed sequence of study for a specific strategy for completing these graduation requirements in five years.

## Proposed Course Sequence of Study

## Bachelor of Architecture (B.Arch.)

| FIRST YEAR (30/31 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM 101 | Academic Writing | 3 | EPT 4 | GE Communication 1 of 4 MR <br> MR/GE GED 1 of 5 MR |
|  | DES 111 | Descriptive Drawing I | 3 |  |  |
|  | DES 121 | History of Material Culture I | 3 |  |  |
|  | DES 131 | Design Foundations I | 3 |  |  |
|  | MTH 111 or MTH 103 | Mathematics for Architects or Calculus | 4/3 | MTH 003 or MPT | MR/GE Math 1 of 2 |
|  |  | Total | 15/16 |  |  |
| Spring | COM 102 | Writing and Reading Across the Curriculum | 3 | EPT score 5 <br> or COM 101 | GE Communication 2 of 4 MR |
|  | DES 100 | Digital Media in Design | 3 |  |  |
|  | DES 112 | Descriptive Drawing II | 3 | DES 111 | MR <br> MR/GE GED 2 of 5 MR |
|  | DES 122 | History of Material Culture II | 3 |  |  |
|  | DES 132 | Design Foundations II | 3 | DES 131 |  |
|  |  | Total | 15 |  |  |



| THIRD YEAR (37 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ARC 301 | Architectural Design Studio III | 6 | ARC 202 or IDE 202, PHY 104 MR |  |
|  | ARC 325 | Ideas in Architecture | 3 | ARC 224 | MR |
|  | ARC 333 | Rough Construction Processes | 3 | ARC 232 | MR |
|  | $\begin{aligned} & \text { ARC 343/ } \\ & \text { CVE } 371 \end{aligned}$ | Structural Analysis for Architecture | 3 | ARC 242 or CVE 272 | MR |
|  | THM 301 | The Andalusian Symbiosis I | 3 | COM 102 | GE Arabic 1 of 1 (or GED) |
|  |  | Total | 18 |  |  |
| Spring | ARC 302 | Architectural Design Studio IV | 6 | ARC 301, 213 | MR |
|  | $\begin{aligned} & \text { ARC 344/ } \\ & \text { CVE } 372 \end{aligned}$ | Structural Design for Architects | 3 | ARC 343/CVE 371 | MR |
|  | ARC 354 | Introduction to Computer-Aided Drawing | g 1 | ARC 202 or IDE 202 | MR |
|  | ARC 364 | Major Elective | 3 |  | ME 2 of 5 |
|  | THM 302 | The Andalusian Symbiosis II | 3 | COM 102 | GE GED 3 of 5 (or Arabic) |
|  |  | Total | 19 |  |  |
| Summer | ARC 397 | Internship I | 0 | ARC 302 | MR |


| FOURTH YEAR (36 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ARC 401 | Architectural Design Studio V | 6 | ARC 224, 232, 242 or CVE 272, ARC 302 | MR |
|  | ARC 455 | Environmental Control Systems | 3 | ARC 354 | MR |
|  | ARC 462 | Design Management | 3 | ARC 397 or IDE 397 | MR |
|  | ARC XXX | Major Elective | 3 |  | ME 3 of 5 |
|  | XXX | GED (HUM/SS) | 3 |  | GE GED 4 of 5 |
|  |  | Total | 18 |  |  |
| Spring | ARC 402 | Architectural Design Studio VI | 6 | ARC 401, 325, 333, 354, 397 | MR |
|  | ARC 434 | Finish Construction Processes | 3 | ARC 333 | MR |
|  | ARC 461 | Project Management | 3 | ARC 397 or IDE 397 | MR |
|  | ARC XXX | Major Elective | 3 |  | ME 4 of 5 |
|  | XXX | GED (HUM/SS) | 3 |  | GE GED 5 of 5 |
|  |  | Total | 18 |  |  |
| Summer | ARC 497 | Internship II | 0 | ARC 402 | MR |


| FIFTH YEAR (33 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ARC XXX | Major Elective | 3 |  | ME 5 of 5 |
|  | ARC 505 | Architectural Design Studio VII | 6 | ARC 402, 344 or CVE 372 | MR |
|  | ARC 561/ |  |  |  |  |
|  | CVE 561 | Construction Management | 3 | ARC 397 or IDE 397 | MR |
|  |  | Free Elective | 3 |  | FE 1 of 3 |
|  | $\begin{aligned} & \text { MTH/ } \\ & \text { STA XXX } \end{aligned}$ | Advised Requirement | 3 |  | GE Math 2 of 2 |
|  |  | Total | 18 |  |  |
| Spring | $\begin{aligned} & \hline \text { ARC } 506 \\ & \text { SCI XXX } \end{aligned}$ | Architectural Design Studio VIII | 6 | ARC 505, 497 | MR <br> GE Science 2 of 2 <br> FE 2 of 3 <br> FE 3 of 3 |
|  |  | Advised Requirement | 3 |  |  |
|  |  | Free Elective | 3 |  |  |
|  |  | Free Elective | 3 |  |  |
|  |  | Total | 15 |  |  |
|  |  | Total for the degree |  |  |  |

[^5]
## Bachelor of Science in Architectural Studies (B.S.A.S.)

The four-year non-professional degree program in architectural studies is planned and formulated as a subset of the five-year professional degree in architecture. Accordingly, both programs share the first three years of study, both in terms of course offerings and curricula requirements. Students graduating with a non-professional degree will be able to practice architecture but do not qualify for professional licensing.

## Degree Requirements

A minimum of 145 credits, including the following:

- A minimum of 42 credits of general education requirements
- A minimum of 94 credits of architecture and architecture-related courses in the major including 9 credits of approved Architecture electives
- Nine credits of free electives
- Six weeks of approved professional training


## General Education Requirements

- English language competency requirement ( 12 credits): COM 101, COM 102 (or higher), and 2 other 200level COM
- Arabic heritage requirement ( 3 credits): THM 301 or THM 302
- Mathematics and/or statistics requirement (6 credits): MTH 103 or MTH 111 and MTH XXX or STA XXX
- Science requirement ( 6 credits): PHY 104 and one other Science
- Humanities and Social Sciences requirement ( 15 credits): DES 121 and DES 122, and THM 301 or THM 302 (whichever is not used to fulfill the Arabic heritage requirement), plus six credits designated humanities or social science;
- Computer literacy requirement: Satisfied through extensive use of computer resources throughout the architecture curriculum
For information about designated requirements, please refer to University Degree Requirements.


## Major Courses

In addition to the foundations courses,
the following courses constitute the major requirements for the Bachelor of Science in Architectural Studies degree: ARC 201 Architectural and Interior Design Studio I
ARC 202 Architectural and Interior Design Studio II
ARC 213 Analysis and Methods in Architecture
ARC 224 Modern Foundations of Art and Architecture
ARC 232 Survey of Materials and Practices in Construction
ARC 242/CVE 272 Statics and Mechanics for Architecture
ARC 301 Architectural Design Studio III
ARC 302 Architectural Design Studio IV
ARC 325 Ideas in Architecture
ARC 333 Rough Construction Processes
ARC 343/CVE 371 Structural Analysis for Architecture
ARC 344/CVE 372 Structural Design for Architect
ARC 354 Environmental Energies and Building Form
ARC 364 Introduction to Computer-Aided Drawing
ARC 397 Internship I (6 weeks)
ARC 401 Architectural Design Studio V
ARC 402 Architectural Design Studio VI
ARC 434 Finish Construction Processes
ARC 455 Environmental Control Systems

## Major Electives

All ARC and IDE courses not listed above as major requirements count as major electives (MEs).
Please see the proposed sequence of study for a specific strategy for completing these graduation requirements in four years.

## Minor in Architectural Studies

This minor is offered within the Department of Architecture for SA\&D students. Courses offered include only those within the discipline of architecture. Students must have completed a minimum of 30 credits of coursework with a GPA of 2.5 or higher prior to enrolling in the minor. A student must complete 9 credits from the following courses:
ARC 201 Architectural Design Studio I
ARC 202 Architectural Design Studio II
ARC 213 Analysis and Methods in Architecture
ARC 232 Materials and Methods of Construction
ARC 224 Fundamentals of Art and Architecture
and 9 credits in ARC courses at the 300 level or above.
At least 9 of the 18 credits must not have counted towards any other requirement except free electives.


## Proposed Course Sequence of Study

Bachelor of Science in Architectural Studies (B.S.A.S.)

| FIRST YEAR (30/31 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title Cr | Credit | Prerequisite | Fulfills |
| Fall | COM 101 | Academic Writing | 3 | EPT 4 | GE Communication 1 of 4 MR |
|  | DES 111 | Descriptive Drawing I | 3 |  |  |
|  | DES 121 | History of Material Culture I | 3 |  | MR/GE GED 1 of 5 MR |
|  | DES 131 | Design Foundations I | 3 |  |  |
|  | MTH 111 or | Mathematics for Architects or | 4/ |  |  |
|  | MTH 103 | Calculus | 3 | MTH 003 or MPT | MR/GE Math 1 of 2 |
|  |  | Total | 15/16 |  |  |
| Spring | COM 102 | Writing and Reading Across the Curriculum | m 3 | EPT score 5 or COM 101 | GE Communication 2 of 4 MR |
|  | DES 100 | Digital Media in Design | 3 |  |  |
|  | DES 112 | Descriptive Drawing II | 3 | DES 111 | MR <br> MR/GE GED 2 of 5 |
|  | DES 122 | History of Material Culture II | 3 |  |  |
|  | DES 132 | Design Foundations II | 3 | DES 131 | MR |
|  |  | Total | 15 |  |  |


| SECOND YEAR (36 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ARC 201 | Architectural and Interior Design Studio I | 6 | $\begin{aligned} & \text { DES 100, 111, 112, 121, } \\ & \text { 122, 131, 132, MTH } 003 \end{aligned}$ or 111 or 103 | MR |
|  | ARC 213 | Analysis and Methods in Architecture | 3 | $\begin{aligned} & \text { DES 100, 111, 112, 121, } \\ & 122,131,132 \end{aligned}$ | MR |
|  | COM XXX | Advised Requirement | 3 |  | GE Communication 3 of 4 |
|  | PHY 104 | Physics for Architects | 3 | MTH101 or 103 or 111 | MR/GE Science 1 of 2 |
|  | ARC XXX | Major Elective | 3 |  | ME 1 of 3 |
|  |  | Total | 18 |  |  |
| Spring | ARC 202 | Architectural and Interior Design Studio II 6 Modern Foundations of Art and Architecture3 |  | ARC 201or IDE 201 | MR |
|  | ARC 224 |  |  | $\begin{aligned} & \text { DES 100, 111, 112, 121, } \\ & 122,131,132 \end{aligned}$ | MR |
|  | ARC 232 | Survey of Materials and Practices in Construction | 3 | $\begin{aligned} & \text { DES } 100,111,112,121 \text {, } \\ & 122,131,132 \end{aligned}$ | MR |
|  | COM XXX <br> ARC 242 / <br> CVE 272 | Advised Requirement | 3 |  | GE Communication 4 of 4 |
|  |  | Statics and Mechanics for Architecture | 3 | PHY 104 | MR |
|  |  | Total | 18 |  |  |


| THIRD YEAR (37 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ARC 301 | Architectural Design Studio III | 6 | $\begin{aligned} & \text { ARC } 202 \text { or } \\ & \text { IDE 202, PHY } 104 \end{aligned}$ | MR |
|  | ARC 325 | Ideas in Architecture | 3 | ARC 224 | MR |
|  | ARC 333 | Rough Construction Processes | 3 | ARC 232 | MR |
|  | ARC 343/ <br> CVE 371 | Structural Analysis for Architecture | 3 | ARC 242 or CVE 272 | MR |
|  | THM 301 | The Andalusian Symbiosis I | 3 | COM 102 | GE Arabicl of 1 (or GED) |
|  |  | Total | 18 |  |  |
| Spring | ARC 302 | Architectural Design Studio IV | 6 | ARC 301, 213 | MR |
|  | $\begin{aligned} & \text { ARC } 344 \text { / } \\ & \text { CVE } 372 \end{aligned}$ | Structural Design for Architects | 3 | ARC 343 or CVE 371 | MR |
|  | ARC 364 | Introduction to Computer-Aided Drawing | 1 | ARC 202 or IDE 202 | MR |
|  | ARC XXX | Major Elective | 3 |  | ME 2 of 3 |
|  | THM 302 | The Andalusian Symbiosis II | 3 | COM 102 | GE GED 3 of 5 (or Arabic) |
|  |  | Total | 19 |  |  |
| Summer ARC 397 |  | Internship I | 0 | ARC 302 | MR |


| FOURTH YEAR (36 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ARC 401 | Architectural Design Studio V | 6 | ARC 302, 224, 232, 242 or CVE 272 | MR |
|  | ARC 455 | Environmental Control Systems | 3 | ARC 354 | MR |
|  | SCI XXX | Advised Requirement | 3 |  | GE Science 2 of 2 |
|  | ARC XXX | Major Elective | 3 |  | ME 3 of 3 |
|  | XXX | GED (HUM/SS) | 3 |  | GE GED 4 of 5 |
|  |  | Total | 18 |  |  |
| Spring | ARC 402 <br> ARC 434 <br> MTH/STA XXX <br> XXX | Architectural Design Studio VI | 6 | ARC 401, 325, 333, 354, 397 | MR |
|  |  | Finish Construction Processes | 3 | ARC 333 | MR |
|  |  | Advised Requirement | 3 |  | GE Math 2 of 2 |
|  |  | GED (HUM/SS) | 3 |  | GE GED 4 of 5 |
|  |  | Free Elective | 3 |  | FE 1 of 3 |
|  |  | Total | 18 |  |  |
| Summer |  | Free Elective | 3 |  | FE 2 of 3 |
|  |  | Free Elective | 3 |  | FE 3 of 3 |
|  |  | Total | 6 |  |  |
|  |  | Total for the degree | 144/145 |  |  |

Abbreviations: MR: Major Requirement, GE: General Education Requirement, ME: Major Elective, FE: Free Elective, EPT: English Placement Test, MPT: Math Placement Test

## Design Management

Mark Pilkington, Chair
The Bachelor of Science in Design Management (B.S.D.M.) at AUS 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.

## Bachelor of Science in Design Management (B.S.D.M.)

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 who work in the fields of design, including photography, illustration, video production, Web design, animation and
interactive authoring, as well as to speak fluently the "language" of design. Additionally, coursework in the disciplines of business, management, and communication prepares students to recruit clients, pitch projects, write copy for print, television and radio, as well as master systems and marketing skills.
Typical target professional positions in the fast growing field of Design Management include administrative and managerial careers in media and service industries, as advertising agency principals, project managers and team leaders, advertising campaign planners, client services specialists, advertising buyers, account and sales representatives, communications specialists, public relations professionals, exhibition and event planners, material culture administrators, market-research analysts, and more.

## Admission to the Program

Admission to the B.S.D.M. degree requires the fulfillment of the general university admission requirements.

## Degree Requirements

The Bachelor of Science in Design Management (B.S.D.M.) requires a minimum of four years of university studies, and a minimum of 120 credits of coursework. All students are required to complete 42 hours of
university and general education requirements, 24 credits of major requirements in the School of Architecture \& Design, 21 credits of major requirements in the School of Business and Management, plus 18 credits of major electives and 15 credits of free electives. Some major required courses count towards General Education requirements. In such cases both requirements are considered as being met but the credits only count once towards total degree hours. Students in the Department of Design must take the thematic option with Arabic content. In addition, professional training (internship) is required of all students; company placement occurs in the summer after completion of the third year.

## Graduation Requirements

 (B.S.D.M.)General Education Requirements (GEs):

42 cr .
Major Requirements (MRs):

- in the School of Architecture and Design: 24 cr.
- in the School of Business
and Management:

Major Electives (MEs): $\mathbf{1 8} \mathbf{~ c r}$.
Free Electives (FEs): $\mathbf{1 5} \mathbf{~ c r}$.
Total:
120 cr .

## General Education Requirements

- English language competency requirement ( 12 credits): COM 101, COM 102 (or higher), COM 204 and COM 225
- Arabic heritage requirement ( 3 credits): THM 301 or THM 302
- Mathematics and/or statistics requirement (6 credits): MTH 101 and STA 202
- Science requirement (6 credits): two Science courses
- Humanities and Social Sciences requirement ( 15 credits): DES 121, DES 122, ECO 201, ECO 202, and THM 301 or THM 302 (whichever is not used to fulfill the Arabic heritage requirement);
- Computer literacy requirement: Satisfied through extensive use of computer resources throughout the curriculum

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

## Major Requirements

The following courses constitute the major requirements for the Bachelor of Science in Design Management degree:
In the School of Architecture and Design

- DES 100 Digital Media in Design
- DES 111 Descriptive Drawing I
- DES 121 History of Material Culture I
- DES 122 History of Material Culture II
- DES 131 Design Foundations I
- DES 200 Communication Design
- DES 230 Digital Media in Communication Design
- DES 397 Internship (6 weeks)
- DES 462 Design Management
- VIS 361 The Media Industry

In the School of Business and Management

- BIS 201 Business Information Systems
- MGT 201 Fundamentals of Management
- MKT 201 Fundamentals of Marketing
- MIS 201 Fundamentals of Management Information Systems
- MGT 311 Organizational Behavior
- MGT 315 International Business
- MGT 361 Business Ethics and Social Responsibility


## Major Electives

Students are required to take at least three of the six major electives at the 300 level or above, and are strongly advised to take the following:

- DES 132 Design Foundations II
- MCM 150 Introduction to Mass Media
- MCM 227 Principles of Public Relations
- VIS 360 Fundamentals of Media Theory
- DES 494 Special Topics in Design Management

In addition to the above courses, any of the following count as major electives:

- COM 231 Writing for Visual Media
- PSY 101 General Psychology
- PSY 102 Social Psychology
- Any course in SA\&D
- Any course in SBM
- Any MCM course

Please see proposed sequence of study for a specific strategy for completing these graduation requirements in four years.
Minor in Design Management Students can enroll in a minor in Design Management. Students must have completed a minimum of 30 credits of coursework with a GPA of 2.0 or higher prior to enrolling in the minor. To declare a minor in Design Management, a student must:

- Take at least nine credits in SA\&D courses (ARC/DES/IDE/MUM/VIS), including DES 100 ;
- Take at least nine credits in SBM courses (ACC/BIS/SLW/BUS/FIN/INB/ MGT/ MIS/MKT/QAN), including MGT 201;
- Take nine of the required 18 credits on the 300 level or above
At least nine credits of the minor must not have counted for any degree requirements other than free electives.


## Proposed Course Sequence of Study

 Bachelor of Science in Design Management (B.S.D.M)| FIRST YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\frac{\text { Term }}{\text { Fall }}$ | Course \# | Title | Credit | Prerequisite | Fulfils |
|  | COM 101 | Academic Writing | 3 | EPT 4 | GE Communication 1 of 4 MR <br> MR/GE GED 1 of 5 <br> MR <br> MR/GE Math 1 of 2 |
|  | DES 111 | Descriptive Drawing I | 3 |  |  |
|  | DES 121 | History of Material Culture | 3 |  |  |
|  | DES 131 | Design Foundations I | 3 |  |  |
|  | MTH 101 | Mathematics for Business | 3 | MTH 002 or MPT |  |
|  |  | Total | 15 |  |  |
| Spring | COM 102 | Writing and Reading Across the | lum 3 | EPT score 5 or COM 101 | GE Communication 2 of 4 MR <br> MR <br> ME 1 of 6 <br> GE Science 1 of 2 |
|  | DES 100 | Digital Media in Design | 3 |  |  |
|  | DES 112 | Descriptive Drawing II | 3 | DES 111 |  |
|  | DES 132 | Design Foundations II | 3 |  |  |
|  | XXX | Science Requirement | 3 |  |  |
|  |  | Total | 15 |  |  |


|  |  | SECOND YEAR (30 CREDITS) |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |  |
| Fall | COM 204 | Advanced Academic English | 3 | COM 102 | GE Communication 3 of 4 |  |
|  | STA 202 | Introduction to Statistics |  |  |  |  |
|  |  | for Social Sciences | 3 |  | GE Math 2 of 2 |  |
|  | BIS 201 | Business Information Systems | 3 | BPT or BIS 001 | MR |  |
|  | ECO 201 | Principles of Microeconomics | 3 |  | GE GED 3 of 5 |  |
|  | DES 200 | Communication Design | 3 | DES 100 | MR |  |
|  |  | Total | $\mathbf{1 5}$ |  |  |  |
| Spring | COM 225 | Global Business Communication | 3 | COM 204 | GE Communication 4 of 4 |  |
|  | ECO 202 | Principles of Macroeconomics | 3 |  | GE GED 4 of 5 |  |
|  | MGT 201 | Fundamentals of Management | 3 | COM 102 | MR |  |
|  | MCM 150 | Introduction to Mass Media | 3 | COM 102 | ME 2 of 6 |  |
|  | DES 230 | Digital Media in Communication Design | 3 | DES 100 | MR |  |
|  |  | Total | $\mathbf{1 5}$ |  |  |  |



| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | MGT 315 | International Business | 3 | MGT 201 | MR |
|  | MGT 361 | Business Ethics and Social Responsibility | 3 | MGT 201 | MR |
|  | DES 397 | Internship | 3 |  | MR |
|  | DES 462 | Design Management | 3 | Or concurrent DES 397 | MR |
|  | XXX | Free Elective | 3 |  | FE 3 of 5 |
|  |  | Total | 15 |  |  |
| Spring | MGT 311 | Organizational Behavior | 3 | MGT 201 | MR |
|  | DES XXX | ME at 300-level or above | 3 |  | ME 5 of 6 |
|  | DES 494 | Special Topics in Design | 3 |  | ME 6 of 6 |
|  | XXX | Free Elective | 3 |  | FE 4 of 5 |
|  | XXX | Free Elective | 3 |  | FE 5 of 5 |
|  |  | Total | 15 |  |  |

Abbreviations: MR: Major Requirement, GE: General Education Requirement, ME: Major Elective, FE: Free Elective, EPT: English Placement Test, MPT: Math Placement Test


## Interior Design

Bruce Lonnman, Chair
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, programmer, adaptive reuse designer, facilities planner, project manager, design journalist, educator, researcher, salesperson, renderer, healthcare designer, office planner and hospital designer.
The interior design program at AUS emphasizes creativity and innovation in the art of interior design while giving students a strong background in technique and practical knowledge. The program core is comprised of six rigorous design studios following the common foundations year. Interior design studios encourage the development of analytical and
reasoning skills, as well as the ability to conceptualize, develop and present designs. Architecture and interior design share a common second year studio to heighten students' awareness and technical capabilities regarding primary formal, structural and tectonic issues. The interior design studios are supplemented by technical courses ranging from furniture design and materials and methods of interior construction to specific training in color and light.
The program prepares students for responsible design careers, and is firmly committed to graduating individuals who can join the regional or international workforce as competent and creative entry-level professionals. The American University of Sharjah is committed to providing students in interior design with traditional, as well as digital, design presentation skills to broaden their marketability and design capabilities.
The program emphasizes topics critical to the sustainable development of society and the quality of life in the region, with an emphasis on the United Arab Emirates. Professional training and internships solidify the student's
contact and involvement with local practice. Interior design and architecture faculty members serve as both professional and academic mentors.

## Bachelor of Interior Design (B.I.D.)

The Bachelor of Interior Design (B.I.D.) degree is intended for the student seeking a professional career in interior design. The program entails a minimum of four years of university studies plus professional training. A minimum of 139 semester credits comprise the degree program, including a minimum of 88 credits of required coursework in interior design and closely associated fields. These courses represent the core of the interior design discipline. Students in the Department of Architecture must take the thematic option with Arabic content.
Each student is required to extend the core curriculum with 12 credits of approved Interior Design electives. The intent is to balance the concern for indepth professional competence with the concern for the individual's interest and aptitude. These courses should be selected in consultation with the student's advisor.
The specialized professional curriculum is supported by a minimum of 42 credits of university requirements. Designed to ensure a broad educational foundation, this base is held in common among all graduates of the American University of Sharjah.
University studies represent a unique opportunity to explore other areas of interest. Based solely on individual interests, each interior design student must select nine additional credits of free electives from general university offerings. Some major required courses count towards General Education requirements. In such cases both requirements are considered as being met but the credits only count once towards total degree hours.
The curriculum is designed to meet requirements for licensure that prevail in the United Arab Emirates, and to prepare the graduate for professional practice throughout the region. Some
students may aspire either to advanced study in the field or to practice in a broader global setting. Accordingly, the curriculum follows established international norms for a professional degree in interior design.

## Advancement in the Program

The number of seats in interior design is limited. Formal advancement is competitive. Only the most highly qualified foundations students will be promoted. To be considered for advancement to the second year of the Bachelor of Interior Design program a student must successfully complete the following requirements:

- All four foundations studio courses (DES 111, 112, 131, 132) with a minimum grade point average (GPA) of 2.0 out of 4.0 in each sequence (design and drawing)
- Both courses in history of material culture (DES 121 and DES 122)
- Digital Media in Design (DES 100)
- Mathematics for Architects (MTH 111) or its prerequisite (MTH 003) or Calculus (MTH 103)
- At least one course in the university communication sequence (COM 101, 102 or higher)
- A minimum of 27 semester hours of university credit (including the above courses)
- An overall grade point average (GPA) of 2.0

Formal notification of advancement in the program will be given by SA\&D two weeks after release of final grades by the Registrar's Office at the end of the spring semester. In the event that there are more students who qualify for advancement than available spaces, candidates will be promoted in the major based on academic achievement, and a wait-list will be established. In the event of a tie, students with the highest GPA in all four foundations studio courses will advance to second year. In the event of a second tie, students with the highest GPA in History of Material Culture and Mathematics for Architects will advance to the second year. If there are available spaces at the time of fall registration, consideration will be given
to those students who fulfilled requirements during summer session or who wish to change majors, based on the same advancement criteria as noted above. Students who need to repeat a second-year studio course will also be competing for the limited number of seats in the major.

## Promotion Review in Interior Design

As an extension of the regular advisement process, the performance of each interior design student is reviewed following the completion of each of the second and third years in the program. A student must pass each review to continue in the major and must:

- Have attained a minimum cumulative grade point average (GPA) of $\mathrm{C}+(2.3)$ in all university courses
- Have attained a minimum major studio average of 2.5 in each year of the interior design studio sequence ( IDE $201 \& 202$, IDE $301 \& 302$ )


## Note:

- A grade of C- (1.70) is the minimum passing grade in a studio course. The minimum major studio average must be achieved to continue in the program.
- A student with a fall semester grade of $D(1.00)$ may not continue into the spring semester of the studio sequence.
- A student who does not attain the required major studio average may repeat any studio in which a grade of less than $\mathrm{C}+(2.30)$ was earned.
- Any studio may be repeated only once for credit.
- To determine the new major studio average, the grade earned in a repeated studio replaces the previous grade. [Note: All studio grades are used to calculate the cumulative GPA.]
- A repeating student who fails to achieve the minimum studio average necessary for promotion is dismissed from the program.
- Have attained a minimum grade of 2.5 in IDE 405 for enrollment in IDE 492.
If the review has a negative outcome, the department will assist an unsuccessful candidate in transferring to a field that holds better promise.


## Degree Requirements

A minimum of 139 credits, including the following:

- A minimum of 42 credits of university requirements
- A minimum of 88 credits of interior design and related courses in the major including 12 credits of approved interior design electives
- Nine credits of free electives
- Six weeks of approved professional training
In order to graduate with a Bachelor of Interior Design degree, a student must have attained a major studio average of 2.5 in the final studio sequence (IDE 405 \& IDE 406).


## General Education Requirements

- English language competency requirement ( 12 credits): COM 101, COM 102 (or higher), and 2 other 200level COM
- Arabic heritage requirement ( 3 credits): THM 301 or THM 302
- Mathematics and/or statistics requirement ( 6 credits): MTH 103 or MTH 111 and MTH XXX or STA XXX
- Science requirement ( 6 credits): PHY 104 and one other Science
- Humanities and Social Sciences requirement ( 15 credits): DES 121 and DES 122, and THM 301 or THM 302
(whichever is not used to fulfill the Arabic heritage requirement), plus six credits designated humanities or social science;
- Computer literacy requirement: Satisfied through extensive use of computer resources throughout the architecture curriculum

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

## Major Requirements

In addition to the foundations courses, the following courses constitute the major requirements for the Bachelor of Interior Design degree:
IDE 201 Architectural and Interior Design Studio I
IDE 202 Architectural and Interior Design Studio II
IDE 223 History of Interior Design
IDE 235 Interior Construction
IDE 236 Soft Furnishings
IDE 251 Color and Light
IDE 301 Interior Design Studio III
IDE 302 Interior Design Studio IV
IDE 335 Furniture Design
IDE 352 Environmental Control Systems in Interiors
IDE 364 Introduction to Computer-Aided Drawing
IDE 397 Internship (6 weeks)
IDE 405 Interior Design Studio V

IDE 461 Project Management
IDE 462 Design Management
IDE 406 Interior Design Studio VI or
IDE 492 Final Project Design

## Major Electives

All other ARC and IDE courses not listed above count as major electives (MEs).
Please see proposed sequence of study for a specific strategy for completing these graduation requirements in four years.

## Minor in Interior Design

This minor is offered within the Department of Architecture for SA\&D students. Courses include only those within the discipline of Interior Design. Students must have completed a minimum of 30 credits of coursework with a GPA of 2.5 or higher prior to enrolling in the minor. A student must complete nine credits from the following courses:
IDE 223 History of Interior Design
IDE 235 Interior Construction
IDE 236 Soft Furnishings
IDE 251 Color and Light
IDE 335 Furniture Design
and nine credits in IDE courses at the 300 level or above.
At least nine of the 18 credits must not have counted towards any other requirement except free electives.

## Proposed Course Sequence of Study

Bachelor of Interior Design (B.I.D.)

| FIRST YEAR (30/31 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title C | Credit | Prerequisite | Fulfills |
| Fall | COM 101 | Academic Writing | 3 | EPT 4 | GE Communication 1 of 4 MR |
|  | DES 111 | Descriptive Drawing I | 3 |  |  |
|  | DES 121 | History of Material Culture I | 3 |  | MR/GE GED 1 of 5 MR |
|  | DES 131 | Design Foundations I | 3 |  |  |
|  | MTH 111 or MTH 103 | Mathematics for Architects or Calculus |  | MTH 003 or MPT | MR/GE Math 1 of 2 |
|  |  | Total | 16/15 |  |  |
| Spring | COM 102 | Writing and Reading Across the Curriculum | m 3 | EPT score 5 or COM 101 | GE Communication 2 of 4 MR |
|  | DES 100 | Digital Media in Design | 3 |  |  |
|  | DES 112 | Descriptive Drawing II | 3 | DES 111 | MRMR/GE GED 2 of 5 |
|  | DES 122 | History of Material Culture II | 3 |  |  |
|  | DES 132 | Design Foundations II | 3 | DES 131 | MR |
|  |  | Total | 15 |  |  |


| SECOND YEAR (36 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | IDE 201 | Architectural and I | 6 | DES 100, 111, 112, 121, 122, 131, 132, МTH 003 or 111 or 103 | MR |
|  | COM XXX | Advised Require | 3 |  | GE Communication 3 of 4 |
|  | IDE 223 | History of Interio | 3 | $\begin{aligned} & \text { DES 100, 111, 112, 121, } \\ & 122,131,132 \end{aligned}$ | MR |
|  | IDE 235 | Interior Construc | 3 | $\begin{aligned} & \text { DES 100, 111, 112, 121, } \\ & 122,131,132 \end{aligned}$ | MR |
|  | PHY 104 | Physics for Arch | 3 | MTH 101, 103 or 111 | MR/GE Science 1 of 2 |
|  |  | Total | 18 |  |  |
| Spring | COM XXX | Advised Require | 3 |  | GE Communication 4 of 4 |
|  | IDE 202 | Architectural and Interior Design Studio II6 |  | IDE 201 | MR |
|  | IDE 236 | Soft Furnishings | 3 | IDE 235 or ARC 232 | MR |
|  | IDE 251 | Color and Light | 3 | PHY 104 | MR |
|  | STA XXX | Advised Elective | 3 |  | GE Math 2 of 2 |
|  |  | Total | 18 |  |  |


| THIRD YEAR (37 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title Cr | Credit | Prerequisite | Fulfills |
| Fall | IDE 301 | Interior Design Studio III | 6 | IDE 202, PHY 104 | MR |
|  | IDE 335 | Furniture Design | 3 | ARC 202 or IDE 202, IDE 235 or ARC 232 |  |
|  | IDE XXX | Major Elective | 3 | COM 102 | ME 1 of 4 GE Arabic 1 of 1 (or GED) GE Science 2 of 2 |
|  | THM 301 | The Andalusian Symbiosis I | 3 |  |  |
|  | SCIXXX | Advised Requirement Total | $\begin{aligned} & 3 \\ & 18 \\ & \hline \end{aligned}$ |  |  |
|  |  |  |  |  |  |
| Spring | IDE 302 <br> IDE 352 <br> ARC 364 <br> IDE XXX <br> THM 302 | Interior Design Studio IV | 6 | IDE 301, 223 | MR |
|  |  | Environmental Control Systems in Interiors | 3 | PHY 104 | MR |
|  |  | Introduction to Computer-Aided Drawing |  | ARC 202 or IDE 202 | MRME 2 of 4 |
|  |  | Major Elective | 3 |  |  |
|  |  | The Andalusian Symbiosis II | 3 | COM 102 | GE GED 3 of 5 (or Arabic) FE 1 of 3 |
|  |  | Free Elective | 3 |  |  |
|  |  | Total | 19 |  |  |
| Summer | IDE 397 | Internship | 0 | IDE 302 | MR |


| FOURTH YEAR (36 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | IDE 405 | Interior Design Studio V | 6 | IDE 302 or ARC 302 | MR |
|  | IDE 462 | Design Management | 3 | IDE 397 or ARC 397 | MR |
|  | IDE XXX | Major Elective | 3 |  | MR 3 of 4 |
|  | XXX | GED (HUM/SS) | 3 |  | GE GED 4 of 5 |
|  |  | Free Elective | 3 |  | FE 2 of 3 |
|  |  | Total | 18 |  |  |
| Spring | IDE 462 | Design Management | 3 | IDE 397 or ARC 397 | MR |
|  | IDE 406 | Interior Design Studio VI | 6 | IDE 405, 397 | MR |
|  | IDE XXX | Major Elective | 3 |  | ME 4 of 4 |
|  | XXX | GED (HUM/SS) | 3 |  | GE GED 5 of 5 |
|  |  | Free Elective | 3 |  | FE 3 of 3 |
|  |  | Total | 18 |  |  |
|  |  | Total for the degree |  |  |  |

[^6]
## Multimedia Design

Mark Pilkington, Chair
Multimedia design studies span a number of disciplines, including technology, communications, the arts, writing, photography, video, advertising and design. This major engages students with broad-ranging interests in graphic and 3-D design, digital technology and time-based media. To meet the challenges of this rapidly changing field, AUS offers the Bachelor of Science in Multimedia Design degree.

## Bachelor of Science in Multimedia Design (B.S.M.D.)

The B.S.M.D. requires a minimum of four years ( 122 credits) of coursework, 59 hours of which are required in multimedia related studies, including sound, video, text, computer graphics, advertising and theory courses. The specialization is supported by 18 credits of major electives, 42 credits of university and general education requirements and nine credits of free electives. Some major required courses count towards General Education requirements. In such cases both requirements are considered as being met but the credits only count once towards total degree hours. Students in the Department of Design must take the thematic option with Arabic content. In addition, professional training (internship) is required of all students; company placement occurs in the summer after completion of the third year.
The B.S.M.D. is a professional program designed for those who seek careers in the modern media industries. The curriculum follows standards of professional North American practice and is conceived to meet or exceed the requirements of multimedia industries in the United Arab Emirates.

## Admission to the Program

Admission to the B.S.M.D. requires the fulfillment of the general university admission requirements.
Degree Requirements (B.S.M.D.)
General Education requirements

(GEs):
Major requirements (MRs): (Including approved major electives) Free electives (FEs):

## Total:

122 cr.

## General Education Requirements

- English language competency requirement ( 12 credits): COM 101, COM 102 (or higher), COM 231 and 1 other 200-level COM
- Arabic heritage requirement ( 3 credits): THM 301 or THM 302
- Mathematics and/or statistics requirement ( 6 credits): two Math courses
- Science requirement (6 credits): two Science courses
- Humanities and Social Sciences requirement ( 15 credits): DES 121, DES 122, and THM 301 or THM 302 (whichever is not used to fulfill the Arabic heritage requirement), plus six credits of designated humanities or social science courses
- Computer literacy requirement: Satisfied through extensive use of computer resources throughout the design curriculum
For information about designated requirements, please refer to University Degree Requirements.


## Major Requirements

In addition to the foundations courses, the following courses constitute the major requirements for the Bachelor of Science in Multimedia Design degree:
VIS 201 Design Studio I

42 cr. VIS 202 Design Studio II
71cr. VIS 213 Illustration Drawing
VIS 221 Photography Basics
VIS 230 Digital Media in Visual
Communication
MUM 301 Design Studio III
MUM 330 Interactive Design
VIS 360 Fundamentals of Media Theory
VIS 361 The Media Industry
MUM 397 Internship ( 6 weeks)
MUM 401 Design Studio IV
MUM 402 Senior Multimedia Portfolio

## Major Electives

(a total of 18 credits from the following):
At least three (3) of the following courses for a total of nine (9) credits:
MUM 310 Film Production I
MUM 312 Film Production II
MUM 320 Web Design
MUM 321 Photo Journalism
MUM 331 Modeling and Animation
At least three (3) more courses from the following for a total of nine (9) credits:
DES 141 Introduction to Painting
DES 142 Painting II
DES 151 Introduction to Printmaking
DES 211 Intermediate Drawing Studio
MUM 410 Film Production III (Advanced Technique)
MUM 494 Special Topics in Multimedia Design
MUM 496 Independent Study in Multimedia Design
VIS 311 Illustration Design
VIS 312 Illustration Genres
VIS 320 Multiples I

VIS 322 Multiples II
VIS 323 Photography for Communication
VIS 494 Special Topics in Visual Communication
COM 231 Writing for Visual Media
PSY 101 General Psychology
PSY 102 Social Psychology
Any MCM course
Please see the proposed sequence of study for a specific strategy for completing these graduation requirements in four years.

## Advancement in the Program

The number of seats in multimedia design is limited. Formal advancement is competitive. Only the most highly qualified foundations students will be promoted. To be considered for advancement to the second year of the Bachelor of Science in Multimedia Design program a student must successfully complete the following requirements. Additional promotion restrictions may also apply.

- All four foundations studio courses (DES 111, 112, 131, 132) with a minimum grade point average (GPA) of C (2.0) in each sequence (design and drawing)
- At least one course in history of material culture (DES 121 or DES 122)
- Digital Media in Design (DES 100)
- Mathematics (MTH xxx) or its prerequisite (MTH 001) for students who failed the Math placement test
- At least one course in the university communication sequence (COM 101 or higher)
- A minimum of 27 semester hours of university credit (including the above courses)
- An overall grade point average (GPA) of C (2.0)
Formal notification of advancement in the program will be given by SA\&D two weeks after release of final grades by the Registrar's Office at the end of the spring semester. In the event that there are more students who qualify for advancement than available spaces, candidates will be promoted in the major based on academic achievement, and a wait-list will be established. In the event of a tie, students with the highest GPA in History of Material Culture and Mathematics will advance to the second year. If there are available spaces at the time of fall registration, consideration will be given to those students who fulfilled requirements during summer session or who wish to change majors, based on the same advancement criteria as noted above. Students who need to repeat a second-year studio course will also be competing for the limited number of seats in the major.


## Promotion Review in Multimedia Design

As an extension of the regular advisement process, the performance of
all students in multimedia design will be reviewed after the fourth semester for retention in the program. To successfully pass this review and to continue in the major a combined grade point average (GPA) of $\mathrm{C}+$ (2.3) must be attained in VIS 201 and VIS 202, with a minimum grade of C - (1.7) in each course.

## Note:

- A student with a fall semester grade of $\mathrm{D}(1.00)$ may not continue into the spring semester of the studio sequence.
- A student who does not attain the required major studio average may repeat any studio in which a grade of less than $\mathrm{C}+(2.30)$ was earned.
- Any studio may be repeated only once for credit.
- To determine the new major studio average, the grade earned in a repeated studio replaces the previous grade. [Note: All studio grades are used to calculate the cumulative GPA.]
- A repeating student who fails to achieve the minimum studio average necessary for promotion is dismissed from the program.
If the review has a negative outcome, the department will assist an unsuccessful candidate in transferring to a field that holds better promise.


## Proposed Course Sequence of Study Bachelor of Science in Multimedia Design (B.S.M.D.)

|  |  |  | FIRST YEAR (30 CREDITS) |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM 101 | Academic Writing | 3 | EPT 4 | GE Communication 1 of 4 |
|  | DES 111 | Descriptive Drawing I | 3 |  | MR |
|  | DES 121 | History of Material Culture | 3 |  | MR/GE GED 1 of 5 |
|  | DES 131 | Design Foundations I | 3 |  | MR |
|  | DES 100 | Digital Media in Design | 3 |  | MR |
|  |  | Total | $\mathbf{1 5}$ |  |  |
| Spring | COM 102 | Writing and Reading Across the Curriculum | 3 | EPT score 5 or COM 101 | GE Communication 2 of 4 |
|  | MTH XXX | Mathematics Requirement | 3 |  | MR/GE Math 1 of 2 |
|  | DES 112 | Descriptive Drawing II | 3 | DES 111 | MR |
|  | DES 122 | History of Material Culture II | 3 |  | MR/GE GED 2 of 5 |
|  | DES 132 | Design Foundations II | 3 | DES 131 | MR |
|  |  | Total | $\mathbf{1 5}$ |  |  |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | VIS 201 | Design Studio I | 3 | DES 100, 112 and 132; DES 121 or 122; MTH XXX; and COM 101 or 102 | MR |
|  | VIS 221 | Photography Basics | 3 | DES 100, 112 and 132; <br> DES 121 or 122; MTH XXX; <br> and COM 101 or 102 | MR |
|  | VIS 230 | Digital Media in VisCom | 3 | DES 100, 112 and 132; DES 121 or 122; MTH XXX; and COM 101 or 102 | MR |
|  | MTH XXX | Mathematics Requirement | 3 |  | GE Math 2 of 2 |
|  | XXX | GED (HUM/SS) | 3 |  | GE Arabic 1 of 1 (or GED) |
|  |  | Total | 15 |  |  |
| Spring | VIS 202 | Design Studio II | 3 | VIS 201, 221 and 230 | MR |
|  | VIS 213 | Illustration Drawing | 3 | VIS 201, 221 and 230 | MR |
|  | VIS 360 | Fundamentals of Media Theory | 3 | DES 122, 132 | MR |
|  | COM 231 | Writing for Visual Media | 3 | COM 102 | GE Communication 3 of 4 |
|  | XXX | GED (HUM/SS) | 3 |  | GE GED 3 of 5 (or Arabic) |
|  |  | Total | 15 |  |  |


| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | MUM 301 | Design Studio III | 3 | VIS 202, 213 and 360 | 3MR |
|  | MUM 310 | Film Production I | 3 | or concurrent: MUM 301 or VIS 301 |  |
|  | MUM 321 | Photo Journalism | 3 | or concurrent: MUM 301 <br> or VIS 301 | ME 2 of 6 MR |
|  | VIS 361 | The Media Industry | 3 | COM 101 or 102 | MR |
|  | THM 301 | The Andalusian Symbiosis I | 3 | COM 102 | GE Arabic 1 of 1 (or GED) |
|  |  | Total | 15 |  |  |
| Spring | MUM 330 | Interactive Design | 3 | or concurrent: MUM 301 or VIS 301 | MR |
|  | MUM XXX | Advised electives (at least one of the following for a total of 3 credits) |  |  |  |
|  |  | MUM 312 Film Production II or MUM 331 Modeling \& Animation | 3 | or concurrent: MUM 301 <br> or VIS 301 | ME 3 of 6GE Science 1 of 2 |
|  | SCI XXX | Science Requirement | 3 |  |  |
|  | THM 302 | The Andalusian Symbiosis II | 3 | COM 102 | 3GE GED 5 of 5 (or Arabic) FE 1 of 3 |
|  |  | Free Elective | 3 |  |  |
|  |  | Total | 15 |  |  |
| Summer |  | Internship Placement |  | MUM 301 | 6 weeks (240 hours) on-the-job |


| FOURTH YEAR (32 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\frac{\text { Term }}{\text { Fall }}$ | Course \# | Title Cr | Credit | Prerequisite | Fulfills |
|  | MUM 401 | Design Studio IV | 4 | MUM 301 | MR |
|  | MUM 410 | Film Production III (Advanced Technique) | ) 3 | MUM 310 or 312 | ME 4 of 6 |
|  | SCI XXX | Science Requirement | 3 |  | GE Science 2 of 2 |
|  | $\begin{aligned} & \text { COM/ } \\ & \text { MCM XXX } \end{aligned}$ | Communication Requirement | 3 |  | GE Communication 4 of 4 |
|  | MUM 397 | Internship | 3 | MUM 301 | MR |
|  |  | Total | 16 |  |  |
| Spring | MUM 402 | Senior Design Portfolio | 4 | MUM 401 | MR |
|  | MUM/VIS XXX | Major Elective | 3 | MUM 301 or VIS 301 | ME 5 of 6 |
|  | MUM/VIS XXX | Major Elective | 3 | MUM 301 or VIS 301 | ME 6 of 6 |
|  |  | Free Elective | 3 |  | FE 2 of 3 |
|  |  | Free Elective | 3 |  | FE 3 of 3 |
|  |  | Total | 16 |  |  |
|  |  | Total for the degree | 122 |  |  |

[^7]
## Visual

Communication

Mark Pilkington, Chair

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 artistic training, visual communication experts require an understanding of human nature, ethical boundaries and societal needs. Visual communicators aim to inform, persuade and influence behavior. To meet those and related objectives, AUS offers the Bachelor of Science in Visual Communication (B.S.V.C.).

## Bachelor of Science in Visual

 Communication (B.S.V.C.)The B.S.V.C degree requires a minimum of four years of university studies. The foundations year of visual communication (VisCom) consists of a basic education in the applied arts, training in computer applications and courses in the history and relevance of design and visual expression. In the following years, elements of advertising, package design and marketing 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 B.S.V.C. is a professional program. The 122 credits required for the degree comprise 62 credits in required visual communication, digital applications and visual design related courses. This specialization is supported by 15 credits of major electives, 42 credits of university requirements and nine credits of free elective courses. Some major required courses count towards General Education requirements. In such cases both requirements are considered as being met but the credits only count once towards total degree hours. Students in the Department of Design must take the thematic option with Arabic content. In addition, professional training (internship) is required of all students; company
placement occurs in the summer after completion of the third year.
The B.S.V.C. is configured to prepare those who seek careers as designers in advertising, publishing and related visual communication media. The curriculum follows standards of professional North American organizations and is conceived to meet or exceed requirements for visual communication experts in the United Arab Emirates.

## Admission to the Program

Admission to the B.S.V.C. program requires the fulfillment of general university admission requirements.
Degree Requirements (B.S.V.C.) General Education requirements (GEs): 42 cr . Major requirements (MRs): $\quad 71 \mathrm{cr}$. (Including approved major electives) Free electives (FEs): $\quad 9 \mathbf{c r}$.

## Total:

122 cr.

## General Education Requirements

- English language competency requirement ( 12 credits): COM 101, COM 102 (or higher), COM 231 and one other 200 -level communication course
- Arabic heritage requirement (3 credits): THM 301 or THM 302
- Mathematics and/or statistics requirement (6 credits): two Math courses
- Science requirement (6 credits): two Science courses
- Humanities and Social Sciences requirement ( 15 credits): DES 121, DES 122 , and THM 301 or THM 302 (whichever is not used to fulfill the Arabic heritage requirement), plus six credits of designated humanities or social science courses
- Computer literacy requirement: Satisfied through extensive use of computer resources throughout the design curriculum
For information about designated requirements, please refer to University Degree Requirements.


## Major Requirements

In addition to the foundations courses, the following courses constitute the major requirements for the Bachelor of Science
in Visual Communication degree:
VIS 201 Design Studio I
VIS 202 Design Studio II
VIS 213 Illustration Drawing
VIS 221 Photography Basics
VIS 230 Digital Media in VisCom
VIS 301 Design Studio III
VIS 360 Fundamentals of Media Theory
VIS 361 The Media Industry
VIS 397 Internship (6 weeks)
VIS 401 Design Studio IV
VIS 402 Senior Design Portfolio
VIS 410 Senior VisCom Studio
VIS 420 Senior VisCom Portfolio

## Major Electives

(a total of 15 credits from the following):
At least four (4) of the following courses for a total of twelve (12) credits:
VIS 311 Illustration Design
VIS 312 Illustration Genres
VIS 320 Multiples I
VIS 321 Photo Journalism
VIS 322 Multiples II
VIS 323 Photography for Communication
At least one (1) more course from the
following for a total of three (3) credits:
DES 141 Introduction to Painting
DES 142 Painting II
DES 151 Introduction to Printmaking
DES 211 Intermediate Drawing Studio
VIS 494 Special Topics in Visual
Communication
VIS 496 Independent Study in Visual
Communication
MUM 310 Film Production I
MUM 312 Film Production II
MUM 320 Web Design
MUM 330 Interactive Design
MUM 331 Modeling \& Animation
MUM 410 Film Production III (Advanced Technique)
MUM 494 Special Topics in Multimedia Design
COM 231 Writing for Visual Media
PSY 101 General Psychology
PSY 102 Social Psychology
Any MCM course
Please see the proposed sequence of study for a specific strategy for completing these graduation requirements in four years.

## Advancement in the Program

The number of seats in visual
communication is limited. Formal advancement is competitive. Only the most highly qualified foundations students will be promoted. To be considered for advancement to the 2nd year of the Bachelor of Science in Multimedia Design program a student must successfully complete the following requirements. Additional promotion restrictions may also apply.

- All four foundations studio courses (DES 111, 112, 131, 132) with a minimum grade point average (GPA) of $\mathrm{C}(2.0)$ in each sequence (design and drawing)
- At least one course in history of material culture (DES 121 or DES 122)
- Digital Media in Design (DES 100)
- Mathematics (MTH xxx) or its prerequisite (MTH 00x) for students who failed the Math placement test
- At least one course in the university communication sequence (COM 101 or higher)
- A minimum of 27 semester hours of university credit (including the above courses)
- An overall grade point average (GPA) of C (2.0)
Formal notification of advancement in the program will be given by SA\&D
two weeks after release of final grades by the Registrar's Office at the end of the spring semester. In the event that there are more students who qualify for advancement than available spaces, candidates will be promoted in the major based on academic achievement, and a wait-list will be established. In the event of a tie, students with the highest GPA in History of Material Culture and Mathematics will advance to the second year. If there are available spaces at the time of fall registration, consideration will be given to those students who fulfilled requirements during summer session or who wish to change majors, based on the same advancement criteria as noted above. Students who need to repeat a second-year studio course will also be competing for the limited number of seats in the major.


## Promotion Review in Visual Communication

As an extension of the regular advisement process, the performance of all students in visual communication 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
grade point average (GPA) of $\mathrm{C}+(2.3)$ must be attained in VIS 201 and VIS 202 , with a minimum grade of C - (1.7) in each course.

## Note:

- A student with a fall semester grade of D (1.00) may not continue into the spring semester of the studio sequence.
- A student who does not attain the required major studio average may repeat any studio in which a grade of less than $\mathrm{C}+(2.30)$ was earned.
- Any studio may be repeated only once for credit.
- To determine the new major studio average, the grade earned in a repeated studio replaces the previous grade. [Note: All studio grades are used to calculate the cumulative GPA.]
- A repeating student who fails to achieve the minimum studio average necessary for promotion is dismissed from the program.
If the review has a negative outcome, the department will assist an unsuccessful candidate in transferring to a field that holds better promise.


## Proposed Course Sequence of Study

Bachelor of Science in Visual Communication (B.S.V.C)

| FIRST YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title C | Credit | Prerequisite | Fulfills |
| Fall | COM 101 | Academic Writing | 3 | EPT 4 | GE Communication 1 of 4 |
|  | DES 111 | Descriptive Drawing I | 3 |  | MR |
|  | DES 121 | History of Material Culture | 3 |  | MR/GE GED 1 of 5 |
|  | DES 131 | Design Foundations I | 3 |  | MR |
|  | DES 100 | Digital Media in Design | 3 |  | MR |
|  |  | Total | 15 |  |  |
| Spring | COM 102 | Writing and Reading Across the Curriculum | - 3 | EPT score 5 or COM 101 | GE Communication 2 of 4 |
|  | MTH XXX | Mathematics Requirement | 3 |  | MR/GE Math 1 of 2 |
|  | DES 112 | Descriptive Drawing II | 3 | DES 111 | MR |
|  | DES 122 | History of Material Culture II | 3 |  | MR/GE GED 2 of 5 |
|  | DES 132 | Design Foundations II | 3 | DES 131 | MR |
|  |  | Total | 15 |  |  |

[^8]| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | VIS 201 | Design Studio I | 3 | DES 100, 112 and 132; DES 121 or 122; MTH XXX; and COM 101 or 102 | MR |
|  | VIS 221 | Photography Basics | 3 | DES 100, 112 and 132; <br> DES 121 or 122 ; MTH XXX; and COM 101 or 102 | MR |
|  | VIS 230 | Digital Media in VisCom | 3 | DES 100, 112 and 132; DES 121 or 122; MTH XXX; and COM 101 or 102 | MR |
|  | MTH XXX | Mathematics Requirement | 3 |  | GE Math 2 of 2 |
|  | XXX | GED (HUM/SS) | 3 |  | GE GED 3 of 5 |
|  |  | Total | 15 |  |  |
| Spring | VIS 202 | Design Studio II | 3 | VIS 201, 221 and 230 | MR |
|  | VIS 213 | Illustration Drawing | 3 | VIS 201, 221 and 230 | MR |
|  | VIS 360 | Fundamentals of Media Theory | 3 | DES 122, 132 | MR |
|  | COM 231 | Writing for Visual Media | 3 | COM 102 | GE Communication 3 of 4 |
|  | XXX | GED (HUM/SS) | 3 |  | GE GED 3 of 5 (or Arabic) |
|  |  | Total | 15 |  |  |


| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | VIS 301 | Design Studio I | 3 | VIS 202, 213 and 360 | MR |
|  | VIS XXX | Advised electives (at least two of <br> VIS 311 Illustration Design or <br> VIS 320 Multiples I or <br> VIS 321 Photo Journalism | followin | or concurrent: <br> MUM 301 or VIS 301 | ME 1 \& 2 of 6 |
|  | VIS 361 <br> THM 301 | The Media Industry | 3 | COM 101 or 102 COM 102 | MR <br> GE Arabic 1 of 1 (or GED) |
|  |  | The Andalusian Symbiosis I | 3 |  |  |
|  |  | Total | 15 |  |  |
| Spring | VIS XXX | Advised electives (at least two of the following for a total of 6 credits) |  |  |  |
|  |  | VIS 312 Illustration Genres | 3 | on concurrent: | ME 3\&4 of 6 |
|  |  | VIS 322 Multiples II | 3 | MUM 301 or VIS 301 |  |
|  |  | VIS323 Photography for Comm. | 3 |  |  |
|  | VIS 397 <br> SCI XXX <br> THM 302 | Internship | 3 | MUM 301 | MR |
|  |  | Science Requirement | 3 |  | GE Science 1 of |
|  |  | The Andalusian Symbiosis II | 3 | COM 102 | GE GED 5 of 5 (or Arabic) FE 1 of 3 |
|  |  | Free Elective | 3 |  |  |
|  |  | Total | 15 |  |  |
| Summer |  | Internship Placement |  | VIS 301 | 6 weeks (240 hours) on-the-job |


| FOURTH YEAR (32 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | VIS 401 | Design Studio IV | 4 | VIS 301 | MR |
|  | VIS 410 | Senior VisCom Studio | 3 | Any 4 of: VIS 311, 312, 320, 321, 322, 323 <br> MUM 301 | MR <br> MR <br> GE Science 2 of 2 |
|  | VIS 397 | Internship | 3 |  |  |
|  | SCI XXX | Science Requirement | 3 |  |  |
|  | $\begin{aligned} & \text { COM/ } \\ & \text { MCM XXX } \end{aligned}$ | Communication Requirement | 3 |  |  |
|  |  | Free Elective | 3 |  | GE Communication 4 of 4 FE 1 of 3 |
|  |  | Total | 16 |  |  |
| Spring | VIS 402 | Senior Design Portfolio | 4 | VIS 401 | MR |
|  | VIS 420 | Senior VisCom Portfolio | 3 | VIS 410 | MR |
|  | MUM/VIS XXX | Major Elective | 3 | MUM 301 or VIS 301 | ME 5 of 5 <br> FE 2 of 3 <br> FE 3 of 3 |
|  |  | Free Elective | 3 |  |  |
|  |  | Free Elective | 3 |  |  |
|  |  | Total | 16 |  |  |
|  |  | Total for the degree | 122 |  |  |



# School of Business and Management 

## Dean

Wadiah Atiyah
Associate Dean
Zeinab Karake-Shalhoub

The American University of Sharjah School of Business and Management provides a high quality professional educational experience. The effective business professional of today must have competence in many disciplines, an understanding of a wide variety of relationships and the ability to analyze evolving business requirements. Regardless of the specialty area, the business professional must be an effective leader who knows how to organize and motivate groups to serve the goals of the organization.
Effectively adapting business practices to emerging conditions, such as the accelerating growth of technology, communications and the internationalization of the business world, demands a thorough grasp of current business processes, theory and application. Through its pedagogy, the School of Business and Management:

- Prepares individuals to identify, analyze and understand the interrelationships among business organizations and international and domestic institutions in the Emirates, the Gulf States, and throughout the world
- Develops individuals who can lead organizations toward economic success and social and environmental responsibility in the global marketplace of the twenty-first century
- Prepares individuals to integrate information resources and technology to enable them to anticipate and manage change
- Advances students' knowledge of issues and practices affecting business organizations, international and domestic institutions and governments
- Develops an awareness of societal and environmental needs and concerns as they relate to ethical, professional and socially responsible business practices

Furthermore, the School of Business and Management provides its students with a solid core business education that emphasizes the following teaching methodologies:

- Cutting-edge business education, utilizing the latest American business methods, techniques and technologies
- Integrated multidisciplinary approaches to teaching and learning, utilizing the latest business theories coupled with real world business data analysis and presentations
- Multimedia computer based instruction integrated throughout the business curriculum to assist students in learning the latest techniques in business and management
- Research conducted using on-line electronic libraries with thousands of up-to-date business journals and databases


## Faculty

The faculty of the School of Business and Management combine a scholarly record of research in the business field with years of practical corporate work experience. The faculty blend their academic and professional experience to create a class environment that is challenging, stimulating and applicable to the business world in the Gulf region and internationally.

## Professor

James Grant (Marketing)
Zeinab Karake-Shalhoub (Information Systems)
George Kostopoulos (Information Systems)
Dennis Olson (Finance)

## Associate Professor

Osamah Al Khazali (Finance)
Kermit Kuehn (Management \& Marketing)
J. Reagan McLaurin (Management)

Louis Mottola (Quantitative Methods)
Rodney Redding (Accounting)
Sofiane Sahraoui (Information Systems)
U. Jay Wiersma (Management)

## Assistant Professor

Jorg Bley (Finance)
M. Tor Brodtkorb (Business Law)

Nejat Capar (Management)

Kim Heng Chen (Finance \& Quantitative Methods)<br>Abdelkader Daghfous (Information Systems)<br>Christo El Morr (Information Systems)<br>Daniel George (Management)<br>Patrice Gelinas (Finance)<br>Mehdi Mattar (Finanace)<br>Brent McCallum (Accounting)<br>Donelda McKechnie (Marketing)<br>Ralph Palliam (Finance)<br>Nasrin Shah (Information Systems)<br>Instructor<br>Jean Boisvert (Marketing)<br>Peter Mason (Marketing \& Management)<br>Zouheir El Jarkass (Accounting \& Finance)<br>Anthony Farah (Information Systems)<br>Toufic Saifi (Information Systems)<br>Ronald Williams (Accounting)<br>Visiting Professor<br>Muhammadou Kah (Management)

## Adjunct Faculty

Wadad Cook (Marketing)
Virginia Jeker (Business Law)
Fadi Khlat (Accounting)
Romila Palliam (Accounting)
Joan Shams (Business Law)

## Admission and Requirements

Students who qualify for admission to AUS as freshmen, may enroll in the School of Business and Management. Due to the quantitative emphasis of the business administration curriculum, students admitted into the Bachelor of Science in Business Administration (B.S.B.A.), Bachelor of Science in Management Information Systems (B.S.MIS.) or Bachelor of Science in Finance (B.S.FIN.) programs are required to take the Mathematics and Computer Literacy Placement Examinations. Initially all business students are enrolled in the B.S.B.A. program. Upon completion of at least 60 credits of study with a grade point average of 2.5 or higher a student may apply for acceptance to the B.S.MIS. or the B.S.FIN.
Transfer students may be given credits for courses completed in the institution from which they are transferring. A grade of $B$ or better must be achieved in business and related courses in order
for them to be considered as transfer credits to the School of Business and Management.
Students wishing to transfer from other schools at AUS may be considered for admission to the School of Business and Management only if they meet the school's minimum academic standards.
All B.S.B.A., B.S.MIS. and B.S.FIN. transfer students are required to take MGT 406 Business Policy and Strategy and at least 30 upper-level credits towards their concentration requirements. Transfer credits for upper-division business courses are subject to approval by the appropriate School of Business department.
Transfer credit may be conditional upon the successful completion of a more advanced course at the American University of Sharjah.

## Undergraduates Graduation Requirements

A minimum of 123 credits as follows:

- 42 credits of university education requirements
- 3 credits of additional English Communication
- 6 credits of additional mathematics and quantitative methods requirements
- 33 credits of core business courses
- 30 credits of business concentration requirements
- 9 credits of free electives


## Designated Requirements

All School of Business and Management students must take the courses listed below as part of their university general education or school requirements:

- COM 225 Global Business Communication (formerly COM 206) satisfies a university general education English language competency requirement
- COM 208 Public Speaking - satisfies the school oral communication requirement
- ECO 201 Principles of Microeconomics - satisfies a university general education social science requirement
- ECO 202 Principles of Macroeconomics - satisfies a university general education social science requirement
- MTH 101 Math for Business I - satisfies a university general education mathematics requirement
- MTH 102 Math for Business II satisfies the school requirement
- QAN 201 Introduction to Statistics satisfies a university general education statistics requirement.
- QAN 202 Quantitative Analysis for Decision Making - satisfies a school quantitative methods requirement
- BUS 392 Resume Writing and Interviewing Skills - a six-week, zerocredit course, graded on a pass-fail basis and mandatory for all juniors


## Maximum Course Loads in SBM

First semester freshmen are permitted to take a maximum of five courses (16 credits), including 00-level courses. Second-semester freshmen and sophomores in SBM may register for a sixth course during the add/drop period if they meet ALL of the following criteria:

- Have a cumulative GPA of at least 3.2
- Have taken no 00-level courses in the previous semester
- Have no grade below C in the previous semester
- Have successfully completed a minimum of 15 credits in the previous semester
Juniors may register for up to six courses per semester during regular registration if they have a minimum cumulative GPA of 3.2 or by permission from the Associate Dean. Seniors may register for up to six courses ( 19 credits) if they meet the minimum general education requirements to do so.


## Free Electives

The 9 credits of free electives of SBM students shall not include PBA 101, MTH 100, or any 00-level course.

## Calculator Policy

All students taking courses in the School of Business and Management are required to have their own wireless laptop computers as specified by the School of Business and Management. Please check with the School regarding the specifications.
Students taking any course in the

School of Business and Management may be required to use the Texas Instrument BAII Plus in exams, quizzes, or any other form of evaluation. No other calculator models will be allowed. If a student does not have the required model for an evaluation, the student will have to take the evaluation without any calculator.
Additional fees may be charged for certain courses that require supplementary materials provided by the school.

## Business Administration Programs

The business administration program provides students with a business core that offers a broad knowledge of business functions while emphasizing the global business environment. In addition to the business core, the student must also complete a major area of specialization in finance or management information systems or any combination of two areas of concentration from accounting, finance, management, marketing, and management information systems. Students may request permission to complete only a single area of concentration in accounting in order to take more accounting courses to qualify for the CPA exam. For nonSBM students, the School of Business and Management also offers a minor in business administration.

## Business Core

All School of Business and Management students must complete the following 33 credits ( 11 courses) of business core courses with a grade of C- or better, regardless of their areas of concentration.
ACC 201 Fundamentals of Financial Accounting
ACC 202 Fundamentals of Managerial Accounting
BLW 301Business Law
BIS 201 Business Information Systems
FIN 201 Fundamentals of Financial Management
FIN 301 Financial Statement Analysis MGT 201 Fundamentals of Management

MGT 360 Business Ethics \& Social Responsibility
MGT 406 Business Policy and Strategy
MIS 201 Fundamentals of Management Information Systems
MKT 201 Fundamentals of Marketing

## Bachelor of Science in Business

Administration (B.S.B.A.)
The objectives of the B.S.B.A. program are to:

- Develop an understanding of the UAE, American and international economic systems and the important relationship between business and society
- Develop a global perspective on business operations
- Provide a background in concepts, processes and institutions used in the production and marketing of goods and services and also in the financing of business organizations
- Provide a foundation in concepts and applications of accounting, quantitative methods and information technology
- Stimulate the students' intellectual curiosity, develop their ability to think creatively and reason logically and encourage their consideration of demographic diversity and ethical principles
- Allow students to concentrate in two areas of business they are most interested in (i.e. accounting, finance, management, marketing, MIS)


## General Education and School

## Requirements

- English language competency requirement: 12 credits comprised of COM 101, COM 102 (or higher), COM 204 and COM 225
- SBM English communication requirement: COM 208
- Arabic heritage requirement: THM 301 (formerly THM 201), THM 302 (formerly THM 202), ARA 101 or any Arabic language or literature course with the approval of the dean of the College of Arts and Sciences
- Mathematics and/or statistics requirement: MTH 101 and QAN 201
- SBM mathematics and quantitative methods requirement: MTH 102 and QAN 202
- Science requirement: any two of the following courses: BIO 101, BIO 102,

BIO 103, CHM 101, CHM 102, CHM
103, CHM 105, ENV 100, ENV 101, PHY 100, PHY 101, PHY 102, PHY 103, PHY 104

- Humanities and social sciences requirement: ECO 201, ECO 202, THM XXX, THM XXX, one three credit social sciences or humanities course (or two social sciences or humanities courses if THM 301 (formerly THM 201) or THM 302 (formerly THM 202) is used to satisfy the Arabic requirement)
- Computer literacy requirement: Satisfied through extensive use of computer resources in courses throughout the Business Administration curriculum


## Areas of Concentration

The School of Business and
Management requires B.S.B.A. students to pursue a concentration in two out of five areas of business: accounting, finance, marketing, management, and management information systems. B.S.B.A. students may request permission to focus on a single area of concentration in accounting in order to take more accounting courses to qualify for the CPA exam.

## Concentration in Accounting

The accounting concentration is designed to prepare graduates for management careers in the fields of accounting, financial management and consulting. Students who pursue this concentration will develop specific business competencies dealing with the financial management of private and public corporations. Furthermore, this concentration is designed to enable students who wish to continue with graduate study to qualify for professional certification, such as the CPA certificate (Certified Public Accountant) in the United States.

## Required Courses

ACC 301 Intermediate Financial Accounting I
ACC 302 Intermediate Financial Accounting II
ACC 303 Cost Accounting (Normally offered only in Fall semester)
ACC 304 Auditing (Normally offered only in Spring semester)
ACC xxx Accounting Elective

## Accounting Electives

ACC 305 Income Tax I
ACC 306 Income Tax II
ACC 401 Advanced Financial Accounting
This requirement is retroactive for all students in the Accounting concentration who may have been subject to other requirements.

## Concentration in Finance

This concentration offers students an integrative approach to the fields of banking and finance. Students will develop the analytical tools and theoretical framework necessary to analyze and understand the financial and banking sectors. Furthermore, this concentration provides the essential tools for understanding investments, capital markets, financial management and financial institutions. Students will also develop competencies in the banking sector with regard to management of financial instruments, markets and risk management.

## Required Courses

FIN 302 Financial Markets and Institutions (Normally offered only in Fall semester) FIN 303 Investment Analysis
FIN 403 Commercial Banking (Normally offered only in Fall semester)
FIN 404 Portfolio Management (Normally offered only in Fall semester)
FIN 405 Advanced Financial Management (Normally offered only in Spring semester)

## Proposed Course Sequence of Study

## Bachelor of Science in Business Administration

Concentration: in Accounting \& Finance

| FIRST YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM101 | Academic Writing | 3 | EPT score 4 or COM 001 | URE |
|  | ECO 201 | Principles of Microeconomics | 3 |  | URE |
|  | MTH101 | Mathematics for Business I | 3 | Pass Placement Test or MTH 002 URE |  |
|  | BIS 201 | Business Information Systems | 3 | Pass Placement Test or BIS 001 Concurrent: MTH101 | CRE |
|  | QAN 201 | Introduction to Statistics | 3 |  | URE |
|  |  | Total | 15 |  |  |
| Spring | COM102 | Writing and Reading Across the Curriculum | 3 | COM101 or Placement Test Waiver URE |  |
|  | ECO 202 | Principles of Macroeconomics | 3 |  | URE |
|  | MTH 102 | Mathematics for Business II | 3 | MTH101 | URE |
|  | ACC 201 | Fundamentals of Financial Accounting | 3 | Concurrent: MTH101, QAN201 | CRE |
|  | QAN 202 | Quantitative Analysis for Decision-Making | 3 | QAN201 | URE |
|  |  | Total | 15 |  |  |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM 204 | Advanced Academic Writing | 3 | COM 102 | URE |
|  | ACC 202 | Fundamentals of Managerial Accounting | 3 | MTH 101, ACC 201; <br> Concurrent: QAN 201 |  |
|  | xxxxxx | Humanities/Social Sciences Requirement | 3 |  | URE |
|  | FIN 201 | Fundamentals of Financial Management | 3 | Concurrent: ACC202, QAN202 | CRE |
|  | MGT 201 | Fundamentals of Management | 3 | Concurrent: COM 102 | CRE |
|  |  | Total | 15 |  |  |
| Spring | COM 208 | Public Speaking | 3 | COM 102 | CRECRE |
|  | MKT 201 | Fundamentals of Marketing | 3 | ECO 201, ECO 202; <br> Concurrent: COM102 |  |
|  | xxxxxx | Arabic Requirement | 3 |  | URE |
|  | COM 225 | Global Business Communication | 3 | COM204 | URE/CRE |
|  | MIS 201 | Fundamentals of MIS | 3 | BIS201 | CRE |
|  |  | Total | 15 |  |  |


| THIRD YEAR (33 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | THMxxx | Theme course | 3 | COM102 | URE |
|  | FIN301 | Financial Statement Analysis | 3 | ACC202, FIN201, COM102 | CRE |
|  | FIN302 | Financial Markets and Institutions | 3 | FIN201, COM102; Concurrent: MIS201 | MRE |
|  | ACC301 | Intermediate Financial Accounting I | 3 | COM102, ACC202; <br> Concurrent: MGT 201 | MRE |
|  | ACC303 | Cost Accounting | 3 | ACC 202, FIN201; <br> Concurrent: MIS201, MKT201 | MRE |
|  | BUS392 | Resume Writing and Interviewing Skills | 0 | Business Junior Standing; Concurrent: COM225 | CRE |
|  |  | Total | 15 |  |  |
| Spring | ACC302 | Intermediate Financial Accounting II | 3 | ACC301, FIN201; <br> Concurrent: MIS201 | MRE |
|  | FIN 303 | Investment Analysis | 3 | ACC202, FIN201, COM102; Concurrent: MKT201, MGT201 | MRE |
|  | ACC 304 | Auditing | 3 | ACC 302 | MRE |
|  | MGT 360 | Bus. Ethics \& Social Responsibility | 3 | MGT201, ACC201, QAN201; <br> Concurrent: COM204 | CRE |
|  | BLW 301 | Business Law | 3 | ACC 201, ECO 202; <br> Concurrent: COM 204 or 208 | CRE |
|  | THMxxx | Theme course <br> Total | $\begin{aligned} & 3 \\ & 18 \\ & \hline \end{aligned}$ | COM102 | URE |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\frac{\text { Term }}{\text { Fall }}$ | Course \# | Title | Credit | Prerequisite | Fulfills |
|  | FIN404 | Portfolio Management | 3 | $\begin{aligned} & \text { FIN303, QAN202. } \\ & \text { Concurrent: FIN301 } \end{aligned}$ | MRE |
|  | FIN403 | Commercial Banking | 3 | FIN302, BLW301COM102 | MRE |
|  | THMxxx | Theme course | 3 |  | URE |
|  | ACCxxx | Accounting Elective | 3 | COM102 | MRE |
|  | xxxxxx | Science Elective | 3 |  | URE |
|  |  | Total | 15 |  |  |
| Spring | MGT406 | Business Policy \& Strategy | 3 | MGT201, MKT201, MIS201, <br> Business Senior Standing or Permission; <br> Concurrent: FIN301 <br> CRE |  |
|  |  |  |  |  |  |
|  | FIN405 | Advanced Financial Management | 3 | Junior Standing Seco Semester, FIN201 | URE |
|  | xxxxxx | Free Elective | 3 |  | URE |
|  | xxxxxx | Free Elective | 3 |  | URE |
|  | xxxxxx | Free Elective |  |  | URE |
|  |  | Total | 15 |  |  |

*Substitutions for upper level courses are done in exceptional cases upon approval of department chair.

Concentration in Management
The Management concentration offers professional training in the complex art of human management as it relates to corporate and organizational behavior in the business world. The field of management requires knowledge of individual and group behavior, the processes of perception and how people select and interpret information. This concentration provides the tools and skills necessary to manage simultaneous complex tasks and objectives through rigorous project management training and project simulations. Students will gain an understanding of the importance of management to society and organizations, and how management can be a force for positive change in a rapidly changing business environment.

## Required Courses

MGT 301 Organizational Behavior MGT 302 Managing Human Resources
MGT xxx Management Elective
MGT 380 Project Management, or approved management elective MGT 403 Entrepreneurship (Normally
offered only in Spring semester)

## Management Electives

(Offerings vary each semester; consult department for typical offerings)
MGT 303 Management and Leadership
Development
MGT 305 International Business
MGT 394/494 Special Topics in

## Management

MGT 496 Independent Study in Management
*Effective in the 2004-2005 catalog, all courses in Management at the 300-level and above will require COM 204 as a prerequisite. MGT 301 and MGT 360 are exceptions, but will require that COM 204 be taken concurrently.


## Concentration in Marketing

Students in this concentration study the practical application of marketing concepts such as procedures for developing promotions, pricing of products, distribution channels and sales management strategies. Furthermore, heavy emphasis is placed on market research utilizing statistical analytical techniques, consumer behavior and a variety of market programming methodologies.

Particular emphasis is placed on interpersonal communication techniques and on the practical application of marketing concepts as they relate to sales management.

## Required Courses

MKT 301 Consumer Behavior MKT 302 Marketing Research MKT xxx Marketing Elective MKT xxx Marketing Elective MKT 401 Marketing Strategy

## Marketing Electives

(Offerings vary each semester; consult department for typical offerings)
MKT 303 E-Commerce
MKT 304 Sales Management
MKT 305 Retailing Management
MKT 307 Business Marketing
MKT 308 Marketing Channels
MKT 309 International Marketing
MKT 394/494 Special Topics in Marketing
MKT 496 Independent Study in Marketing
BUS 300 International Study Tour or BUS
397 Business Internship

## Proposed Course Sequence of Study

Bachelor of Science in Business Administration

Concentration: in Marketing \& Management

| FIRST YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM101 | Academic Writing | 3 | EPT score 4 or COM001 | URE |
|  | ECO201 | Principles of Microeconomics | 3 |  | URE |
|  | MTH101 | Math for Business I | 3 | Pass Placement Test or MTH002 | URE |
|  | BIS201 | Business Information Systems | 3 | Pass Placement Test or BIS001 | CRE |
|  | QAN201 | Introduction to Statistics | 3 | Concurrent: MTH101 | URE |
|  |  | Total | 15 |  |  |
| Spring | ACC201 | Fundamentals of Financial Accounting | 3 | Concurrent: MTH101, QAN201 | CRE |
|  | QAN202 | Quantitative Analysis for Decision Making | 3 | QAN201 | URE |
|  | COM102 | Writing and Reading Across the Curriculum | 3 | COM101 or Placement Test Waiver | URE |
|  | ECO202 | Principles of Macroeconomics | 3 |  | URE |
|  | MTH102 | Mathematics for Business II | 3 | MTH101 | URE |
|  |  | Total | 15 |  |  |


|  |  | SECOND YEAR (30 CREDITS) |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Term | Course $\#$ | Title | Credit | Prerequisite | Fulfills |
| Fall | COM204 | Advanced Academic Writing | 3 | COM102 | URE |
|  | MGT201 | Fundamentals of Management | 3 | Concurrent: COM102 | CRE |
|  | ACC202 | Fundamentals of Managerial Accounting | 3 | ACC201, MTH101; |  |
|  |  |  | 3 | Concurrent: QAN201 | CRE |
|  | MKT201 | Fundamentals of Marketing | ECO201, ECO202; |  |  |
|  |  | Humanities/Social Sciences Requirement | 3 |  | CRE |
|  | xxxxxx | Total | $\mathbf{1 5}$ |  | URE |
| Spring | COM208 | Public Speaking | 3 | COM102 | CRE |
|  | COM225 | Global Business Communication | 3 | COM204 | URE/CRE |
|  | FIN201 | Fundamentals of Financial Management | 3 | Concurrent: ACC202, QAN202 CRE |  |
|  | MIS201 | Fundamentals of MIS | 3 | BIS201 | CRE |
|  | xxxxxx | Arabic Requirement | 3 |  | URE |
|  |  | Total | $\mathbf{1 5}$ |  |  |


| THIRD YEAR (33 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | MKT301 | Consumer Behavior | 3 | $\begin{aligned} & \text { MKT201, ACC201, QAN201, } \\ & \text { COM102 } \end{aligned}$ | MRE |
|  | MGT301* | Organizational Behavior | 3 | MGT201, ACC201, QAN201, COM102 | MRE |
|  | BLW301 | Business Law | 3 | ACC201, ECO202; <br> Concurrent: COM204 or 208 | CRE |
|  | FIN301 | Financial Statement Analysis | 3 | COM102, ACC202, FIN201 | CRE |
|  | THMxxx | Theme Course | 3 | COM102 | URE |
|  | BUS392 | Resume Writing \& Interview Skills | 0 | Business Junior Standing; Concurrent: COM225 | CRE |
|  |  | Total | 15 |  |  |
| Spring | MGT302 | Managing Human Resources | 3 | $\begin{aligned} & \text { MGT201, FIN201, ACC202, } \\ & \text { QAN202, COM102 } \end{aligned}$ | MRE |
|  | MKT302 | Marketing Research | 3 | MKT201, ACC201, QAN202, COM102; Concurrent: MIS201 | MRE |
|  | MGT380 | Project Management | 3 | $\begin{aligned} & \text { MIS201, MGT301, FIN201, } \\ & \text { ACC202 } \end{aligned}$ | MRE |
|  | MGT360* | Bus. Ethics \& Social Responsibility | 3 | MGT201, ACC201, QAN201; Concurrent: COM204 | CRE |
|  | THMxxx | Theme Course | 3 | COM102 | URE |
|  | xxxxxx | Science Elective | 3 |  | URE |
|  |  | Total | 18 |  |  |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\frac{\text { Term }}{\text { Fall }}$ | Course \# | Title | Credit | Prerequisite | Fulfills |
|  | MGTxxx | Management Elective | 3 | MGT201, FIN201, ACC202, COM102 | MRE |
|  | MKT401 | Marketing Strategy | 3 | MKT301, MKT302, FIN201, ACC202 | MRE |
|  | MKTxxx | Marketing Elective | 3 | MKT201, ACC202, FIN201, COM102 | MRE |
|  | xxxxxx | Science Elective | 3 |  | URE |
|  | xxxxx | Free Elective | 3 | 15 | URE |
|  |  | Total |  |  |  |
| Spring | MGT406 | Business Policy \& Strategy | 3 | MGT201, MKT201, MIS201, Sr. Business Standing; Concurrent: FIN301 <br> CRE |  |
|  | MGT403 | Entrepreneurship | 3 | University Sr. Standing or Permission | MRE |
|  | MKTxxx | Marketing Elective | 3 | MKT201, ACC202, FIN201, COM102 | MRE |
| XXX | Free Elective | 3 |  | URE |  |
| XXX | Free Elective | 3 |  | URE |  |
|  |  | Total | 15 |  |  |

[^9]
## Concentration in Management

 Information SystemsManagers and non-managers alike depend upon information for decisionmaking. To be useful, information must be understandable, timely, thorough, focused and distributed to the appropriate individual. Accomplishing all this is the challenge of management information systems. In this concentration, students will acquire professional skills in the areas of computer-based information systems, networks, communications, data analysis and other skills needed by this
expanding field of information technology management.

## Required Courses

MIS 200 Business Process Logic
MIS 301 Fundamentals of Database
Management
MIS 303 Introduction to Systems Analysis
MIS 304 Applied Systems Design
MIS xxx MIS Elective
MIS Electives
(Not offered every semester, check course descriptions)
MIS 203 Software Development for Business Applications

MIS 300 Business Data Communications
MIS 302 Advanced Database Management MIS 305 Object Oriented Analysis and Design
MIS 394/494 Special Topics in MIS
MIS 402 Knowledge Management
MIS 404 Internet Business Applications
MIS 410 Supply Chain Management
MIS 415 Issues in International Information Systems
MIS 420 Modeling and Simulation of Business Processes
MIS 496 Independent Study in MIS

## Proposed Course Sequence of Study

## Bachelor of Science in Business Administration

Concentration: in Accounting \& MIS

|  |  |  | FIRST YEAR (30 CREDITS) |  | Fulfills |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite | URE |
| Fall | COM101 | Academic Writing | 3 | EPT score 4 or COM 001 | URE |
|  | ECO201 | Principles of Microeconomics | 3 |  |  |
|  | MTH101 | Mathematics for Business I | 3 | Pass Placement Test or MTH 002 | URE |
|  | BIS201 | Business Information Systems | 3 | Pass Placement Test or BIS 001 | CRE |
|  | QAN201 | Introduction to Statistics | 3 | Concurrent: MTH101 | URE |
|  |  | Total | $\mathbf{1 5}$ |  |  |
| Spring | COM102 | Writing and Reading Across the Curriculum | 3 | COM101 or Placement Test Waiver URE |  |
|  | ECO202 | Principles of Macroeconomics | 3 |  | URE |
|  | MIS200 | Business Process Logic | 3 | MTH101, BIS201 | MRE |
|  | ACC201 | Fundamentals of Financial Accounting | 3 | Concurrent: MTH101, QAN201 | CRE |
|  | QAN202 | Quantitative Analysis for Decision-Making | 3 | QAN201 | URE |
|  |  | Total | $\mathbf{1 5}$ |  |  |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM204 | Advanced Academic Writing | 3 | COM 102 | URE |
|  | ACC202 | Fundamentals of Managerial Accounting | 3 | MTH101, ACC 201; <br> Concurrent: QAN201 | CRE |
|  | xxxxxx | Humanities/Social Sciences Requirement | 3 |  | URE |
|  | FIN201 | Fundamentals of Financial Management | 3 | Concurrent: ACC202, QAN202 | CRE |
|  | MTH102 | Mathematics for Business II | 3 | MTH 101 | URE |
|  |  | Total | 15 |  |  |
| Spring | MGT201 | Fundamentals of Management | 3 | Concurrent: COM 102 | CRE |
|  | MKT201 | Fundamentals of Marketing | 3 | ECO 201, ECO 202; <br> Concurrent: COM102 | CRE |
|  | xxxxxx | Arabic Requirement | 3 |  | URE |
|  | COM225 | Global Business Communication | 3 | COM204 | URE/CRE |
|  | MIS201 | Fundamentals of MIS | 3 | BIS201 | CRE |
|  |  | Total | 15 |  |  |


| THIRD YEAR (33 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM208 | Public Speaking | 3 | COM102 | CRE |
|  | MIS301 | Fundamentals of Database Management | 3 | MIS200, MIS201, COM102; Concurrent:FIN201 | MRE |
|  | MIS303 | Introduction to Systems Analysis | 3 | MIS200, MIS201, COM102; Concurrent: FIN201, MKT201, MGT 201 | MRE |
|  | ACC301 | Intermediate Financial Accounting I | 3 | COM102, ACC202; <br> Concurrent: MGT 201 | MRE |
|  | ACC303 | Cost Accounting | 3 | ACC 202, FIN201; <br> Concurrent: MIS201, MKT201 | MRE |
|  |  | Total | 15 |  |  |
| Spring | ACC302 | Intermediate Financial Accounting II | 3 | ACC301, FIN201; Concurrent: MIS201 | MRE |
|  | MISxxx | MIS Elective | 3 |  | MRE |
|  | MIS304 | Applied Systems Design | 3 | MIS303 ; Concurrent: QAN202 | MRE |
|  | FIN301 | Financial Statement Analysis | 3 | ACC202, FIN201, COM102 | CRE |
|  | BLW301 | Business Law | 3 | ACC201, ECO202; <br> Concurrent: COM204 or 208 | CRE |
|  | THMxxx | Theme course | 3 | COM102 | URE |
|  |  | Total | 18 |  |  |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit |  | Prerequisite | Fulfills |
| Fall | ACCxxx | Accounting Elective | 3 | MGT201, ACC201, QAN201; Concurrent: COM204 |  | MRE |
|  | MGT360 | Bus. Ethics \& Social Responsibility | 3 |  |  | CRE |
|  | THMxxx | Theme course | 3 |  | 102 | URE |
|  | xxxxxx | Science Elective | 3 |  |  | URE |
|  | xxxxxx | Free Elective | 3 |  |  | URE |
|  | BUS392 | Resume Writing and Interviewing Skills | 0 | Bus Con | ess Junior Stand urrent: COM225 | CRE |
|  |  | Total | 15 |  |  |  |
| Spring | MGT406 | Business Policy \& Strategy | 3 | MGT201, MKT201, MIS201, Business Sr. Standing or Permission; Concurrent: FIN301 CRE |  |  |
|  | ACC304 | Auditing | 3 | ACC | 302 | MRE |
|  | xxxxxx | Science Elective | 3 |  |  | URE |
|  | xxxxxx | Free Elective | 3 |  |  | URE |
|  | xxxxxx | Free Elective | 3 |  |  | URE |
|  |  | Total | 15 |  |  |  |

*Substitutions for upper level courses are done only in exceptional cases upon approval of the department chair.

## Proposed Course Sequence of Study

Bachelor of Science in Business Administration
Concentration: in MIS \& Marketing

| FIRST YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM101 | Academic Writing | 3 | EPT score 4 or COM 001 | URE |
|  | ECO201 | Principles of Microeconomics | 3 |  | URE |
|  | MTH101 | Mathematics for Business I | 3 | Pass Placement Test or MTH 002 | URE |
|  | BIS201 | Business Information Systems | 3 | Pass Placement Test or BIS 001 | CRE |
|  | QAN201 | Introduction to Statistics | 3 | Concurrent: MTH101 | URE |
|  |  | Total | 15 |  |  |
| Spring | COM102 | Writing and Reading Across the Curriculum | 3 | COM101 or Placement Test Waiver | URE |
|  | ECO202 | Principles of Macroeconomics | 3 |  | URE |
|  | MIS200 | Business Process Logic | 3 | MTH101, BIS201 | MRE |
|  | ACC201 | Fundamentals of Financial Accounting | 3 | Concurrent: MTH101, QAN201 | CRE |
|  | QAN202 | Quantitative Analysis for Decision-Making | 3 | QAN201 | URE |
|  |  | Total | 15 |  |  |
| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM204 | Advanced Academic Writing | 3 | COM 102 | URE |
|  | ACC202 | Fundamentals of Managerial Accounting | 3 | MTH101, ACC 201; <br> Concurrent: QAN201 | CRE |
|  | xxxxxx | Humanities/Social Sciences Requirement | 3 |  | URE |
|  | FIN201 | Fundamentals of Financial Management | 3 | Concurrent: ACC202, QAN202 | CRE |
|  | MTH102 | Mathematics for Business II | 3 | MTH 101 | URE |
|  |  | Total | 15 |  |  |
| Spring | MGT201 | Fundamentals of Management | 3 | Concurrent: COM 102 | CRE |
|  | MKT201 | Fundamentals of Marketing | 3 | ECO 201, ECO 202; <br> Concurrent: COM102 | CRE |
|  | xxxxxx | Arabic Requirement | 3 |  | URE |
|  | COM225 | Global Business Communication | 3 | COM204 | URE/CRE |
|  | MIS201 | Fundamentals of MIS | 3 | BIS201 | CRE |
|  |  | Total | 15 |  |  |


|  |  |  | THIRD YEAR (33 CREDITS) |  | Credit | Prerequisite |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | MKTxxx | Marketing Elective | 3 | MKT201, ACC202, FIN201, COM102 | MRE |
|  | MGT360 | Bus. Ethics \& Social Responsibility | 3 | MGT201, ACC201, QAN201; Concurrent: COM204 | CRE |
|  | THMxxx | Theme course | 3 | COM102 | URE |
|  | xxxxxx | Science Elective | 3 |  | URE |
|  | xxxxxx | Free Elective | 3 |  | URE |
|  |  | Total | 15 |  |  |
| Spring | MGT406 | Business Policy \& Strategy | 3 | MGT201, MKT201, MIS201, Senior Business Standing; Concurrent: FIN301 | CRE |
|  | MKT401 | Marketing Strategy | 3 | MKT301, MKT302, FIN201, ACC202 |  |
|  | xxxxxx | Science Elective | 3 |  | URE |
|  | xxxxxx | Free Elective | 3 |  | URE |
|  | xxxxxx | Free Elective | 3 |  | URE |
|  |  | Total | 15 |  |  |

## Bachelor of Science in Finance (B.S.FIN.)

Finance is the art and science of obtaining, administering and managing money. Along with management and marketing, finance is one of the basic business functions of the free enterprise system. Every organization must perform the finance function and almost every decision that organizations make has financial implications. Students majoring in finance are introduced to the theory, concepts, applications, institutional environment and analytical tools essential for proper decision-making.
The finance program develops the analytical and behavioral skills necessary for success in dynamic domestic and global financial environments. Courses are designed to provide students with an understanding of the relationship between business finance and the economic system in the context of the management decisionmaking process.
The appropriate use of technology, new organizational structures, entrepreneurial thinking and international awareness is integrated throughout the program. The goal of the finance program is to impart knowledge and competence in finance that will prepare students for entry-
level and leadership positions in private and public sector organizations. Students seeking careers in real estate, corporate control, treasury functions and investments will find the finance major well suited for their needs.

## Mission

The mission of the Bachelor of Science in Finance degree program is to provide students with a strong undergraduate foundation in the theory and application of finance, building upon a liberal arts and science education. The finance program is intended to prepare students for graduate study in finance as well as to provide them with the financial concepts and tools necessary for positions in government, business and industry, both nationally and internationally.
The finance department provides courses for students in the School of Business and Management and the university that are appropriate for the business core requirements and for students seeking general knowledge of the application of finance in business.
The finance program is also committed to excellence in teaching. In a discipline that constantly evolves, it is important for the faculty and the curriculum to remain current. As such, the program encourages applied research and business consulting as methods of remaining current and
bringing new thought and developing practices to the classroom.
The program recognizes the importance of having faculty with diverse interests and talents. Each faculty member is encouraged to use his or her strengths to contribute to the university, professional community, larger community and discipline.

## Objectives of the Finance Program

The objectives of the program are to:

- Provide a quality education to students that will prepare them for leadership positions within the finance profession. Students acquire financial knowledge and skills that can be applied in a variety of environments.
- Help students to understand the process of integration and the application of core competencies and skills in business or business-related environments and/or situations.
- Allow students to prepare and take the examinations of Chartered Financial Analyst (CFA) and Certified Financial Planner (CFP).
- Provide students with knowledge of the problems and opportunities that confront entities in the specific field of finance.
- Provide students with an education that emphasizes the concepts of financial management, investment problems, capital markets, business ethics and decision making strategies.
- Prepare students to be productive professionals who can make responsible decisions in a changing world.
- Create students who are able to focus on the challenges found in an educational environment that emphasizes high quality teaching and learning.
- Enhance students' learning processes through applied research and instructional development while recognizing the contribution of basic research.

The required curriculum in finance provides students with a basic foundation in financial management and exposure to the nature and operations of the financial markets. Building upon this foundation, students may expand their knowledge with courses in banking, international finance, portfolio management, intermediate accounting, intermediate economics, calculus and statistics.

## Unique Features of a B.S. in Finance at AUS

The Bachelor of Science in Finance degree program at AUS has a number of distinctive features that provide AUS graduates a competitive advantage in today's business world:

- Analytical tools to handle a variety of finance and business functions are developed throughout the program. Courses are designed to provide students with an understanding of the relationship between business finance and the economic system in the context of the management decision-making process.
- The appropriate use of technology, new organizational structures, entrepreneurial thinking and international awareness are integrated into the majority of courses.
- The finance curriculum is integrated with other business courses and nonbusiness courses such as mathematics, statistics, English, psychology and economics.
- Critical thinking is developed through an active learning process. The curriculum in finance helps the students acquire good analytical and communication skills and keep abreast of current economic and political developments.
- The required curriculum in finance provides students with a basic
foundation in finance and an exposure to the nature and operations of the financial markets. Building upon this foundation, students may expand their knowledge by electing courses in banking, international finance, portfolio management and more.
- Faculty research findings are integrated into the curriculum. The School of Business and Management encourages scholarly work because it helps the faculty member update his or her knowledge and is incorporated into the classroom.
- The program, with its partnerships in the business world, encourages faculty members to engage in applied research and business consulting as methods of remaining current and bringing new thought and developing practices to the classroom.


## Competencies at Time of Graduation

Below is a sample of the skills students will take away with them to utilize in their careers in finance:

- Defining and solving quantitative problems
- Making decisions
- Developing budgets
- Preparing financial reports and projections
- Assessing risk
- Defining problems and designing solutions
- Interpreting accounting and financial data
- Presenting reports and proposals to groups
- Utilizing computer software for analysis and reports


## Professional Outlook for Finance Graduates

Finance consists of three interrelated areas where graduates can practice: (1) financial management, which involves decisions within firms, (2) investment, which focuses on the decisions made by both individual and institutional investors as they choose securities for their investment portfolios, and (3) money and capital markets, which deals with securities markets and financial institutions.

## Curriculum Design Philosophy

Finance, as an area of study, is designed to promote an analytical appreciation of
the financial system and the financial decision-making process as determinants of the economic wealth of individuals, business firms, governments and countries.
The finance curriculum works in tandem with the broad university requirements. The university's emphasis of general requirements mirrors the School of Business and Management philosophy that the purpose of higher education is to create a well-rounded individual who is conversant not only in his or her specialty, but who also has a broad understanding of the humanities as well as natural and social sciences. The emphasis on the common body of knowledge for business students ensures that future finance professionals understand the concepts of assets' evaluation, investment and the raising of funds.

## Admission and Requirements

Students must meet university general admission requirements and complete the common prerequisite courses listed in the catalog. Students can declare a major in finance at the end of their sophomore year after they complete the business foundation courses. A grade point average of 2.5 or better is required in the business foundation courses for the student to be considered for this major.
All BSFIN transfer students are required to take at least 30 upper-level credits towards their major requirements. Transfer credits for upper-division business courses are subject to approval by the appropriate School of Business and Management department.

## Program for Students Majoring in Finance

In addition to university and School of Business and Management requirements, the following finance and economics courses are required for finance majors:

## General Education and School Requirements

- English language competency requirement: 12 credits comprised of COM 101, COM 102 (or higher), COM 204 and COM 225
- SBM English communication requirement: COM 208
- Arabic heritage requirement: THM 301 (formerly THM 201), THM 302 (formerly THM 202), ARA 101 or any Arabic language or literature course with the approval of the dean of the College of Arts and Sciences
- Mathematics and/or statistics requirement: MTH 101 and QAN 201
- SBM mathematics and quantitative methods requirement: MTH 102 and QAN 202
- Science requirement: any two of the following courses: BIO 101, BIO 102, BIO 103, CHM 101, CHM 102, CHM 103, CHM 105, ENV 100, ENV 101, PHY 100, PHY 101, PHY 102, PHY 103, PHY 104
- Humanities and social sciences requirement: ECO 201, ECO 202, THM XXX, THM XXX, one three credit
social sciences or humanities course (or two social sciences or humanities courses if THM 301 (formerly THM 201) or THM 302 (formerly THM 202) is used to satisfy the Arabic requirement)
- Computer literacy requirement: Satisfied through extensive use of computer resources in courses throughout the Finance curriculum.


## Required Finance Core

FIN 302 Financial Markets and Institutions (Normally offered only in Fall semester) FIN 303 Investment Analysis FIN 402 Futures and Options (Normally offered only in Spring semester) FIN 404 Portfolio Management (Normally offered only in Fall semester)
FIN 405 Advanced Financial
Management (Normally offered only in Spring semester)

## Finance Electives

Finance majors are required to choose at least five courses from the following list of which a maximum of two courses may be in Economics. Elective courses are not offered every semester (check course descriptions). FIN 304 Real Estate Finance FIN 306 Insurance and Financial Planning FIN 394/494 Special Topics-Finance FIN 401 International Finance FIN 403 Commercial Banking ECO XXX* Economics Elective ECO XXX* Economics Elective * Any 300-level or 400 -level course in Economics as approved by the department chair.
A recommended sequence of study is shown below for a representative student's four-year schedule.

# Proposed Course Sequence of Study 

## Bachelor of Science in Finance

B.S. in Finance

|  |  |  | FIRST YEAR (30 CREDITS) |  | Fulfills |  |
| :--- | :--- | :--- | :---: | :--- | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite | ( |  |
| Fall | COM101 | Academic Writing | 3 | EPT score 4 or COM 001 | URE |  |
|  | ECO201 | Principles of Microeconomics | 3 |  | URE |  |
|  | MTH101 | Mathematics for Business I | 3 | Pass Placement Test or MTH 002 URE |  |  |
|  | BIS201 | Business Information Systems | 3 | Pass Placement Test or BIS 001 | CRE |  |
|  | QAN201 | Introduction to Statistics | 3 | Concurrent: MTH101 | URE |  |
|  |  | Total | $\mathbf{1 5}$ |  |  |  |
| Spring | COM102 | Writing and Reading Across the Curriculum | 3 | COM101 or Placement Test Waiver URE |  |  |
|  | ECO202 | Principles of Macroeconomics | 3 |  | URE |  |
|  | MTH102 | Mathematics for Business II | 3 | MTH 101 | URE |  |
|  | ACC201 | Fundamentals of Financial Accounting | 3 | Concurrent: MTH101, QAN201 | CRE |  |
|  | QAN202 | Quantitative Analysis for Decision-Making | 3 | QAN201 | URE |  |
|  |  | Total | $\mathbf{1 5}$ |  |  |  |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM204 | Advanced Academic Writing | 3 | COM 102 <br> MTH101, ACC 201; <br> Concurrent: QAN201 | URE |
|  | ACC202 | Fundamentals of Managerial Accounting | 3 |  | CRE |
|  | xxxxxx | Humanities/Social Sciences Requirement | 3 |  | URE |
|  | FIN201 | Fundamentals of Financial Management | 3 | Concurrent: ACC202, QAN202 | CRE |
|  | MGT201 | Fundamentals of Management | 3 | Concurrent: COM 102 | CRE |
|  |  | Total | 15 |  |  |
| Spring | COM208 | Public Speaking | 3 | COM102 | CRE |
|  | MKT201 | Fundamentals of Marketing | 3 | ECO 201, ECO 202; <br> Concurrent: COM102 | CRE |
|  | xxxxxx | Arabic Requirement | 3 |  | URE |
|  | FIN301 | Financial Statement Analysis | 3 | ACC202, FIN201, COM102 BIS201 | $\begin{aligned} & \text { CRE } \\ & \text { CRE } \end{aligned}$ |
|  | MIS201 | Fundamentals of MIS | 3 |  |  |
|  |  | Total | 15 |  |  |
| THIRD YEAR (30 CREDITS) |  |  |  |  |  |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | xxxxxx | Science Elective | 3 |  | URE |
|  | FIN302 | Financial Markets and Institutions | 3 | FIN201, COM102; Concurrent: MIS201 | MRE |
|  | FIN303 | Investment Analysis | 3 | ACC202, FIN201, COM102 ; Concurrent: MKT201, MGT201 MRE |  |
|  | FIN304 | Real Estate Finance | 3 | ACC202, FIN201, COM102; Concurrent: QAN202 | MRE |
|  | BLW301 | Business Law | 3 | ACC201, ECO202; <br> Concurrent: COM204 or 208 | CRE |
|  |  | Total | 15 |  |  |
| Spring | COM225 | Global Business Communication | 3 | COM204 | URE/CRE |
|  | FIN402 | Futures and Options | 3 | FIN301, FIN303, QAN202; Concurrent: BLW301 |  |
|  | FIN405 | Advanced Financial Management | 3 | FIN201 | $\begin{aligned} & \text { URE } \\ & \text { URE } \\ & \text { URE } \end{aligned}$ |
|  | xxxxxx | Science Elective | 3 |  |  |
|  | THMxxx | Theme course | 3 | COM102 |  |
|  | BUS392 | Resume Writing and Interviewing Skills | 0 | Business Junior Standing; Concurrent: COM225 | CRE |
|  |  | Total | 15 |  |  |


| FOURTH YEAR (33 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | FIN404 | Portfolio Management | 3 | FIN303, QAN202, Concurrent: FIN301 | MRE |
|  | FIN403 | Commercial Banking | 3 | FIN302, BLW301 |  |
|  | THMxxx | Theme course | 3 | COM102 | URE |
|  | ECOxxx | Economics Elective | 3 |  | MRE |
|  | xxxxxx | Free Elective | 3 |  | URE |
|  | MGT360 | Bus. Ethics \& Social Responsibility | 3 | MGT201, ACC201, QAN201; <br> Concurrent: COM204 | CRE |
|  |  | Total | 18 |  |  |
| Spring | MGT406 | Business Policy \& Strategy | 3 | MGT201, MKT201, MIS201, Standing or Permission; Concurrent: FIN301 | Business Sr. <br> CRE |
|  | FIN401 | International Finance | 3 | FIN301, FIN303, QAN202 |  |
|  | FIN306 | Insurance and Financial Planning | 3 | ACC202, FIN201, COM102 | URE |
|  | xxxxxx | Free Elective | 3 |  | URE |
|  | xxxxxx | Free Elective | 3 |  | URE |
|  |  | Total | 15 |  |  |

[^10]
## Bachelor of Science in <br> Management Information Systems (B.S.MIS.)

The Bachelor of Science in Management Information Systems (M.I.S.) program is dedicated to preparing successful graduates for professional business careers, emphasizing the application of information technology to business processes and to engaging in service and research which serve the information technology needs of society in general, and the Gulf region in particular.
Information systems is the study of computer technologies, human cognition and scientific principles directed to the design, implementation and management of information systems. The discipline includes technical components such as computer programming, system design, telecommunications, database management systems and computer graphics as well as human factors in system design and human-computer interaction. The management information systems professional analyzes the significance of information in problem solving, investigates how to collect information, understands the need to validate information and evaluate information sources, appreciates the importance of sharing information with others, and determines how to utilize information in problem solving and decision making.
The problems solved by information systems graduates come from many disciplines such as mathematics, economics, business, engineering, linguistics and psychology, to name a few. As an information systems professional working on a problem in one of those areas, one must be knowledgeable in that discipline as well as in the capabilities and uses of computers. The successful information systems professional must possess considerable communication skills and must be able to learn new ideas quickly and adapt to ever-changing conditions to satisfy the needs of the users.

## Mission

In the last three decades we have witnessed immense developments in computers and information technologies. The rate of new technical advances in recent years shows no signs of diminishing. Among the most noteworthy achievements are the implementation of microchip technology, the mass production of microcomputers, the reduction in the cost of manufacturing memories and processors, the development of distributed systems, parallel processors and database systems, the convergence of computing systems and telecommunications with the growth of LANs, WANs, and the Internet, and the increasing availability and power of software packages. These technical advances have brought computer-based data processing, word processing, online marketing, process monitoring, information resource sharing and managerial decision making to many more organizations than before. Presently, the task of information processing permeates the whole of each organization; the data processing department is ceasing to be an autonomous part. Increasingly, managers are turning to information services to assist their decision-making. In order to meet these challenges, more and more complex application systems, often using databases or knowledge bases such as computer-integrated manufacturing, group decision support systems, automatic learning and diagnostic systems, are being introduced every day.
The rapid expansion of computer technology and the increasing complexity of information systems generate a need for more sophisticated and effective methods of structuring information for purposes of storage, analysis and retrieval. This requires information systems professionals to be aware of the opportunities and problems resulting from the application of computer technology and capable of understanding both the information needs of managers, administrators and other end-users and the information needs of designing the appropriate computer-based systems. Accordingly, the information analyst and system
designer can no longer be regarded as technical experts only; in addition to having a professional knowledge and command of information technology, they must understand the basic needs of the organization in which they operate and of the users of the information systems which they develop. The B.S.MIS. will endeavor to educate students so that they can:

- Understand and plan for the use of current and emerging information technologies
- Develop a broad perspective of the integration of information technology in all functional areas of business
- Understand how to exploit information technology as a strategic resource
- Develop technical and managerial skills in the management information systems
- Integrate quality and continuous improvement concepts into information systems management
- Understand ethical issues related to the use of information technology


## Objectives of the M.I.S. Program

The program objectives are to:

- Provide M.I.S. graduates with a curriculum that prepares them with the technical skills and conceptual knowledge necessary to succeed in an information systems career, primarily as business analysts.
- Continuously improve students’ skills and knowledge of emerging information systems approaches and technologies that have been identified and targeted for future development.
- Provide service courses to students in the school and the university that are appropriate for the business core and for students seeking general knowledge of the applications of information systems in business.
- Allow students to prepare and take the examinations for professional certifications such as OCP (Oracle Certified Professional), MSCP (Microsoft Certified Professional) and CISA (Certified Information Systems Auditor).
- Involve the faculty with the placement of students through contacts with potential employers, serving as references for students and advising students on job-search skills.
- Enhance faculty interaction with information systems professionals to identify conceptual knowledge, technical skills and instructional methods appropriate for information systems careers.
- Encourage faculty to engage in applied research in emerging technologies and approaches and publications of instructional development applied to the M.I.S. curriculum.


## M.I.S. Curriculum Outcomes

A successful graduate of the M.I.S. program should be able to:

- Create an application in a structured development environment to manipulate business data files using structured programming techniques.
- Create GUI-based applications in an object-oriented programming language including the development of user interfaces, use of controls, writing/debugging code and the creation of interactive menus.
- Apply data modeling techniques such as normalization and ER diagramming to create a database model.
- Implement a database model in a relational database management system (RDBMS) such as ORACLE including the creation of tables, establishing referential integrity constraints, loading data, creating views and producing forms and reports using the RDBMS.
- Plan and manage a local area network including the creation of users, installation of software, establishment of security constraints, configuration of print services and configuration of clients.
- Configure a web server and design a website.
- Select and apply appropriate systems analysis and design methodologies and techniques to develop an information system for a business process.
- Use modern application development products as prototyping tools in the systems development process.
- Develop information system applications for solving business problems by completing a development project from initial requirements gathering to implementation.
- Research emerging IS technologies and present recommendations to managers about the impact of those technologies on a business.
- Design and implement web-based, interactive groupware applications to support collaborative work and to support access, tracking, sharing and organizing of information across time and space.
- Apply telecommunication concepts to plan and manage wide-area networks and communicate plans to managers in both written and oral form.

The curriculum is designed to be responsive to the rapidly changing role of information technology in the business environment. Courses cover current topics including: object-oriented analysis, design, programming, client server applications, using telecommunications for competitive advantage, electronic commerce, data mining and data warehousing, and technical and managerial issues related to the internet and corporate intranets. Advanced courses are designed for students who have completed the core and will challenge students to critically analyze issues faced by technology managers.

## Unique Features of a B.S.MIS. at AUS

The Bachelor of Science in Management Information Systems at AUS incorporates a number of distinctive features that set it apart from many other programs:

- Active learning methods that enhance the development of critical thinking abilities. The program curriculum places great emphasis on methods and skills of inquiry, analysis, judgment and decision making.
- Courses that better integrate and reinforce general education requirements. The curriculum integrates, by extension and reinforcement in the M.I.S. field, the content and skills learned in basic courses such as English, accounting, marketing and economics.
- A conceptual framework that cuts across functional areas. Courses in the M.I.S. curriculum are organized with an integrated conceptual structure common to all aspects of the discipline. This conceptual structure emphasizes the utility of information, together with information production and dissemination given various uses.
- Better development and improvement of
students' interpersonal and communication skills. These skills are reflected in the fabric of the curriculum through the use of team projects and written and oral reports.
- Greater integration of research findings into the curriculum. M.I.S. courses include knowledge gained through current research and related implications for the practice in the information technology field.
- A working partnership between academe and practice is encouraged. The goal is to enable a continuous focus on the practical relevance of the educational process as well as a richer and more contemporary flavor to the content of course materials.


## Professional Outlook for Information Systems Graduates

A wide variety of rewarding professional opportunities are available to MIS graduates. These career options include the following:

- Analyzing and modeling work systems
- Analyzing and designing business processes
- Managing information services
- Evaluating and selecting business solutions
- Developing and maintaining advanced systems for information storage, retrieval and distribution
- Managing in information-intensive business environments
- Planning and managing IT-based organizational change programs
- Planning and developing the corporate data and system architecture
- Developing IS portfolios


## Curriculum Design Philosophy

This curriculum design emphasizes the broad university requirements, the common body of knowledge for business students specified by accrediting entities, the specialized knowledge of information systems specified in model curricula developed by renowned professional societies, and hands-on training and practice of specialized computer skills and information technologies. The university's emphasis of general requirements echoes the School of Business and Management philosophy
that the purpose of higher education is to create a well-rounded individual who is knowledgeable not only in his or her specialty, but who also has a broad understanding of the humanities as well as natural and social sciences. The emphasis on the common body of knowledge for business students aids future information systems professionals to understand the information needs of managers and other end-users, to understand the linkages between information processes and other managerial processes and to be aware of the ways to achieve overall organizational efficiency through designing effective information systems. The emphasis upon hands-on training and practice reflects our desire that students who complete this degree program must have working knowledge and skills in planning, analyzing, designing, and implementing information systems. These important issues will greatly differentiate the management information systems program from the computer science program and better match the increasing needs of a large number of businesses and public organizations. The curriculum is designed to ensure that a course selected either strengthens a student's understanding of the humanities, natural or social sciences, or improves the student's working knowledge of information systems planning, analysis, design, and implementation as it relates to the field of business.

## Admission and Requirements

Students wishing to declare a major in management information systems may do so at the end of their sophomore year after demonstrating a high level of academic achievement in their business foundation courses. Students must apply, in writing, to the Dean of the School of Business and Management no later than the first week of May of their sophomore year. Usually a minimum Grade Point Average of 2.5 is required in the business foundation courses in order to be considered for this major.
For further information regarding admission, please refer to the School of

Business and Management section on admission requirements.

## Program for Students Majoring in MIS

## General Education and School Requirements

- English language competency requirement: 12 credits comprised of COM 101, COM 102 (or higher), COM 204 and COM 225
- SBM English communication requirement: COM 208
- Arabic heritage requirement: THM 301 (formerly THM 201), THM 302 (formerly THM 202), ARA 101 or any Arabic language or literature course with the approval of the dean of the College of Arts and Sciences
- Mathematics and/or statistics requirement: MTH 101 and QAN 201
- SBM mathematics and quantitative methods requirement: MTH 102 and QAN 202
- Science requirement: any two of the following courses: BIO 101, BIO 102, BIO 103, CHM 101, CHM 102, CHM 103, CHM 105, ENV 100, ENV 101, PHY 100, PHY 101, PHY 102, PHY 103, PHY 104
- Humanities and social sciences requirement: ECO 201, ECO 202, THM XXX, THM XXX, one three credit social sciences or humanities course (or two social sciences or humanities courses if THM 301 (formerly THM 201) or THM 302 (formerly THM 202) is used to satisfy the Arabic requirement)
- Computer literacy requirement: Satisfied through extensive use of computer resources in courses throughout the MIS curriculum


## Required Courses

MIS 200 Business Process Logic MIS 300 Business Data Communications (Normally offered only in Fall semester) MIS 301 Fundamentals of Database Management
MIS xxx MIS Elective
MIS 303 Introduction to Systems Analysis MIS 304 Applied Systems Design
MIS 402 Knowledge Management (Normally offered only in Fall semester) MIS 404 Internet Business Applications (Normally offered only in Fall semester) MIS 405 Information Systems Strategy (Normally offered only in Spring semester) MIS xxx MIS Elective

## MIS Electives

(Not offered every semester, check course descriptions)
MIS 203 Software Development for Business Applications
MIS 302 Advanced Database Management
MIS 305 Object Oriented Analysis and Design
MIS 394/494 Special Topics in MIS
MIS 410 Supply Chain Management
MIS 415 Issues in International Information Systems
MIS 420 Modeling and Simulation of Business Processes
MIS 496 Independent Study in MIS
MGT 380 Project Management


## Proposed Course Sequence of Study

## Bachelor of Science in Management Information Systems

B.S. in MIS

|  |  |  | FIRST YEAR (30 CREDITS) |  | Fulfills |  |
| :--- | :--- | :--- | :---: | :--- | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite | ( |  |
| Fall | COM101 | Academic Writing | 3 | EPT score 4 or COM 001 | URE |  |
|  | ECO201 | Principles of Microeconomics | 3 |  | URE |  |
|  | MTH101 | Mathematics for Business I | 3 | Pass Placement Test or MTH 002URE |  |  |
|  | BIS201 | Business Information Systems | 3 | Pass Placement Test or BIS 001 | CRE |  |
|  | QAN201 | Introduction to Statistics | 3 | Concurrent: MTH101 | URE |  |
|  |  | Total | $\mathbf{1 5}$ |  |  |  |
| Spring | COM102 | Writing and Reading Across the Curriculum | 3 | COM101 or Placement Test Waiver URE |  |  |
|  | ECO202 | Principles of Macroeconomics | 3 |  | URE |  |
|  | MIS201 | Fundamentals of MIS | 3 | BIS201 | CRE |  |
|  | ACC201 | Fundamentals of Financial Accounting | 3 | Concurrent: MTH101, QAN201 | CRE |  |
|  | QAN202 | Quantitative Analysis for Decision-Making | 3 | QAN201 | URE |  |
|  |  | Total | $\mathbf{1 5}$ |  |  |  |


| SECOND YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM204 | Advanced Academic Writing | 3 | COM 102 | URE |
|  | ACC202 | Fundamentals of Managerial Accounting | 3 | MTH101, ACC 201; <br> Concurrent: QAN201 | CRE |
|  | MIS200 | Business Process Logic | 3 | MTH101, BIS201 | MRE |
|  | MGT201 | Fundamentals of Management | 3 | Concurrent: COM 102 | CRE |
|  | MKT201 | Fundamentals of Marketing | 3 | ECO 201, ECO 202; Concurrent: COM102 | CRE |
|  |  | Total | 15 |  |  |
| Spring | MIS300 | Business Data Communications | 3 | MIS201, COM102 | URE |
|  | BLW301 | Business Law | 3 | ACC201, ECO202; <br> Concurrent: COM204 or 208 | CRE |
|  | FIN201 | Fundamentals of Financial Management | 3 | Concurrent: ACC202, QAN202 | CRE |
|  | MISxxx | MIS Elective | 3 |  | MRE |
|  | MTH102 | Mathematics for Business II Total | $\begin{aligned} & 3 \\ & 15 \end{aligned}$ | MTH 101 | URE |


| THIRD YEAR (33 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | THMxxx | Theme course | 3 | COM102 | MRE |
|  | COM208 | Public Speaking | 3 | COM102 | CRE |
|  | MIS301 | Fundamentals of Database Management | 3 | MIS200, MIS201, COM102; Concurrent:FIN201 | MRE |
|  | MIS303 | Introduction to Systems Analysis | 3 |  |  |
|  |  |  |  | MIS200, MIS201, COM102; Concurrent <br> FIN201 MKT201, MGT 201 MRE |  |
|  | FIN301 | Financial Statement Analysis | 3 | ACC202, FIN201, COM102 | CRE |
|  |  | Total | 15 |  |  |
| Spring | MGT360 | Business Ethics \& Social Responsibility | 3 | MGT201, ACC201, QAN201; Concurrent: COM204 | CRE |
|  | MISxxx | MIS Elective | 3 |  | MRE |
|  | MIS304 | Applied Systems Design | 3 | MIS303 ; Concurrent: QAN202 COM204 | MRE |
|  | COM225 | Global Business Communication | 3 |  | URE/CRE |
|  | xxxxxx | Arabic requirement | 3 |  | URE |
|  | THMxxx | Theme course | 3 | COM102 | URE |
|  |  | Total | 18 |  |  |


| FOURTH YEAR (30 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | MIS402 | Knowledge Management | 3 | MIS303, QAN202, MGT360; Concurrent: FIN301 | MRE |
|  | MIS404 | Internet Business Applications | 3 | $\begin{aligned} & \text { MIS303; Concurrent: BLW301, } \\ & \text { MGT360 } \end{aligned}$ | MRE |
|  | xxxxxx | Humanities/Social Sciences Req. | 3 | Business Junior Standing; Concurrent: COM225 | URE |
|  | xxxxxx | Science Elective | 3 |  | URE |
|  | xxxxxx | Free Elective | 3 |  | URE |
|  | BUS392 | Resume Writing and Interview Skills | 0 |  | CRE |
|  |  | Total | 15 |  |  |
| Spring | MIS405 | Information Systems Strategy | 3 | Business Senior Standing, MIS304 <br> MGT201, MKT201, MIS201, <br> Senior Business Standing; <br> Concurrent: FIN301 | MRE |
|  | MGT406 | Business Policy \& Strategy | 3 |  | CRE |
|  | xxxxxx | Science Elective | 3 |  | URE |
|  | xxxxxx | Free Elective | 3 |  | URE |
|  | xxxxx | Free Elective | 3 |  | URE |
|  |  | Total | 15 |  |  |

## Minor in Business Administration Concentrations

Students from other AUS college and schools can enroll in a minor specialization in one of the five areas of concentration within SBM. They must have approval of the department to do so. Interested students should meet with the relevant department before starting the minor in order to determine specific program requirements. Students must have completed 30 credits of coursework with a GPA of 2.5 or higher prior to taking the minor courses. A total of 18 credits (not including the prerequisites) are required as follows:

ECO 201
ECO 202
COM 102
QAN 201 or STA 201 or STA 202 or NGN 111
BIS 201 (Not required of Students from Engineering and Computer Science).
One of three combinations (MTH 101 and MTH 102) or (MTH 100 and MTH 111) or (MTH 103 and MTH 104)

## Foundation Courses

ACC 201
Foundation course in area of minor specialization (i.e. MIS 201, FIN 201, MKT 201, MGT 201)
Foundation course in one of the remaining areas (i.e. MIS 201, FIN 201, MKT 201, MGT 201)

## Prerequisites



## Upper Division Courses

Students must take three 300 level or above courses which meet the prerequisite requirements.
Students planning to minor in business administration concentrations should take ECO 201 and ECO 202 early on as part of their social science requirement. Students who take only MTH 100 as a math requirement have to take another Math course. Students can use their free elective slots to partially fulfill the requirements for the minor.

- Students minoring in accounting or finance must take ACC 201, ACC 202, and FIN 201 as foundation courses.
- Students seeking a minor in MIS must complete both MIS 200 and MIS 201, resulting in a total of upto 21 credits for the minor. Computer Science and Computer Engineering students are exempted from taking MIS 200. In order for other students to waive MIS 200, a student must demonstrate necessary background in programming courses. The upper division courses in MIS are MIS 301, MIS 303 and any other 300 level or above MIS course. Instead of MIS 301, computer science and computer engineering students are required to take any other MIS course at or above the 300 level.
- Students minoring in Management must take MGT301 as one of their 300-level requirements. Further, MGT360 and MGT406 CANNOT be used to fulfill these requirements.
- Students minoring in Marketing must take MKT301 and MKT302 as part of the 300 -level requirements.


## School of Engineering

## Dean

Leland T. Blank

## Associate Dean

Steven W. Gyeszly
AUS engineering graduates are well equipped to face the future. An AUS engineering degree 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 masters or doctoral degree leading to careers in research and development, engineering management, and higher education teaching. Additionally, an engineering education is an excellent avenue to other professions such as law, medicine and public service.
Engineering is an excellent choice for young men and women who aspire to well-paid careers in which they are empowered to make a contribution to society on a local, regional, or global scale. Those who enter engineering today can look forward to a rewarding career that offers personal fulfillment, service to humankind, economic prosperity, as well as a national and international perspective to the world of professional work.

## Mission Statement

The American University of Sharjah is a young dynamic institution of higher education. As such, it offers to its students an innovative educational environment. The University's degree programs are adapted to the needs of the citizenry of the United Arab Emirates (UAE) and the Gulf Cooperation Council (GCC). In order to fulfill current and projected needs, while maintaining an American-style curriculum, the School of Engineering has the following mission:
The School of Engineering at the American University of Sharjah aspires to be the recognized leader in
engineering education in Sharjah, across the UAE and the GCC, and to become a top choice by students, parents, faculty and staff who choose to contribute to engineering higher education.
Degree programs offer the highest level of professional and technical preparation, global preparedness, and leadership development in an environment of English language education, and partnership between faculty and students. All programs offer state-of-the art technology, understanding and experimentation with the design and problem-solving processes of engineering, and unexcelled opportunities to experience real-world and research project involvement while working in close proximity with industry mentors.

## Curriculum

The School of Engineering offers programs in computer engineering, chemical engineering, civil engineering, mechanical engineering, and electrical and electronic engineering, The AUS engineering faculty provides an educational experience that is equivalent to those offered by the best state and private universities in the United States and Europe.
Each engineering curriculum has its own distinguishable and integrative features, however, common threads of design have been woven into the fabric of each curriculum to ensure that all students receive the very best that an American-based education tailored to the needs of the Middle East student and industry can offer. The engineering programs are intended to prepare its graduates for regional as well as worldwide practice. Therefore, the program is designed to satisfy the general university requirements, and to meet the program criteria adopted by engineering 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. The program instills in its graduates leadership qualities anchored in moral and ethical principles
Engineering graduates will work in an international and very competitive environment. Graduates therefore must achieve English fluency even if they intend to spend their careers in their native lands. English fluency is especially critical as more multinational corporations adopt English as the corporate language. AUS emphasizes the use of English in daily practice. To enhance the international communication skills of our graduates, instruction and interaction between students and faculty members are conducted in English.
All engineering freshmen take the same courses to ensure a sound, broadly based preparation in general education knowledge as well as a firm understanding of the principles and practices of all engineering disciplines. In various formats, the oral, written, graphical and software communication skills of a student are developed, demonstrated, and assessed. This is accomplished foremost in the required laboratories, research papers, senior projects, and internships. Also, independent study one-on-one with faculty is a valuable option available to the student. The critical use of paper and electronic forms of published literature is taught from the first semester in engineering, and in all curricula in the School of Engineering. Throughout the degree plan, students must use and are assessed on their ability to discover, understand and critically judge the quality of publicly available literature.
Well-equipped and supplied computer labs are provided for students during and after classes and laboratories. The menu of software systems available for design, analysis, and synthesis tasks in classes, labs, senior projects and
courses in other parts of campus is determined by what the faculty teach in all of their courses. Each engineering student must complete a team-based senior project that is commonly of twosemester duration. A real world problem requires specification, design, analysis, and synthesis as the problemsolving process is utilized. Faculty members serve as close advisors and monitor of 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.
In order to help students be successful at AUS, the major educational objectives of the School of Engineering are:

- To assist students in actualizing their potential through preparation for a successful and satisfying career in the engineering profession
- To graduate well-educated engineers able to serve in regional and international practice, with consideration of multi-cultural environments
- To offer undergraduate and graduate academic programs that are critical to
the sustainable development of society and the quality of life in the region
- To offer broad-based engineering 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


## Degrees Outcomes

The graduates of the School of Engineering are educated to be able to demonstrate the following outcomes:

- Approach the system stages of problem identification, needs analysis, requirements definition, design, implementation, maintenance, and phase-out using the life-cycle concept
- Write, read, and speak in private and public to peers, supervisors and employers in a coherent, organized fashion that demonstrates understanding of problems and solutions that are practical and implementable
- Utilize in a variety of settings the fundamentals of math, science and engineering principles
- Keep abreast of and utilize in work current computer and software
technologies that are relevant to the engineering field chosen by the student and graduate
- Attain the professional form of engineering practice and certification available to an engineering graduate serving in professional practice
- Participate in, as well as lead, teambased activities using current technology, engineering practices, and science principles
- Make and implement ethical choices in all engineering endeavors


## Faculty

The School of Engineering faculty members are distinguished experts in their fields. They are both educators and scholars. All engineering faculty members have an earned doctorate degree in engineering from leading US, Canadian and British universities. The engineering faculty provides an educational environment in which students can mature professionally and personally while preparing to live and work in a technologically rich global community.



## Professors

Saad Ahmed (Mechanical Engineering) Azm Al Homoud (Civil Engineering) Leland T. Blank (Mechanical and Industrial Engineering)
Mohammad Ameen Jarrah (Mechanical Engineering)

## Associate Professors

Jamal A. Abdalla (Civil Engineering)
Dana Stevenson-Abouelnasr (Chemical Engineering)
Rana Ahmed (Computer Engineering)
Abdul-Rahman K. Al-Ali (Computer Engineering)
Yousef Al-Assaf (Electrical and Electronic Engineering)
Hazim El-Baz (Mechanical and Industrial Engineering)
Ibrahim Al Kattan (Mechanical Engineering)
Hasan Al-Nashash (Electrical and Electronic Engineering)
Hany El Kadi (Mechanical Engineering)
Aly Ellrefaie (Electrical and Electronic Engineering)
Mohammad Al-Rousan (Computer Engineering)
Rached Dhaouadi (Electrical and Electronic Engineering)

Armin Emberlein (Computer Engineering)
Mohamed A. Gadalla (Mechanical Engineering)
Steven W. Gyeszly (Mechanical Engineering) Assim Sagahyroon (Computer Engineering)
Sami W. Tabsh (Civil Engineering)
Adil Tamimi (Civil Engineering)

## Assistant Professors

Akmal S. Abdelfatah (Civil Engineering) Khaled Assaleh (Electrical and Electronic Engineering)
Sameh M. El-Sayegh (Civil Engineering) Mohamed El-Tarhuni (Electrical and Electronic Engineering)
Ahmad Hamad (Chemical Engineering)
Taleb Ibrahim (Chemical Engineering)
Abdul Khaliq Khan (Electrical and Electronic Engineering)
Tarik Ozkul (Computer Engineering)
Nasser N. Qaddoumi (Electrical and
Electronic Engineering)
Imran Zualkernan (Computer Engineering)

## Visiting Faculty

Ali M. S. Zalzala (Electrical and Electronic Engineering)

## Degree Programs Offered

The School of Engineering offers five undergraduate BS degrees, two minors, a Master of Science degree in Mechatronics and graduate certificate programs in interdisciplinary areas: Mechatronics, and Engineering Systems and Management (ESM). An overview of the graduate programs is provided in the graduate studies section of the catalog.

## Undergraduate Programs

## Admission and Degree Requirements for Undergraduate Programs

Formal admission to a major in all the programs of the School of Engineering requires the completion of all common freshman engineering courses and a cumulative grade point average (GPA) of 2.0. If the demand for a major exceeds the availability, then the students will be accepted in their intended major based on their GPA.

## Graduation Requirements for the B.S. Degree

In order to qualify for graduation with a Bachelor of Science degree in engineering, students must complete a minimum of 140 credits with a cumulative GPA of 2.0 or better in the major, including:

- Prescribed courses that ensure the satisfaction of the AUS general education requirements (44 credits).
- Major requirements and major electives that include courses in mathematics, sciences, engineering sciences, and engineering design that ensure preparation for professional practice ( 87 credits).
- Summer internship or practicum for a minimum of six weeks after the second or third year, working in a professional environment (or with equivalent experience approved by the Dean of the School of Engineering.)
- Free Electives (9 credits).



## Bachelor of Science in Engineering

The School of Engineering offers the B.S. degree in each of the following disciplines:

- Chemical Engineering (B.S.Ch.E.)
- Civil Engineering (B.S.C.E.)
- Computer Engineering (B.S.Co.E.)
- Electrical and Electronic Engineering (B.S.E.E.)
- Mechanical Engineering (B.S.M.E.)

Each program is designed for completion in four years including one summer session (six weeks) of study. Additionally, students are required to complete the summer internship. Students whose academic background requires the completion of preparatory courses in mathematics, English and 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 B.S. program.

The B.S. requirements include: general education requirements (GE), major requirements (MR), major elective (ME) courses that provide depth in a sub-specialty of a chosen field, and free electives (FE). The general education requirements include foundation courses in mathematics, science, the humanities, social sciences, Arabic heritage, and English. The first year, which provides a base in physics, chemistry, engineering and mathematics, is common to all engineering students. During the final year, a senior design (capstone) project must be completed. All engineering students are required to take a comprehensive assessment examination in the capstone senior design course. Practical training in an engineering environment is compulsory for one summer. This practicum, or internship, strengthens the student's preparation for engineering practice.

## Curricula in Engineering

The freshman year is identical for all engineering majors. Students with acceptable grades can change majors within the School of Engineering with no credit loss during the first year. Other course requirements for followon years are listed under individual engineering majors.

Proposed First-Year Courses for All Engineering Students

| COMMON ENGINEERING FRESHMAN YEAR (31 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | CHM 101 | General Chemistry I | 4 |  | MR/GE |
|  | COM 101 | Academic Writing | 3 | EPT score 4 or COM 001 | GE |
|  | MTH 103 | Calculus I | 3 | MTH 001 or placement test | MR/GE |
|  | NGN 110 | Introduction to Engineering | 2 | Admission to the SoE | MR |
|  | PHY 101 | General Physics I | 4 | PHY 001 or placement test, Prerequisite concurrent MTH 103 | MR/GE |
|  |  | Total | 16 |  |  |
| Spring | XXX | Free elective | 3 |  | GE |
|  | COM 102 | Writing \& Reading Across the Curriculum | 3 | EPT score 5 or COM 101 | GE |
|  | MTH 104 | Calculus II | 3 | MTH 103 | MR/GE |
|  | NGN 111 | Engineering Statistics | 2 | NGN 110 | MR |
|  | PHY 102 | General Physics II | 4 | PHY 101 | MR |
|  |  | Total | 15 |  |  |

[^11]
## Bachelors of Science in Chemical Engineering (B.S.Ch.E.)

## Program Purpose and Description

Chemical engineers have many different responsibilities including design, analysis, research and development, supervision, production and sales. They manage the development of new technologies and products; they develop safe and environmentally-benign processes that are efficient and economic to operate; and they direct the design, construction and operation of new plants, ranging from pilot plants to full scale chemical facilities.
Chemical Engineers are making unparalleled contributions in chemical and petrochemical processing, food and pharmaceutical industries, pollution control and abatement, process automation, process control and modeling, and biochemical technology. The Chemical Engineering program offers a four-year study 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, engineering economy, pollution prevention, and waste management.

## Educational Objectives

The objectives of the B.S.Ch.E. program challenge students to achieve their maximum potential in diverse professional careers throughout their lifetime. Specifically, students are expected during their study to:

- Obtain the necessary technical skills and knowledge that will enable them to identify problems and develop solutions in the analysis, design, optimization, and control of systems and processes encountered in the practice of chemical engineering and related disciplines.
- Engage in an integrated academicindustrial curriculum and activities.
- Be self-confident team workers capable of functioning in a multidisciplinary atmosphere communicating effectively on oral, written, graphical and visual forms.
- Learn how to use economical and environmental analyses combined with sound technical knowledge to address projects encountered in chemical industries and related fields.
- Acquire a sufficiently broad, diverse, and rigorous education to excel in graduate work in chemical engineering as well as in a variety of other professional degree programs.
- Become familiar with process equipment and computer modeling, simulation, control and optimization software via hands-on learning.
- Be committed to life-long learning and be motivated towards continued professional development.
- Understand the professional and ethical responsibilities of the engineers, the safety and environmental aspects of engineering decisions, and the impact of engineering solutions in the context of societal needs and contemporary issues.
- Develop engineering judgment via learning how to analyze data, develop procedures and carry them out, and to work under minimal supervision.


## Degree Outcomes

A graduate of the Chemical Engineering program is able to:

- Apply technical knowledge and use computer software to design, develop and model cost-effective, environmentally-benign, safe and operable chemical systems and processes.
- Constructively lead and participate in industrial, governmental and public environmental safety and waste management activities.
- Design and conduct experiments, and analyze and interpret technical data using modern experimental and computation-based techniques and tools.
- Gather and present information succinctly and convincingly through effective presentations, memoranda and reports.
- Succeed in engineering professional and licensing examinations.
- Pursue new concepts through selfdirected study and life-long learning


## Degree Requirements for the B.S.Ch.E.

The program requires 140 credits to graduate. After the third year, each student is required to devote at least six weeks to the summer internship with an industrial firm prior to graduation. In the fourth year, each student is required to apply the knowledge, including economical and environmental analyses, gained from previous years to perform and analyze experiments and to work on supervised projects of specific chemical engineering significance. All chemical engineering students are required to take a comprehensive assessment examination during this capstone course sequence. Students are required to participate in several laboratory courses: organic chemistry, physical chemistry, fluid flow, heat transfer, material, unit operations, process control, environmental, and computer-aided design.
Students seeking a B.S.Ch.E. degree must satisfy the following requirements:

## General Education Requirements

- English language competency requirement: 12 credits comprised of COM 102, COM 203 or COM 204, and COM 207
- Arabic heritage requirement: THM 301 or THM 302 or ARA 101 or any other approved Arabic
- Mathematics and/or statistics requirement: MTH 103 and MTH 104
- Science requirement: CHM 101 and PHY 101
- Humanities and Social Sciences requirement Students must satisfy the Humanities and Social Sciences requirement by completing at least 15 credits or five courses in the humanities and social sciences curricula with a grade of C- or better. Students must take
- Nine credits to be selected from the humanities and social science courses.
- Six credits in interdisciplinary theme courses, students must earn a minimum of 60 credits before registering in the theme courses.


If the three credits in courses on Arab Heritage are satisfied by one of the theme courses (THM301 or THM 302 ), additional three credits must be taken from the humanities or social sciences courses.

- Computer literacy requirement: Satisfied through extensive use of computer resources in courses throughout the engineering curriculum


## Free Electives

Nine credits from any courses offered at AUS

Major Requirements
NGN 110 Introduction to Engineering
NGN 111 Engineering Statistics
CHE 203 Principles of Chemical Engineering
CHE 204 Chemical Engineering Thermodynamics I
CHE 230 Materials Science
CHE 300 Fluid Flow
CHE 304 Chemical Engineering Thermodynamics II
CHE 307 Heat Transfer
CHE 321 Chemical Reaction Engineering

CHE 329 Mass Transfer I
CHE 330 Simulation Techniques in Chemical Engineering
CHE 332 Engineering Economy
CHE 350 Chemical Engineering Measuremnt lab
CHE 390 Mass Transfer II
CHE 421 Chemical Process Dynamics and Control
CHE 432 Chemical Systems Design and Integration
CHE 451 Chemical Engineering Lab I
CHE 452 Chemical Engineering Lab II
CHE 490 Senior Design Project I
CHE 491 Senior Design Project II
ELE 225 Electric Circuits and Devices
CHE 397 Professional Training in Chemical Engineering
PHY 102 General Physics II
CHM 102 General Chemistry II
CHM 215 Organic Chemistry I
CHM 216 Organic Chemistry II
CHM 215L Organic Chemistry I Lab
CHM 331 Physical Chemistry
CHM 335 Physical Chemistry Lab
MTH 203 Calculus III
MTH 205 Differential Equations
MTH 221 Linear Algebra
Major Electives
Six credits from any CHE courses not listed above

Proposed Course Sequence of Study (Years 2 and Later)
Bachelor of Science in Chemical Engineering (B.S.Ch.E.)

| SECOND YEAR (42 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | CHE 203 | Principles of Chemical Engineering | 4 | CHM 101 | MR |
|  | CHM 102 | General Chemistry II | 4 | CHM 101 | MR |
|  | CHM 215 | Organic Chemistry I | 3 | Prerequisite concurrent CHM 102 | MR |
|  | MTH 203 | Calculus III | 3 | MTH 104 | MR |
|  | MTH 205 | Differential Equations | 3 | MTH 104 | MR |
|  |  | Total | 17 |  |  |
| Spring | CHE 204 | Chemical Engineering Thermodynamics I | 3 | PHY 101, CHE 203 | MR |
|  | CHM 216 | Organic Chemistry II | 3 | CHM 215 | MR |
|  | CHM 215L | Organic Chemistry Laboratory I | 1 | CHM 215 | MR |
|  | ELE 225 | Electric Circuits and Devices | 3 | PHY 102 | MR |
|  | COM 203 or | Writing about Literature |  |  |  |
|  | COM 204 | Advanced Academic Writing | 3 | COM 102 | GE |
|  | CHE 230/MCE 230 | Materials Science | 3 | CHM 101 | MR |
|  | HUM/SS XXX | Humanities/Social Sciences Electives | 3 |  | GE |
|  |  | Total | 19 |  |  |
| Summer | COM 207 | English for Engineering | 3 | COM 203 or COM 204 | GE/MR |
|  | HUM/SS XXX | Humanities/Social Sciences Elective | 3 |  | GE |
|  |  | Total | 6 |  |  |


| THIRD YEAR (35 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | CHE 307 | Heat Transfer | 3 | CHE 204, Pre-requisite concurrent CHE 300 | MR |
|  | CHM 331 | Physical Chemistry | 3 | CHE 204 or CHM 231 | MR |
|  | CHM 335 | Physical Chemistry Lab | 2 | prerequisite concurrent CHM 331 | MR |
|  | CHE 304 | Chemical Engineering Thermodynamics II | 3 | CHE 204 | MR |
|  | CHE 329 | Mass Transfer I | 3 | prerequisite concurrent CHE 204 | MR |
|  | CHE 300 | Fluid Flow | 3 | MTH 205, prerequisite concurrent CHE 203 | MR |
|  |  | Total | 17 |  |  |
| Spring | CHE 330 | Simulation Techniques in Chemical Engineering | 3 | MTH 205, prerequisite concurrent |  |
|  | CHE 321 | Chemical Reaction Engineering | 3 | CHE 390, CHE 304, CHE 321 prerequisite concurrent CHE 307, CHE 304, CHM 331 | MR MR |
|  | CHE 390 | Mass Transfer II | 3 | CHE 329 | MR |
|  | CHE 332 | Engineering Economy | 2 |  | MR |
|  | THM XXX | Theme I | 3 |  | GE |
|  | HUM/SS XXX | Humanities/Social Sciences Elective | 3 |  | GE |
|  | CHE 350 | Chemical Engineering Measurement Lab | 1 | prerequisite: NGN 111, prerequisite concurrent: CHE 307, CHE 329 | MR |
|  |  | Total | 18 |  |  |
| Summer | CHE 397 | Professional Training in Chemical Engineering | 0 | Approval of the training coordinator of the major | MR |


| FOURTH YEAR (32 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | CHE 421 | Chemical Process Dynamics and Control | 3 | CHE 330 | MR |
|  | MTH 221 | Linear Algebra | 3 | MTH 103 | MR |
|  | CHE 432 | Chemical Systems Design and Integration | 3 | CHE 330, CHE 332 | MR |
|  | CHE 490 | Senior Design Project I | 1 | prerequisite concurrent CHE 432 | MR |
|  | CHE XXX | Major Elective | 3 |  | ME |
|  | THM XXX | Theme II | 3 |  | GE |
|  | CHE 451 | Chemical Engineering Lab I | 1 | prerequisite: CHE 390, <br> CHE 321, CHE 350 | MR |
|  |  | Total | 17 |  |  |
| Spring | CHE 491 | Senior Design Project II | 2 | CHE 490 | MR |
|  | CHE XXX | Major Elective | 3 |  | ME |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  | CHE 452 | Chemical Engineering Lab II | 1 | Prerequisite: CHE 451 | MR |
|  | HUM/SS XXX | Humanities/Social Sciences Elective | 3 |  | GE |
|  |  | Total | 15 |  |  |

## Bachelor of Science in Civil Engineering (B.S.C.E.)

## Program Purpose and Description

The Civil Engineering degree 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 take a comprehensive assessment examination 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.

## Educational Mission and Objectives

The mission is to provide the skills necessary for graduates to carry out the duties and responsibilities of professional civil engineers, to become productive members of society, and to have the background to succeed in graduate studies. To accomplish this mission, the objectives are:

- Provide a sound and broad-based educational background in all major areas of the discipline that is necessary to succeed in a civil engineering career, both as an individual and as a member of a multi-disciplinary team.
- Ensure a thorough preparation in the fundamentals of mathematics, science and engineering that enables the student
to address multi-faceted problems and also prepares him or her to pass the Fundamentals of Engineering Examination, thus leading to professional engineering licensure, or its equivalent
- Develop a sensitivity for and the skills necessary to understand and appreciate the global, ethical, and social implications of the duties and responsibilities of the profession with respect to public and occupational protection of health and safety
- Acquire proficiency in the use of computers as a communication and an engineering problem-solving tool
- Develop the capability to manage and lead technological and economic changes


## Degree Outcomes

A successful graduate of the civil engineering program is able to:

- Analyze and design buildings and other structures and their foundations with proficiency in using computer software packages to complete structural analysis and structural design tasks.
- Plan, evaluate and design water and environmental engineering infrastructures such as dams, water supply and drainage systems, sanitary and wastewater treatment plants, and reclamation of contaminated sites
- Demonstrate knowledge in site investigation, planning, scheduling, and supervision of civil infrastructure projects such as building construction, road construction, tunnels and offshore structures with expertise in using computer software packages for construction management
- Predict soil behavior, foundation capacity, and proper site improvement techniques, as well as test subterranean rock and soil to determine its suitability to support extreme loads
- Plan and design urban transportation systems and model, evaluate and analyze traffic systems with competency in using planning software packages
- Test and select suitable construction materials for civil infrastructure systems, especially reinforced concrete. Employ standard codes and testing procedures such as the widely used standard design mix procedures and testing methods
- Communicate effectively with a wide
range of audiences on a broad spectrum of topics in both oral and written forms.
- Take and pass the FE exam, and, when eligible, take and pass the Professional Engineering (PE) examination, or its equivalent
- Conduct civil engineering tasks and make decisions ethically and professionally
- Demonstrate skills for conducting experiments, analyzing data and interpreting results effectively
- Pursue and succeed in graduate studies in civil engineering or related disciplines, as well as be inspired to be a life-long learner


## Graduation Requirements for the B.S.C.E. Degree

A total of 140 credits are required. After the third year, each student is required to devote at least six weeks to the summer internship prior to graduation. In the fourth year, each student is required to complete a senior design project. All civil engineering students are required to take a comprehensive assessment examination during this capstone course sequence.
Students seeking a B.S.C.E degree must satisfy the following requirements:

## General Education Requirements

- English language competency requirement: 12 credits comprised of COM 102, COM 203 or COM 204, and COM 207
- Arabic heritage requirement: THM 301 or THM 302 or ARA 101 or any other approved Arabic
- Mathematics and/or statistics requirement: MTH 103 and MTH 104
- Science requirement: CHM 101 and PHY 101
- Humanities and Social Sciences requirement: Students must satisfy the Humanities and Social Sciences requirement by completing at least 15 credits or five courses in the humanities and social sciences curricula with a grade of C- or better. Students must take
- Nine credits to be selected from the humanities and social science courses.
- Six credits in interdisciplinary theme courses, students must earn a
minimum of 60 credits before registering in the theme courses.
- If the three credits in courses on Arab Heritage are satisfied by one of the theme courses (THM301 or THM302), additional three credits must be taken from the humanities or social sciences courses.
- Computer literacy requirement: Satisfied through extensive use of computer resources in courses throughout the engineering curriculum


## Free Electives

Nine credits from any courses offered at AUS

Major Requirements
Eighty one credit hours of major requirements
NGN 110 to Engineering
NGN 111 Engineering Statistics
CVE 202 Construction Materials Lab
CVE 220 Statics
CVE 221 Construction Materials and Quality Control
CVE 223 Mechanics of Materials
CVE 231 Engineering/Environmental 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 Lab
CVE 304 Environmental Engineering Lab
CVE 310 Fundamentals of Structural Dynamics
CVE 312 Structural Steel Design
CVE 313 Reinforced Concrete Design
CVE 325 Computational Methods
CVE 331 Geotechnical Engineering Principles
CVE 333 Geotechnical Engineering Design
CVE 341 Hydraulic Engineering
CVE 351 Water and Wastewater Treatment
CVE 363 Highway Design
CVE 367 Project Estimating, Planning and Control
CVE 490 Civil Engineering Design Project I
CVE 491 Civil Engineering Design Project II
CVE 397 Professional Training
MTH 203 Calculus III
MTH 205 Differential Equations
MTH 221 Linear Algebra
PHY 102 General Physics II

## Major Electives

Student must complete two elective courses (six credits) in civil engineering, general engineering and basic science:

CVE 410 Computer Methods in Structural Analysis
CVE 411 Structural Concrete Design
CVE 412 Finite Element Method
CVE 413 Design of Bridges
CVE 437 Advanced Concrete Technology
CVE 441 Advanced Soil Mechanics
CVE 442 Advanced Foundation Engineering
CVE 445 Environmental Geotechnology
CVE 446 Geotechnical Dam Engineering
CVE 447 Irrigation and Drainage Engineering
CVE 448 Port and Harbor Engineering
CVE 450 Environmental Pollution Engineering and Control
CVE 455 Environmental Impact Assessment, Protection and Public Health
CVE 456 Traffic Engineering
CVE 457 Airport Planning and Design
CVE 461 Advanced Surveying
CVE 463 Construction Management
CVE 464 Building Construction
CVE 468 Systems Construction Management, Scheduling and Control
CVE 494 Selected Topics in Civil Engineering
NGN 463 Quantitative Engineering Management

# Proposed Course Sequence of Study (Years 2 and Later) <br> Bachelor of Science in Civil Engineering ( B.S.C.E.) 

| SECOND YEAR (34 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | CVE 202 | Construction Materials Lab | 1 | Co-requisite: CVE 221 | MR |
|  | CVE 221 | Construction Materials \& Quality Control | 3 | Co-req.: CVE 202, Pre-requisite: CVE220 | MR |
|  | CVE 220 | Statics | 3 | PHY 101 | MR |
|  | CVE 231 | Engineering/Environmental Geology | 3 | NGN110 | MR |
|  | CVE 241 | Elementary Surveying | 3 | MTH 104 | MR |
|  | CVE 242 | Field Plane Surveying | 1 | Co-requisite: CVE 241 | MR |
|  | MTH 205 | Differential Equations | 3 | MTH 104 | MR |
|  |  | Total | 17 |  |  |
| Spring | COM 203 | Writing about Literature or Advanced Academic Writing |  |  |  |
|  | CVE 223 | Advanced Academic Writing Mechanics of Materials | 3 | CVE 220 | MR |
|  | CVE 240 | Fluid Mechanics | 3 | MTH 104, CVE 220 | MR |
|  | CVE 263 | Urban Transportation Planning | 3 | CVE 241 | MR |
|  | CVE 267 | Civil Engineering Cost Analysis | 2 | NGN111 | MR |
|  | MTH 221 | Linear Algebra | 3 | MTH 104 | MR |
|  |  | Total | 17 |  |  |


| THIRD YEAR (38 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | CVE 301 | Theory of Structures | 3 | CVE 223 | MR |
|  | CVE 303 | Geotechnical Engineering Lab | 1 | Co-requisite: CVE 331 | MR |
|  | CVE 331 | Geotechnical Engineering Principles | 3 | CVE 223, CVE 231, <br> Co-requisite: CVE 303 | MR |
|  | CVE 341 | Hydraulic Engineering | 3 | CVE 240 | MR |
|  | CVE 363 | Highway Engineering | 3 | CVE 263 | MR |
|  | MTH 203 | Calculus III | 3 | MTH 104 | MR |
|  | THM XXX | Theme I | 3 |  | GE |
|  |  | Total | 19 |  |  |
| Spring | CVE 304 | Environmental and Water Engineering Lab | 1 | Co: CVE 351 | MR |
|  | CVE 313 | Reinforced Concrete Design | 3 | CVE 301 | MR |
|  | CVE 312 | Structural Steel Design | 3 | CVE 301 | MR |
|  | CVE 325 | Computational Methods | 3 | MTH 205, MTH221 | MR |
|  | CVE 333 | Geotechnical Eng. Design | 3 | CVE 331 | MR |
|  | CVE 351 | Water and Waste Water treatment | 3 | CHM 101, Co: CVE 304. <br> Pre Con: CVE 341. | MR |
|  | THM XXX | Theme II | 3 |  | GE |
|  |  | Total | 19 |  |  |
| Summer | CVE 397 | Professional Training in Civil Engineering | 0 | Approval of the training coordinator for the major | MR |


| FOURTH YEAR (3 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | CVE 310 | Fundamental of Structural Dynamics | 3 | CVE 301, MTH 205 | MR |
|  | CVE 367 | Project Estimating, Planning \& Control | 3 | CVE 267 | MR |
|  | CVE 490 | Civil Engineering Design Project I | 1 | Senior Standing | MR |
|  | CVE XXX | Major Elective | 3 |  | ME |
|  | COM 207 | English for Engineering | 3 | COM 203 or COM 204 | GE/MR |
|  | HUM/SS XXX | Humanities and Social Sciences Elective | 3 |  | GE |
|  | HUM/SS XXX | Humanities and Social Sciences Elective | 3 |  | GE |
|  |  | Total | 19 |  |  |
| Spring | CVE 491 | Civil Engineering Design Project II | 3 | CVE 490 | MR |
|  | CVE XXX | Major Elective | 3 |  | ME |
|  | HUM/SS XXX | Humanities and Social Sciences Elective | 3 |  | GE |
|  | HUM/SS XXX | Humanities and Social Sciences Elective | 3 |  | GE |
|  | XXX | Free Elective | 3 |  | FE |
|  | XXX | Free Elective | 3 |  | FE |
|  |  | Total | 18 |  |  |

# Bachelor of Science in Computer Engineering (B.S.Co.E.) 

## Program Description and Purpose

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 project accomplished over a twosemester period.
Required laboratory courses provide hands-on experience and support class work and the senior project. The laboratories are equipped with state-ofthe are hardware, software and networking equipment.

## Educational Objectives

The degree program is developed to accomplish the following objectives:

- To provide students with solid scientific and mathematical foundations to succeed in junior and senior level computer engineering topics
- To ensure that students acquire sufficient knowledge of computer engineering principles to analyze, design, implement, operate and maintain small-to-large scale computer-based systems such as modern computer systems, computer networks, software engineering and industrial applications.
- To prepare students for professional practice
- To develop skills for working in teams.
- To acquire oral, written and graphical communication skills necessary for professional engineering practice


## Degree Outcomes

The graduate of the Computer
Engineering program is able to:

- Design, develop, operate and maintain computer-based systems as well as related hardware and software applications
- Pass the professional and certificate exams to improve their career opportunities.
- Demonstrate awareness of ethical issues, such as environmental, humanitarian and legal issues
- Enter graduate school anywhere in the world and engage in a life-long learning process
- Work in teams and make effective written and/or oral reports to public and professional audiences


## Graduation Requirements for the B.S.Co.E. Degree

A total of 140 credits are required. After the third year, each student is required to devote at least six weeks to the summer internship prior to graduation. In the fourth year, each student is required to complete a senior design project. All computer engineering students are required to take a comprehensive assessment examination during this capstone course sequence.
Students seeking the B.S.Co.E. degree must complete the following requirements:

## General Education Requirements

- Arabic heritage requirement: THM 301 or THM 302 or ARA 101 or any other approved Arabic
- English language competency requirement: 12 credits comprised of COM 101, COM 102, COM 203 or

COM 204, and COM 207

- Mathematics and/or statistics requirement: MTH 103 and MTH 104
- Science requirement: CHM 101 and PHY 101
- Humanities and Social Sciences requirement: Students must satisfy the Humanities and Social Sciences requirement by completing at least 15 credits or five courses in the humanities and social sciences curricula with a grade of C- or better. Students must take
- Nine credits to be selected from the humanities and social science courses.
- Six credits in interdisciplinary theme courses, students must earn a minimum of 60 credits before registering in the theme courses.
If the three credits in courses on Arab Heritage are satisfied by one of the theme courses (THM301 or THM 302 ), additional three credits must be taken from the humanities or social sciences courses.
- Computer literacy requirement: Satisfied through extensive use of computer resources in courses throughout the engineering curriculum


## Free Electives

Nine credits of any courses offered at AUS.

## Major Requirements

NGN 110 Introduction to Engineering
NGN 111 Engineering Statistics
MTH 205 Differential Equations
MTH 213 Discrete Mathematics
MTH 221 Linear Algebra
PHY 102 General Physics II
COE 210 Introduction to Computing I
COE 211 Introduction to Computing II
COE 212 Program Development and Design in Java
COE 221 Digital Systems
COE 311 Data Structures and Algorithms
COE 331 Microprocessors
COE 341 Computer Architecture and Organization
COE 370 Communications Networks
COE 371 Computer Networks I
COE 381 Operating Systems
COE 397 Professional Training in Computer Engineering
COE 412 Embedded Systems
COE 420 Software Engineering I
COE 424 Advanced Digital System Design
COE 490 Design Project I
COE 491 Design Project II
ELE 211 Electric Circuits I

ELE 241
ELE 241L Electronics I Lab
ELE 323 Signal Processing
ELE 341 Electronics II
MCE 225 Statics and Dynamics for Computer Engineering

## Major Electives

Students are required to take four 3credit courses from the approved technical elective courses shown below. At least three of the four courses should be in Computer Engineering.
COE 394 Special Topics in Computer Engineering

COE 421 Software Engineering II
COE 422 Database Systems
COE 423 Computer Networks II
COE 425 Modern Computer Organizations
COE 427 Internet Computing
COE 428 VLSI Design
COE 429 Computer Graphics
COE 431 Computer Applications in Industry
COE 433 Distributed Systems Design
COE 434 Mobile Computing
COE 494 Special Topics in Computer Engineering

COE 496 Independent Study
ELE 311 Electromagnetics
ELE 426 Imaging Systems
CMP 411 Performance Evaluation of Computer Systems
CMP 418 Introduction to Simulation and Modeling
CMP 433 Artificial Intelligence
CMP 435 Computer Security
CMP 438 Programming Robots
CMP 454 Software Testing and Quality Engineering

## Proposed Course Sequence of Study (Years 2 and Later)

Bachelor of Science in Computer Engineering (B.S.Co.E.)

| SECOND YEAR (42 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COE 210 | Introduction to Computing I | 3 | MTH 103 | MR |
|  | COE 221 | Digital Systems | 4 | Co-requisite: ELE 211 | MR |
|  | COM 203 or COM 204 | Writing about Literature Advanced Academic Writing | 3 | COM 102 | GE |
|  | ELE 211 | Electric Circuits I | 3 | PHY 102 | MR |
|  | HUM/SS XXX | Humanities and Social Sciences Elective | 3 |  | GE |
|  | MCE 225 | Statics \& Dynamics for Computer Engineering Total | $\begin{gathered} 2 \\ 18 \end{gathered}$ | MTH 104 \& PHY 101 | MR |
| Spring | COE 211 | Introduction to Computing II | 3 | COE 210 | MR |
|  | COM 207 | English for Engineering | 3 | COM 203 or COM 204 | GE |
|  | MTH 205 | Differential Equations | 3 | MTH 104 | MR |
|  | ELE 241 | Electronics I | 3 | ELE 211 | MR |
|  | HUM/SS XXX | Humanities and Social Sciences Elective | 3 |  | GE |
|  | MTH 213 | Discrete Mathematics | 3 | MTH 103 | MR |
|  |  | Total | 18 |  |  |
| Summer | COE 331 | Microprocessors | 4 | COE 221 | MR |
|  | COE 212 | Program Development and Design in Java Total | $\begin{aligned} & 2 \\ & 6 \end{aligned}$ | COE 211 | MR |


| THIRD YEAR (34 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COE 311 | Data Structures and Algorithms | 3 | COE 211 \& MTH 213 | MR |
|  | COE 370 | Communications Networks | 3 | COE 331 or CMP 240 | MR |
|  | ELE 241L | Electronics I Lab | 1 | ELE 241 | MR |
|  | XXX | Free Elective | 3 |  | GE |
|  | THM XXX | Theme I | 3 |  | GE |
|  | MTH 221 | Linear Algebra | 3 | MTH 104 | MR |
|  |  | Total | 16 |  |  |
| Spring | COE 341 | Computer Architecture and Organization | 3 | COE 331 | MR |
|  | COE 371 | Computer Networks I | 3 | COE 370 | MR |
|  | COE 381 | Operating Systems | 3 | COE 311 /CMP 232 | MR |
|  | ELE 341 | Electronics II | 3 | ELE 241 | MR |
|  | THMXXX | Theme II | 3 |  | GE |
|  | ELE 323 | Signal Processing | 3 | MTH 205 \& ELE 211 | MR |
|  |  | Total | 18 |  |  |
| Summer | NGN 397 | Professional Training | 0 | Approval of the training coordinator for the major | MR |


| FOURTH YEAR (33 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COE 412 | Embedded Systems | 3 | COE 331 \& ELE 241 | MR |
|  | COE 420 | Software Engineering I | 3 | COE 311/ CMP 232 | MR |
|  | COE 424 | Advanced Digital System Design | 3 | COE 341 | MR |
|  | COE 490 | Design Project I | 1 | Senior Standing | MR |
|  | COE XXX | COE Elective | 3 |  | MR |
|  | HUM/SS XXX | Humanities/Social Sciences Elective | 3 |  | GE |
|  |  | Total | 16 |  |  |
| Spring | COE XXX | COE Elective | 3 |  | MR |
|  | COE 491 | Design Project II | 2 | COE 490 | MR |
|  | COE/ELE/ <br> CMP XXX | COE/ELE/CMP Elective | 3 |  | MR |
|  | COE XXX | COE Elective | 3 |  | MR |
|  | HUM/SS XXX | Humanities/Social Sciences Elective | 3 |  | GE |
|  | XXX | Free Elective | 3 |  | GE |
|  |  | Total | 17 |  |  |

## Bachelor of Science in Electrical and Electronic Engineering

 (B.S.E.E.E.)
## Program Purpose and Description

Electrical and Electronic Engineering is a dynamic field of engineering that provides exciting and excellent career opportunities in all sectors of society. Electrical and electronic engineers analyze, design and implement a wide range of systems such as telecommunication networks, diagnostic medical equipment, power distribution, electrical machines and modern industrial control.
The purpose of the Electrical and Electronic Engineering (EEE) Program at AUS is to prepare graduates for professional engineering careers. The program emphasizes electrical and electronic engineering capabilities necessary to engage in service and research that serves the United Arab Emirates, Middle East countries and the world. In partnership with students, faculty members examine, refine and transfer knowledge and applications in EEE. Expanded knowledge through analysis, design and research offers advances in state of the art technology made available to students.
The curriculum, based on the US and UAE accreditation requirements, is structured to provide an optimal
balance between fundamental theory and hands-on laboratory practice. Modern laboratories with up-to-date equipment are maintained to support course work and conduct state of the art research. The EEE curriculum is a 4year program leading to a Bachelor of Science in Electrical and Electronic Engineering (B.S.E.E.E.). 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 and related disciplines. The EEE program prepares the graduate to work in a broad range of areas: electric power, telecommunication, power electronics, microwave systems, medical electronics, instrumentation, and control systems.

## Educational Objectives

Specific objectives of the program are:

- Graduate engineers with the necessary math, basic science, and engineering sciences background to work professionally in the electrical engineering areas of power, communications, medical electronics, instrumentation, control and related disciplines.
- Provide graduates with the modern technical laboratory, computer aided design, and programming skills needed to professionally excel in utilizing state of the art technologies.
- Offer a curriculum that gives its
graduates distinguishable communications skills.
- Prepare students for personal and professional awareness and commitment to the ethical and social responsibilities both as individuals and within work teams.
- Graduate individuals who can pursue and succeed in advanced studies.
- Provide opportunities for faculty/student teams to engage in research and development in collaboration with industry.


## Degree Outcomes

A successful graduate of the Electrical and Electronic Engineering program is able to:

- Identify and formulate electrical engineering problems, as well as propose and implement solutions for such problems
- Use techniques, skills and modern engineering tools for engineering practice
- Work individually and in team environments
- Use written and oral communications to document work and present project design and results
- Pursue advanced academic studies


## Graduation Requirements for the B.S.E.E.E. Degree

A total of 140 credits are required. After the third year, each student is
required to devote at least six weeks to the summer internship prior to graduation. In the fourth year, each student is required to complete a senior design project. All EEE students are required to take a comprehensive assessment examination during this capstone course sequence.
Students seeking a B.S.E.E degree must satisfy the following requirements:

## General Education Requirements

- Arabic heritage requirement: THM 301 or THM 302 or ARA 101 or any other approved Arabic
- English language competency requirement: 12 credits comprised of COM 102, COM 203 or COM 204, and COM 207
- Mathematics and/or statistics requirement: MTH 103 and MTH 104
- Science requirement: CHM 101 and PHY 101
- Humanities and Social Sciences requirement: Students must satisfy the Humanities and Social Sciences requirement by completing at least 15 credits or five courses in the humanities and social sciences curricula with a grade of C- or better. Students must take
- Nine credits to be selected from the humanities and social science courses.
- Six credits in interdisciplinary theme courses, students must earn a minimum of 60 credits before registering in the theme courses.
If the three credits in courses on Arab Heritage are satisfied by one of the theme courses (THM301 or THM302), additional three credits must be taken from the humanities or social sciences courses.
- Computer literacy requirement:

Satisfied through extensive use of computer resources in courses throughout the engineering curriculum

## Free Electives

Nine credits of any courses offered at AUS.

## Major Requirements

NGN 110 Introduction to Engineering
NGN 111 Engineering Statistics
MTH 203 Calculus III
MTH 205 Differential Equations
MTH 221 Linear Algebra

PHY 102 General Physics II
MCE 224 Statics and Dynamics
ELE 397 Professional Training in Electrical Engineering
COE 210 Introduction to Computing I
COE 221 Digital Systems
COE 331 Microprocessors
ELE 211 Electric Circuits I
ELE 212 Electric Circuits II
ELE 241 Electronics I
ELE 241L Electronics I Lab
ELE 251 Electrical Energy Conversion
ELE 311 Electromagnetics
ELE 321 Signals and Systems
ELE 332L Measurements and Instrumentation Lab
ELE 341 Electronics II
ELE 341L Electronics II Lab
ELE 353 Control Systems I
ELE 353L Control Systems I Lab
ELE 361 Communications I
ELE 361L Communications I Lab
ELE 371 Power Systems Analysis
ELE 371L Electric Machines and Power Systems Lab
ELE 424 Digital Signal Processing
ELE 490 Design Project I
ELE 491 Design Project II

## Major Electives

Students are required to take four 3credit elective courses and a 1 -credit laboratory from the approved list of major electives. There are six areas of specialization in electrical and electronic engineering:
Communications, Electromagnetics, Electric Power Engineering, Power Electronics, Instrumentation and Control, and Medical Electronics. The following is a list of the elective courses in the six areas:
ELE 394 Special Topics in Electrical Engineering (1 to 4 credits)
ELE 452 Digital Communications
ELE 451 Wireless Communications
ELE 457 Satellite Communications
COE 370 Communications Networks
ELE 458L Communications Systems Lab
ELE 453 Microwave Engineering
ELE 454 Antennas and Wave Propagation
ELE 459 Introduction to Radar Systems
ELE 485 Power Electronics
ELE 486 Electric Drives
ELE 484 Control of AC Machines
ELE 426 Imaging Systems
ELE 432 Medical Instrumentation I

ELE 433 Medical Instrumentation II
ELE 455 Digital Image Processing
ELE 439L Medical Electronics Systems Lab
ELE 444 Control Systems II
ELE 473 Industrial Instrumentation and Control
ELE 471 Digital Control Systems
ELE 472 Nonlinear Control
ELE 476L Instrumentation and Control Systems Lab
ELE 481 Power Systems Protection
ELE 482 Electric Power Distribution Systems
ELE 483 Power Systems Operation
ELE 488L Power Engineering Lab
ELE 494 Selected Topics in Electrical Engineering
ELE 496 Independent Study

## Minor in Electrical and Electronic Engineering

Students enrolling in Electrical and Electronic Engineering minor should have normally completed a minimum of 60 credits of coursework and be in good academic standing.
According to the University regulations, the following rules apply:

- The minor consists of a minimum of 18 credits including at least 9 credits in courses at or above 300 level in Electrical and Electronic Engineering.
- Free electives can be taken towards the minor.
- At least 9 credits of the minor must not have counted towards any other degree requirement.
- At least 9 credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and an average GPA of at least 2.0 must be earned in courses taken to satisfy the minor.
Students willing to obtain a minor in Electrical and Electronic Engineering MUST complete the following courses (or their equivalent):
a) ELE 212 (Electric Circuits II)
b) ELE 241 and ELE 241L (Electronics I and lab)
c) Three credits in courses at or above the 200 level in ELE
d) Six credits in courses at or above 300 level in ELE
e) At least one ELE major elective

Non-engineering majors normally
cannot enter an engineering minor.

Proposed Course Sequence of Study (Years 2 and Later)
Bachelor of Science in Electrical and Electronic Engineering (B.S.E.E.E.)

| SECOND YEAR (42 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COE 210 | Introduction to Computing I | 3 | MTH 103 | MR |
|  | COM 203 or COM 204 | Writing about Literature Advanced Academic Writing | 3 | COM 102 | GE |
|  | ELE 211 | Electric Circuits I | 3 | PHY 102 | MR |
|  | MTH 203 | Calculus III | 3 | MTH 104 | MR |
|  | MTH 221 | Linear Algebra | 3 | MTH 103 | MR |
|  | MTH 205 | Differential Equations | 3 | MTH 104 | MR |
|  |  | Total | 18 |  |  |
| Spring | COM 207 | English for Engineers | 3 | COM 203 or COM 204 | GE/MR |
|  | ELE 212 | Electric Circuits II | 3 | ELE 211 | MR |
|  | ELE 241 | Electronics I | 3 | ELE 211 | MR |
|  | ELE 241L | Electronics I Lab | 1 | ELE 241 Co-requisite | MR |
|  | ELE 251 | Electrical Energy Conversion | 3 | ELE 212 Prerequisite Co | MR |
|  | COE 221 | Digital Systems | 4 | ELE 211 Prerequisite c | MR |
|  |  | Total | 17 |  |  |
| Summer | COE 331 | Microprocessors | 4 | COE 221 | MR |
|  | HUM/SS XXX | Humanities/ Social Sciences Elective | 3 |  | GE |
|  |  | Total | 7 |  |  |


| THIRD YEAR (34 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ELE 311 | Electromagnetics | 3 | $\begin{aligned} & \text { MTH 203, MTH 205, } \\ & \text { MTH 221, PHY } 102 \end{aligned}$ | MR |
|  | ELE 321 | Signals and Systems | 3 | ELE 212, MTH 205 | MR |
|  | ELE 341 | Electronics II | 3 | ELE 241 | MR |
|  | ELE 341L | Electronics II Lab | 1 | ELE 341 Prerequisite concurrent | MR |
|  | ELE 353 | Control Systems I | 3 | MTH 205, ELE 212 | MR |
|  | ELE 371 | Power System Analysis | 3 | ELE 251, MTH 221 Prerequisite concurrent | MR |
|  | ELE 371L | Electric Machines and Power Systems Lab Total | $\begin{aligned} & 1 \\ & 17 \end{aligned}$ | ELE 371 Prerequisite concurrent | MR |
| Spring | ELE 332L | Measurements and Instrumentation Lab | 1 | ELE 341 | MR |
|  | ELE XXX | Technical Elective | 3 |  | MR |
|  | ELE 353L | Control Systems I Lab | 1 | ELE 353 | MR |
|  | ELE 361 | Communications I | 3 | ELE 321 | MR |
|  | THM XXX | Theme I | 3 |  | GE |
|  | HUM/SS XXX | Humanities/Social Sciences Elective | 3 |  | GE |
|  | MCE 224 | Statics and Dynamics | 3 | MTH 104, PHY 101 | MR |
|  |  | Total | 17 |  |  |
| Summer | NGN 397 | Professional Training in Eletrical Engineering | 0 | Approval of the training coordinator for the major | MR |


| FOURTH YEAR (33 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | ELE 361L | Communications I Lab | 1 | ELE 361 | MR |
|  | ELE 424 | Digital Signal Processing | 3 | ELE 321 | MR |
|  | ELE 4XX | Technical Elective | 3 |  | MR |
|  | ELE 4XX | Technical Elective | 3 |  |  |
|  | ELE 490 | Electrical and Electronic Engineering Design Project I | I 2 | Senior standing | MR |
|  | THM XXX | Theme II | 3 |  | GE |
|  | HUM/SS XXX | Humanities/Social Sciences Elective | 3 |  | GE |
|  |  | Total | 18 |  |  |
| Spring | ELE 4XX | Technical Elective | 3 |  | MR |
|  | ELE 4XX | Technical Elective Lab | 1 |  | MR |
|  | ELE 491 | Electrical and Electronic Engineering Design Project II | II 2 | ELE 490 | MR |
|  | HUM/SS XXX | Humanities/Social Sciences Elective | 3 |  | GE |
|  | XXX | Free Elective | 3 |  | GE |
|  | XXX | Free Elective | 3 |  | GE |
|  |  | Total | 15 |  |  |

## Bachelor of Science in Mechanical Engineering (B.S.M.E.)

## Program Purpose and Description

Mechanical engineering provides an excellent broad education for today's technological world. Mechanical engineers model, analyze, test, manufacture the engines that power ground as well as aerospace vehicles; they design, operate and modify the power plants that convert the energy in fuels, atoms, wind, and sunlight into electricity, and they construct intelligent machines and robots in industry. Mechanical engineers also build prototypes of conventional, electric and sports vehicles, develop energy management systems for industry, design and manufacture smart products and develop new engineering materials that are used in manufacturing high tech products. Mechanical engineers use computers extensively in their everyday operation; they develop computer control systems for automobiles and industrial processes and design computer interfaces to mechanical and energy systems. In short, the mechanical engineer is a vital backbone element of the engineering profession.

The B.S.M.E. curriculum produces graduates who are exceptionally competent and whose work is notable for its breadth and technical excellence. The graduates have the ability to work logically, accurately, and efficiently, to gather and use information effectively, and the dedication 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.

## Educational Objectives

The degree program is designed to accomplish the following objectives:

- To help a student understand the fundamentals and principles of mathematics, science and engineering and to be able to apply this knowledge to the identification and solution of technological problems in the fields of manufacturing, mechanics, materials, thermofluids, dynamics and control
- To provide the student with an ability to use a broad base of knowledge and systematic thinking to be creative, intellectual and capable contributors to society
- To develop a demonstrable awareness and understanding of the cultural, ethical, environmental, societal and global context in which a professional engineer must work
- To instill a commitment to life-long learning and motivation towards continued professional research and development
- To equip a student to be proficient in the use of computers as analysis and design tools.
- To develop graduates who are selfconfident team workers capable of functioning effectively on multidisciplinary, open-ended design activities, yet able to carry out tasks individually with a minimum of supervision and have the ability to communicate effectively with a wide range of audiences on a wide range of subjects in oral, written, graphical and visual forms


## Degree Outcomes

A Mechanical Engineering graduate is able to:

- Apply the engineering fundamentals and modern engineering tools

necessary to identify and analyze mechanical engineering problems, formulate constraints, devise and assess alternative solution approaches, and implement an optimal solution that satisfies specific performance requirements
- Function on multi-disciplinary teams in both leadership roles and as an individual contributor and to communicate effectively with a wide range of audiences in oral, written, graphical and visual forms within the context of mechanical engineering practice
- Understand professional and ethical responsibilities, as well as contemporary issues and their influence on technology evolution and implementation including the impact of mechanical engineering solutions in a global and societal context
- Engage in advanced studies and life-
long learning in mechanical engineering and related professional areas
- Research an engineering topic and present the results to managers, and, for interested and qualified students, to conduct scholarly research and development


## Graduation Requirements for the B.S.M.E. Degree

A total of 140 credits is required. After the third year, each student is required to devote at least six weeks to the summer internship prior to graduation. In the fourth year, each student is required to complete a senior design project. All Mechanical Engineering students are required to take a comprehensive assessment examination during this capstone course sequence.

Students seeking a B.S.M.E degree must satisfy the following requirements:

## General Education Requirements

- Arabic heritage requirement: THM 301 or THM 302 or ARA 101 or any other approved Arabic
- English language competency requirement: 12 credits comprised of COM 102, COM 203 or COM 204, and COM 207
- Mathematics and/or statistics requirement: MTH 103 and MTH 104
- Science requirement: CHM 101 and PHY 101
- Humanities and Social Sciences requirement: Students must satisfy the Humanities and Social Sciences requirement by completing at least 15 credits or five courses in the humanities and social sciences curricula with a
grade of C- or better. Students must take
- Nine credits to be selected from the humanities and social science courses.
- Six credits in interdisciplinary theme courses, students must earn a minimum of 60 credits before registering in the theme courses.
If the three credits in courses on Arab Heritage are satisfied by one of the theme courses (THM301 or THM302), additional three credits must be taken from the humanities or social sciences courses.
- Computer literacy requirement: Satisfied through extensive use of computer resources in courses throughout the engineering curriculum


## Free Eelectives

Nine credits of any courses offered at AUS.

## Major Requirements

NGN 110 Introduction to Engineering
NGN 111 Engineering Statistics
MCE 215 Engineering Drawing and Workshop
MCE 220 Statics
MCE 222 Dynamics
MCE 223 Mechanics of Materials
MCE 230 Materials Science
MCE 240 Fluid Mechanics
MCE 241 Thermodynamics I
MCE 311 Engineering Measurements
MCE 321 Mechanical Design I
MCE 322 Mechanical Design II
MCE 325 Computational Methods
MCE 328 Dynamic Systems
MCE 331 Manufacturing Processes
MCE 341 Thermodynamics II
MCE 344 Heat Transfer I
MCE 397 Professional Training in Mechanical Engineering
MCE 410 Control Systems
MCE 482 Intermediate Fluid Mechanics
MCE 490 Design Project I
MCE 491 Design Project II
MTH 203 Calculus III
MTH 205 Differential Equations
MTH 221 Linear Algebra
ELE 225 Electric Circuits and Devices

PHY 102 General Physics II

## Major Electives

Students must complete four technical elective courses ( 12 credits) in the major areas of mechanical engineering.

Mechatronics, Dynamics, Control, and Manufacturing
MCE 315 Fundamentals of ComputerAided Design and Manufacturing
MCE 316 Kinematics and Dynamics of Machinery
MCE 418 Modeling and Simulation of Dynamic Systems
MCE 423 Mechanical Vibrations
MCE 439 Computer Integrated Manufacturing
MCE 440 Advanced Manufacturing Processes
MCE 464 Introduction to Robotics
MCE 466 Introduction to Mechatronics
MCE 494 Selected Topics in Mechanical Engineering
MCE 496 Independent Study
Design, Mechanics and Materials
MCE 435 Advanced Mechanics of Materials
MCE 443 Introduction to Engineering Fracture Mechanics
MCE 473 Applied Finite Element Analysis
MCE 477 Composite Materials
MCE 480 Plastics and Plastic Processing
MCE 494 Selected Topics in Mechanical Engineering
MCE 496 Independent Study
Thermosciences
MCE 445 Energy Systems
MCE 446 Refrigeration and Air Conditioning
MCE 447 Internal Combustion Engines
MCE 448 Advanced Heat Transfer
MCE 449 Renewable Energy Systems
MCE 450 Energy Conservation and Management
MCE 454 Electronic Heat Transfer
MCE 473 Applied Finite Elements Analysis
MCE 487 Turbomachines
MCE 488 Introduction to Computational Fluid Dynamics (CFD)
MCE 489 Fluid Power
MCE 494 Selected Topics in Mechanical Engineering
MCE 496 Independent Study

## Minor in Mechanical Engineering

Students enrolling in the minor in Mechanical Engineering should have normally completed a minimum of 60 credits of coursework and be in good academic standing.
According to the University regulations, the following rules apply:

- The minor consists of a minimum of 18 credits including at least 9 credits in courses at or above 300 level in Mechanical Engineering
- Free electives can be taken towards the minor.
- At least 9 credits of the minor must not have counted towards any other degree requirement
- At least 9 credits of the minor must be taken in residence at AUS.
- A grade of at least C- in each course and an average GPA of at least 2.0 must be earned in courses taken to satisfy the minor.
Students willing to obtain a minor in Mechanical Engineering MUST complete the following courses or their equivalent (All course pre-requisites have to be satisfied).
i. MCE 223 (Mechanics of Materials)
ii. MCE 222 (Dynamics)

OR
MCE 224 (Engineering Mechanics Statics \& Dynamics)
iii. MCE 240 (Fluid Mechanics)
iv. MCE 241 (Thermodynamics I)
v. Nine credits at or above the 300 level in Mechanical Engineering
Non-engineering majors normally
cannot enter an engineering minor.

## Proposed Course Sequence of Study (Years 2 and Later)

Bachelor of Science in Mechanical Engineering ( B.S.M.E.)

| SECOND YEAR (42 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | COM 203 or | Writing about Literature or |  |  |  |
|  | COM 204 | Advanced Academic Writing | 3 | COM 102 | GE |
|  | HUM/SS XXX | Humanities/Social Sciences elective | 3 |  | GE |
|  | MTH 203 | Calculus III | 3 | MTH 104 | MR |
|  | MCE 215 | Engineering Drawing and Workshop | 3 |  | MR |
|  | MCE 220 | Statics | 3 | PHY 101 | MR |
|  | MCE 230 | Materials Science | 3 | CHM 101 | MR |
|  |  | Total | 18 |  |  |
| Spring | COM 207 | English for Engineering | 3 | COM 203 or COM 204 | MR/GE |
|  | MCE 222 | Dynamics | 3 | MCE 220 | MR |
|  | MCE 223 | Mechanics of Materials | 3 | MCE 220 | MR |
|  | MCE 240 | Fluid Mechanics | 3 | MCE 220, MTH 104, | MR |
|  | MCE 241 | Thermodynamics I | 3 | PHY 101 | MR |
|  | MTH 205 | Differential Equations | 3 | MTH 104 | MR |
|  |  | Total | 18 |  |  |
| Summer | HUM/SS XXX | Humanities/Social Sciences elective | 3 |  | GE |
|  | HUM/SS XXX | Humanities/Social Sciences elective | 3 |  | GE |
|  |  | Total | 6 |  |  |


| THIRD YEAR (36 CREDITS) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Term | Course \# | Title | Credit | Prerequisite | Fulfills |
| Fall | THM XXX | Theme I | 3 |  | GE |
|  | MTH 221 | Linear Algebra | 3 | MTH 104 | MR |
|  | MCE 321 | Mechanical Design I | 3 | MCE 215, MCE 223 | MR |
|  | MCE 331 | Manufacturing Processes | 3 | MCE 215, MCE 230 | MR |
|  | MCE 341 | Thermodynamics II | 3 | MCE 241 | MR |
|  | ELE 225 | Electric Circuits \& Devices | 3 | PHY 102 | MR |
|  |  | Total | 18 |  |  |
| Spring | THM XXX | Theme II | 3 |  | GE |
|  | MCE 311 | Engineering Measurements | 3 | MCE 222, MCE 240, ELE 225 | MR |
|  | MCE 322 | Mechanical Design II | 3 | MCE 321 | MR |
|  | MCE 325 | Computational Methods | 3 | MTH 205, MTH 221 | MR |
|  | MCE 328 | Dynamic Systems | 3 | MCE 222, MTH 205, ELE 225 | MR |
|  | MCE 344 | Heat Transfer I | 3 | MCE 240, MCE 241 | MR |
|  |  | Total | 18 |  |  |
| Summer | MCE 397 | Professional Training in Mechanical Engineering | 0 | Approval of the training coordinator for the major | MR |


|  |  |  | FOURTH YEAR (31 CREDITS) |  | Fulfills |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Term | Course \# | Title | Credit | Prerequisite | MR |
| Fall | MCE 410 | Control Systems | 3 | MCE 311, MCE 328 | MR |
|  | MCE 490 | Design Project I | 2 | Senior standing | MR |
|  | MCE 4XX | Technical Elective | 3 |  | MR |
|  | MCE 482 | Intermediate Fluid Mechanics | 3 | MCE 240, MCE 241, MTH 205 MR |  |
|  | MCE 4XX | Technical Elective | 3 |  | GE |
|  | XXX | Free Elective | 3 |  |  |
|  |  | Total | $\mathbf{1 7}$ | MR |  |
| Spring | MCE 4XX | Technical Elective | 3 |  | MR |
|  | MCE 491 | Design Project II | 2 | MCE 490 | MR |
|  | MCE 4XX | Technical Elective | 3 |  | GE |
|  | HUM/SS XXX | Humanities/Social Sciences elective | 3 |  | GE |
|  | XXX | Free Elective | 3 |  |  |
|  |  | Total | $\mathbf{1 4}$ |  |  |

# College of Arts and Sciences 

## ARA

Arabic

## Arabic Language

Most Arabic Language courses meet the university requirement of three credits of Arabic. When in doubt, confirmation should be sought from the CAS Dean's Office.

ARA 103 Composition for Native Speakers of Arabic (3-0-3). 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. An additional element will be a historical look at styles of composition in Arabic.
ARA 104 Arabic as a Second Language I (3-0-3). (formerly ARA 100). Introduces students to the script of modern written Arabic and develops their confidence and knowledge in the four skill areas. The materials are designed using a modern approach to foreign language teaching. This course does not satisfy the Arabic heritage requirement. Graded as Pass/Fail.
ARA 200 Arabic as a Second Language II (3-0-3). An extension of ARA 104, this course is designed to develop further the student's knowledge and proficiency in modern Arabic. As with the previous course this one will also be video-driven. Prerequisite: equivalent of approximately 60 - 70 classroom hours of Arabic. This course does not satisfy the Arabic heritage requirement. Graded as Pass/Fail.

ARA 300 Arabic as a Second Language III (3-0-3). Builds on the earlier Arabic courses using more advanced materials. Video materials that build on grammatical structures and conversational skills practiced in earlier courses will be used as the main focus for this course. Prerequisite: equivalent of approximately 125-150 classroom hours of Arabic. This course does not satisfy the Arabic Heritage requirement.

ARA 308 Introduction to Stylistics and
Metrics (3-0-3). This course falls into two major parts: stylistics (balaghah) and metrics ('arud). In stylistics, a brief theoretical survey of the major components
of the field is followed by extensive textual analysis. In metrics, the basic principles of the taf'ilat and their variations are introduced and applied to selected examples.

## ARA 407 Advanced Studies in Arabic

Grammar/Rhetoric (3-0-3). Examines indepth the syntax and idiom of Modern Standard Arabic. Emphasis will be placed on the study rules of sentence formation in Arabic as well the patterns of coordination, complementation, predication and modification.
ARA 408 The Arabic Language and Modern Linguistics (3-0-3). Focuses on the application of modern linguistic theory to the study of medieval and modern Arabic. By introducing the student to modern linguistic terminology and theory, it assesses the importance of modern linguistics in furthering our understanding of traditional Arab grammatical theory.

## Arabic Literature

Most Arabic literature courses meet the university requirement of three credits of Arabic. When in doubt, confirmation should be sought from the CAS Dean's Office.
ARA 101 and 102 Readings in Arabic Heritage (3-0-3). These two courses survey selections from writings in Arabic prose, literature and poetry that reflect the intellectual, literary and cultural development of the Arabs from pre-Islamic times up to the present day. ARA 101 in English has a prerequisite / or concurrent: COM 102.

## ARA 201 Arabic Literature in

 Translation (for non-native speakers only) (3-0-3). This course is a detailed study of genre and theme in Arabic literature, with special emphasis on the modern period. It focuses on literature as a vital reflection of Arab culture and society.ARA 202 Arab-Islamic History and the History of Arabic Literature (3-0-3). Illustrates the essential facts of Arab history; focuses on the landmarks of Arabic literature from pre-Islamic to modern times, and provides glimpses of the literary fruits borne within that milieu. The course deals
with the fundamental facts of Arab history.
ARA 203 Pre-Islamic Poetry (3-0-3). Examines relevant aspects of pre-Islamic Arabian life and history, and deals with the main issues and trends related to preIslamic poetry using major primary sources. A direct textual approach is adopted based on a close critical analysis of selected poems.
ARA 204 Early Islamic and Umayyad Poetry (3-0-3). Surveys Arabic poetry from the advent of Islam to the end of the Umayyad era. Ideological, cultural, economic, social and political factors affecting poetry in both phases of this period are studied. The course highlights the revival of poetry under the Umayyads, the restoration of pre-Islamic poetic traditions, and the major poetic trends and features that testify to the contemporaneous nature of this poetry. The foundation of this course is a critical analysis of selected poems.
ARA 205 Poetry in the Abbasid Age (3-0-3). Covers the whole period from the fall of the Umayyads to the fall of Baghdad, and the entire territory from Transoxania to Al Andalus. The contemporaneous nature of Abbasid poetry, in its artistic techniques and in its response to the changing social and cultural life, represents a genuine break with the Arab poetic code that pervaded pre-Islamic and Umayyad poetry. Major trends and issues of this new poetry are surveyed, with a special emphasis on at least four major poets: Abu Nuwwas, Abu Tammam, Al Mutanabbi and Al Macarri.
ARA 206 Modern Arabic Prose (3-0-3). Surveys the renaissance of Arabic prose from the 19th century to the present. The general burden of the course is the study of the modern Arabic novel, short story, play and autobiography. Special attention is paid to the factors leading to the rise of these fundamentally Western literary forms in the Arab world as a result of the "Nahda," and to elements of fiction and drama in "parallel" forms in classical Arabic literature. The focus of the course is the study of the established works of Naguib Mahfouz and Tawfiq Al Hakim.

ARA 207 Arabic Drama (3-0-3). Looks at the emergence of Arabic drama in the 19th century until the present and assesses prototype drama forms of the medieval period. Through a study of selected plays by prominent authors, a picture will emerge of the influence of Arabic drama on Arabic literature. Attention will be given to the effect created by the use of colloquial dialogues in play scripts. A selection of video recordings will also accompany this course.

## ARA 213 Contemporary Arabic

 Literature (3-0-3). Offers a survey of modern and postmodern Arabic fiction, drama, poetry and criticism. Themes include love, death, exile, and social and political concerns. The course illustrates the nexus between literary works and contemporary Arab life.ARA 301 Classical Arabic Prose Until the end of the Third Century A.H. (3-0-3). Tracks the evolution and development of classical Arabic prose through critical textual analysis; 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 Islam, and also looks at the early development of the epistolary genre that became the main focus of Arabic prose literature. It also looks at the influence of the Qur'an and Hadith on the development of Arabic prose.

## ARA 302 Arab Identity and Thought

 (3-0-3). Since the Arab awakening of the late 19th century, Arab thought has been largely concerned with identity formation in relation to or in opposition to other cultures and nationalisms. This course examines representative writings by Arab thinkers and authors that deal with issues concerning the state formation, modernization, nationalism, democracy, Islamism, women's rights and minority issues.
## ARA 303 Classical Arab/Islamic Culture

 (3-0-3). Explores the ways in which Islam has shaped the history and culture of the Arabs. It discusses some of the significant features of Arab/Islamic culture and the several contributions this culture had made.ARA 304 Modern Arabic Poetry (3-0-3). Surveys the renaissance of Arabic poetry
from the 19th century to the present, principally through the stimulating first exposure to the West and the rise of NeoClassicism by Al Barudi, Shawqi and others. It also investigates the steady and progressive exposure to the territory and soul of the West, which produced successive and contemporaneous waves of imitation, assimilation, "apostasy" and rejection.

ARA 305 Literature of the Arabian Gulf (3-0-3). Examines the contribution of literary figures in the Arabian Gulf, especially those of the United Arab Emirates, to Arabic literature in general, using selected texts.
ARA 312 Modern Arabic Literature: Prose and Poetry (3-0-3). Surveys the renaissance (Nahda) of Arabic literature from the early 20th century to the present. Modern literary trends such as romanticism, realism and existentialism are illustrated through the study of selected works: novels, short stories, drama and poetry (free verse) by prominent writers.

## ARA 394 Special Topics in Arabic

Literature ( $\mathbf{1}$ to $\mathbf{4}$ credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.
ARA 401 Literary Criticism from the Arab Perspective (3-0-3). This course is a survey of the history of Arab literary theories and of Arab literary criticism in classical times. The authoritative work by Ihsan Abbas (Tarikh Al Naqd Al Adabi 'ind Al Arab) provides the ideal framework for the course.
ARA 402 Qur'anic Studies (3-0-3). Introduces the major Qur'an related issues such as the collection of the Qur'anic suras, Qur'anic imagery and the various trends in Qur'anic studies and interpretations and exegesis. It also examines the important contribution made by the rationalist Mu'tazila to Muslim exegesis.
ARA 403 Sufi Literature (3-0-3). Familiarizes students with Sufi literature and Sufi traditions and doctrines.

## BIO

 BiologyBIO 101 General Biology I (3-3-4). This
is part one of a rigorous two semester course covering the scientific method, the
molecular basis of life, the carbon atom, cells, organelles, plant and animal physiology, genetics, speciation, evolution, the origins of life and bacteriology. The course is designed to give students an indepth study of biology that will prepare them for a profession in biology. A required laboratory is part of the course.
BIO 102 General Biology II (3-3-4). This is part two of a rigorous two semester course covering plant and animal diversity, animal evolution, plant and animal form and function, body systems, animal behavior, ecology and conservation biology. The course is designed to give students an indepth study of organism biology that will prepare them for a profession in biology. A required laboratory is part of the course. Prerequisite: BIO 101.

## BIO 103 Introduction to Life Sciences

(3-0-3). Surveys biological concepts with a strong emphasis on human biology. It also presents essential general information about microbes, plants and animals. The course explains fundamental biological principles governing the lives of organisms. Main topics includemetabolism, genetics, diversity of life, natural selection and ecosystems. Not open to Science or Engineering students. Prerequisites: None.

## BIO 230 Ecosystems Management

(3-0-3). Focuses on the policies of ecosystems management from a scientific and natural approach. Special attention is given to current research and case studies of organism adaptations and roles in specific habitats and adverse environments, and to formulate approaches and policies most suitable for the management of natural, restored and artificial ecosystems. Conservation practices is reviewed in light of current scientific and sociobiological understanding of biodiversity, conservation and sustainability. Prerequisite: BIO 102.
BIO 260 Genetics (3-0-3). Covers the general principles of genetics from Mendelian to modern molecular genetics and DNA analysis. The emphasis is on molecular genetics and how techniques are being used in genetic engineering, medicine, agriculture, and industry and law enforcement. The students also obtain a strong understanding of genetic principles applied to biogeography, population dynamics, species diversity, conservation and evolution. Prerequisite: BIO 102.

## CHM

Chemistry
CHM 101 General Chemistry I (3-3-4).
Covers the fundamental chemical principles, concepts and laws. Topics include reaction stoichiometry, types of chemical reactions, solution stoichiometry, gas laws, kinetic theory of gases, thermochemistry, atomic structure and periodicity, the Bohr model, Lewis structures, ionic and covalent bonding, the solid state and crystallography, the liquid state and phase diagrams. Laboratory experiments illustrate principles discussed in the course.
CHM 102 General Chemistry II (3-3-4). Deals with properties of solutions, including colligative and chemical properties, acidbase and complex ion equilibria, laws of thermodynamics; enthalpy and free energy, electrochemistry, nuclear chemistry, representative elements, transition metals and coordination compounds. Laboratory includes experiments illustrating principles discussed in the course. Prerequisite: CHM 101.

CHM 103 Chemistry and Everyday Life (3-0-3). Introduces the student to the fundamental principles of chemistry and the role of chemistry in everyday activities.
Topics include chemistry of the nucleus and the atomic bomb, acids and bases, petroleum products, environmental chemistry, perfumes, cosmetics, soaps and detergents, chemistry in the kitchen, food additives and food coloring, pesticides, toxins and poisons, chemistry of the mind, forensic chemistry and DNA finger printing. Not open to Science or Engineering students.

## CHM 105 Chemistry and the

Environment (3-0-3). The main topics are air and energy, toxic substances, and water and waste treatment. Special attention is paid to the ozone layer, ground level pollution, air and marine pollution, heavy metals in soil, global warming and environmental impact of energy production. Learning activities include projects, Web searches, laboratory experiments and field trips. Not open to Science or Engineering students.

## CHM 215 Organic Chemistry I (3-0-3).

Surveys reactions of aliphatic and aromatic compounds including modern concepts of bonding, mechanisms, conformational analysis, and stereochemistry. Topics
include alkanes and cycloalkanes, alkenes, alkynes, biologically active acetylenic compounds, electrophilic and nucleophilic reactions, resonance, alkyl halides, SN1, SN2, E1 and E2 mechanisms. Prerequisite/concurrent: CHM 102.

## CHM 215L Organic Chemistry

 Laboratory I (0-4-1). Organic laboratory that includes experiments on purification, separation and identification techniques. It also includes synthesis of various organic compounds. Prerequisite: CHM 215.CHM 216 Organic Chemistry II (3-0-3). Deals with modern spectroscopic techniques for structure determination, chemistry of oxygen and nitrogen compounds, and chemistry of alcohols, ethers, carbonyl compounds and amines. Special attention is given to mechanistic aspects. Prerequisite: CHM 215.

## CHM 216L Organic Chemistry

 Laboratory II (0-4-1). An advanced organic laboratory with experiments related to the theoretical principles and synthetic methods of modern organic chemistry. Prerequisites: CHM 215L and CHM 216.CHM 231 Physical Chemistry I (3-0-3). Investigates in depth the basic concepts of thermodynamics. The properties of gases are analyzed as the basis for the study of the laws of thermodynamics, which are applied to questions of chemical equilibrium, phases and solutions, phase equilibrium and other applications. Prerequisites: CHM 102 and MTH 104. CHM 241 Quantitative Analysis (3-3-4). Introduces the basic theories underlying analytical methods of chemical analysis. It covers fundamentals and applications of electrochemistry, compleximetric titrations, spectrophotometry and gravimetric and combustion analysis. Special attention is given to analysis of environmental samples. The laboratory component deals with a variety of analytical techniques. Prerequisite: CHM 102.
CHM 331 Physical Chemistry II (3-0-3). Covers kinetics, electrochemistry, surface chemistry and transport properties. In kinetics, emphasis is on the theory of reaction rates and methods of handling kinetic data. The electrochemical section examines the conventions, underlying theory and practical applications of electrochemical cells. Prerequisite: CHM 231 or CHE 204.

## CHM 335 Physical Chemistry

Laboratory (1-5-2). This is an advanced laboratory course in physical chemistry. Students are assigned a series of experiments to be performed individually. Experiments cover the topics of thermodynamics, kinetics, electrochemistry, surface chemistry and transport phenomena. An original report including sample calculations and error analysis is submitted after each experiment. Prerequisite/ concurrent: CHM 331.
CHM 445 Instrumental Analysis (2-3-3). This course introduces modern instrumental methods of analysis utilized by scientists, environmentalists and engineers. Its objective is to provide an understanding of the principles, laws and operation of modern instrumentation. This includes molecular and optical spectroscopy; flame and plasma absorption spectroscopy, electrochemical and analytical methods, thermal methods, separation and chromatographic techniques and mass spectroscopy. Prerequisite: CHM 102.

## CMP <br> Computer Science

## CMP 105 Introduction to C++

Programming (3-1-3). A general overview of programming design and analysis of programs in C++: data types, arithmetic and logic operators and expressions, input/output, conditional expressions and statements, repetitive structure, functions, arrays and pointers, and concepts of objectoriented programming: classes, objects, inheritance.
CMP 107 COBOL Programming (3-1-3). Elementary and intermediate programming techniques in COBOL. Computer solutions to business-oriented problems.
CMP 108 Java Programming (3-1-3). Basic concepts of problem solving and programming in Java. Topics include basic data types, operators, variables and expressions; arrays and strings; and fundamental concepts of object-oriented programming such as classes, objects, methods and attributes, inheritance and reusability. Also include designing interactive Web applets and applications and Graphical user interfaces andtheir components.Emphasis in this course is placed on business-oriented applications.

CMP 110 Visual Basic (2-2-3). Introduces students to programming using Visual Basic. Topics covered include event-driven programming concepts, GUI design (using forms, labels, textboxes, buttons, listboxes etc.), functions and procedures, arrays. Emphasis is given to writing database applications using a relational DBMS.

## CMP 111 Computing Fundamentals

(2-2-3). Covers the history of computing, the concept of algorithm and problem solving strategies and computing disciplines. Surveys aspects of the application of computer science: hardware and software engineering, basic computer organization and system software; Also includes programming languages paradigms and history, databases, storage, networks and the Internet, and artificial intelligence.

## CMP 120 Introduction to Computer

Science I (3-2-4). Examines the fundamental programming constructs: syntax and semantics of a high-level programming language, data types, variables, operators, expressions and statements, conditional and iterative control structures, classes, objects, methods, parameter passing, program input and output. Also covered are arrays, strings, testing and debugging programs.
Prerequisite: CMP 111 or Computer placement test.
CMP 210 Digital Systems (3-0-3). (equivalent to COE 221). Topics include 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.

## CMP 211 Digital Systems Laboratory

(0-2-1). Experiments and laboratory work to support CMP 210. Prerequisite or concurrent: CMP 210 or COE 221.
CMP 213 Discrete Structures (3-0-3). (Cross-listed as MTH 213). Covers propositional and predicate calculus, sets, major classes of functions and related algorithms, principle of mathematical induction, proof techniques, recursive definitions, counting, relations, posets, graphs, and trees. Prerequisite: MTH 102 or MTH 103.

## CMP 220 Introduction to Computer

Science II (3-1-3). Examines objects and classes. Covers object-oriented
programming concepts: constructor methods, overloaded and overriding methods, inheritance and polymorphism. Stream I/O operations. Graphics and Graphical User Interfaces. Event-drived programming. Advanced programming topics such as exception handling, string processing, and recursion. Examples of abstract data types: linked lists, stacks and queues. Prerequisite: CMP 120.

## CMP 232 Data Structures and

 Algorithms (3-1-3). Covers data abstraction, encapsulation and information hiding; data structures and the complexity of algorithms; abstract data types: binary search tress, hash tables, lists, graphs and priority queues; searching and sorting algorithms; applications of abstract data types; and dvanced data structures. Prerequisite: CMP 220 and Prerequisite/ concurrent: CMP 213 or MTH 213.CMP 235 Social and Professional Issues (2-0-2). Explores the social impact of computers, economics of computing, policy, moral and legal issues, privacy and security issues, computer crimes and law. Work in this course will be based on group and class discussions and essays addressing the above topics. Prerequisite: CMP 120.

## CMP 240 Introduction to Computer

Systems (3-0-3). Introduction to computer organization, registers, machine instructions, data representations, execution control and addressing techniques, segmentation, linkage and recursion. Prerequisite: CMP 210 or COE 221.
CMP 310 Introduction to Operating Systems (3-1-3). Examines operating systems architectures, process scheduling and synchronization, multithreading, memory management, virtual memory, deadlocks management, file system, input/output management, and distributed systems. Prerequisites: CMP 232 or COE 311 and CMP 240 or COE331. Equivalent to COE 381.
CMP 320 Database Systems (3-1-3). Introduction to database concepts, database advantages and users, data independence relational data model, object oriented model, database design by analysis, database design by synthesis, relational algebra, data definition and manipulation languages, semantic integrity constraints, semantic query transformation and optimization. Prerequisite: CMP 232.

Equivalent to COE 422.
CMP 321 Programming Languages
Laboratory (2-2-3). Provides an overview of programming languages syntax and semantic definitions, language translators, language categories and programming in a high level language other than the one taken in CMP 120. Prerequisite: CMP 232.

## 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; distributed algorithms; complexity classes; approximation algorithms; and basic computability theory. Prerequisite: CMP 232.
## CMP 341 Computational Methods

 (3-0-3). (Cross-listed as MTH 341). An introduction to 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 Introduction to Software

Engineering (3-1-3). Examines the software development life cycle; software project managemen; software requirements, specifications and design techniques. Graphical user interface design; software testing and maintenance; software tools and environments. Substantial software project is required. Prerequisite: CMP 232. Equivalent to COE 420.
CMP 410 Computer System Architecture (3-0-3). Covers advanced study of the architecture of computer systems. Topics include processor organizations, hardwired and micro-programmed control, input/output subsystem, bus control, programmed I/O, DMA and interrupts, memory subsystem, interleaved, cache and associative memory, pipelines and their scheduling, RISC and CISC architectures. Prerequisite: CMP 240.
CMP 411 Performance Evaluation of Computer Systems (3-0-3). Examines modeling and evaluation of computer systems. Probability spaces and probability calculus, random variables and their distribution functions, the calculus of
expectations. Markov chains, birth-death processes, Poisson processes, single queue, network of queues and their simulation. System simulation for performance prediction. Modeling concurrent processes and the resources they share. Prerequisite: CMP 310 or COE 381 and STA 201 or NGN 111.

## CMP 412 Introduction to Distributed

Systems (3-0-3). Covers architectures for distributed systems. Gives an overview of network topologies and networking technologies and infrastructures; distributed algorithms, deadlock and termination detection; N -Tier client-server computing systems; fault-tolerance and recoverability issues. Applications and case studies. Prerequisite: CMP 340 and CMP 310. Equivalent to COE 433.
CMP 415 Computer Networks (3-0-3). Introduction to computer networks, network architectures. Overview of layered protocol hierarchies. OSI reference model, the physical, link andnetwork layers, network protocols, error control, flow control and routing algorithms. Application layer protocols, multimedia networking and networksecurity. Prerequisite: CMP 240 and CMP 310.
CMP 416 Internet and Network
Computing (3-0-3). Covers the Internet, its protocols and architecture, TCP/IP and internet application protocols, designing Internet-based clients and servers, and multi-tiered applications, network security and network management. Distributed object computing, remote method invocation, emerging internet technology standards: CORBA, XML. Building Internet-based applications. Prerequisites: CMP 310.
CMP 417 Parallel Computing Systems
(3-0-3). Examines models of parallel computation; shared memory parallel machines; interconnection networks; parallel architectures; parallel algorithms, complexity and performance measures; parallel searching and sorting; parallel evaluation of expressions; issues of nondeterminism, synchronization and deadlock; and survey of parallel applications. Selected topics in latest field developments.
Prerequisite: CMP 240 and CMP 340.
CMP 418 Introduction to Simulation and
Modeling (3-0-3). Covers design and implementation of simulation models for
systems design and analysis. Emphasis on discrete stochastic systems and real-world business and government problems including resource allocation, queuing, simulation languages and their applicability to problem solving. Prerequisite: CMP 232 or COE 311.

CMP 430 Computer Graphics (3-0-3). Study of two- and three-dimensional graphics, graphics representation, algorithms for computing graphics and producing images, clipping, windowing, transformation, graphics hardware and applications. Prerequisite: CMP 220 and MTH 221. Equivalent to COE 429.
CMP 431 File Processing (3-0-3). Covers external storage devices; sequential, indexed sequential and direct file organizations; tree-structured, multi-list, inverted, cellular multi-list and hybrid file organizations; file systems; external sorting and merging; and the protection problem. Prerequisite: CMP 232.
CMP 432 Image Processing (3-0-3). An introduction to basic techniques of analysis and manipulation of pictorial data by computer. Image input/output devices, image processing software, enhancement, segmentation, property measurement, Fourier analysis, computer encoding, processing and analysis of curves. Prerequisite: CMP 232.
CMP 433 Artificial Intelligence (3-0-3). Introduction to problems and techniques in artificial intelligence. Problem-solving methods. Major structures used in artificial intelligence programs. Study of knowledge representation techniques such as probabilistic reasoning, predicate and nonmonotonic logic. Examples of expert systems. Introduction to natural language understanding and various syntatic and semantic structures. Learning as a form of problem-solving through problem decomposition and subparts interaction. Prerequisite: CMP 232 or COE311.
CMP 434 Information Theory (3-0-3). Covers information concepts, communication and data transmission, Shannon's theory, the mathematical concept of information, encoding of data and binary representation, Hoffman coding, entropy as a measure of the amount of information, Markov processes and probability, area of application. Prerequisite: STA 201 or NGN 111.

CMP 435 Computer Security (3-0-3). Examines security issues in computer systems. Basic encryption and decryption, secure encryption and encryption protocols. Security in operating systems, databases, and communications. Risk analysis and assessment. Security planning and management. Security platforms. Application to electronic commerce systems. Prerequisite: CMP 310 or COE 381.

CMP 436 Introduction to Symbolic Computation. (3-0-3). Explores the history of systems for symbolic computation. Algebraic structures. Forms and data structures. Arithmetic on integers, polynomials, rational functions and power series. Modular arithmetic. Homomorphism methods. Greatest Common Divisor Algorithms. Polynomial factoring. Solution of equations. Symbolic integration.
Prerequisite: CMP 213 and CMP 232.
CMP 437 Introduction to Neural Networks (3-0-3). (formerly CMP 470). Presents different types of neural networks and describes the basic mechanisms that underlie each network. Discusses fundamental network properties necessary to achieve autonomous behavior. Analyzes how well each network satisfies these properties. Prerequisite: CMP 232.
CMP 438 Programming Robots (3-0-3). An examination of programming issues involved in creating autonomous robots, which can interact with their environments in "intelligent" ways. Topics include traditional robotics, behavior-based robotics, sensor processing, sensor-based control, programming robotic behaviors. Prerequisite: CMP 220 or COE 211.
CMP 450 Object-Oriented Software Engineering (3-0-3). (formerly CMP 436). Explores object-oriented analysis and design. Topics include:object-oriented requirements capturing, modeling and refinement; design patterns; object-oriented testing. A substantial object-oriented software project is required. Prerequisite: CMP 350 or COE420.
CMP 452 Compiler Construction (3-0-3). Reviews program language structures, translation, loading, execution and storage allocation. Compilation of simple expressions and statements. Organization of a compiler including compile-time and runtime symbol tables, lexical and syntax scan,
object code generation, error diagnostics, object code optimization techniques and overall design. Use of compiler writing languages and bootstrapping. Prerequisite: CMP 350 or COE 420.
CMP 453 Organization of Programming Languages (3-0-3). Looks at the history and classification of programming languages. Formal definition of syntax and semantics of programming languages. Expressions, statements, data types, naming structures, type checking, and control structures. Binding and memory allocation. Block structure and scoping. Parameter passing, subprograms and implementation. Exception handling, Concurrency. Logic programming languages, object-oriented programming languages. Prerequisite: CMP 232.
CMP 454 Software Testing and Quality
Engineering (3-0-3). Gives an overview of software engineering. Software quality assurance. Black-box and white-box testing. Integration and regression testing. Selected topics from the following: Objectoriented 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 350 or COE 420.

## CMP 455 Human Computer Interaction

 (3-0-3). Explores human behavior and user interface design. Covers issues in graphical user interface design; interface representation and user-centered prototyping tools. Analysis and evaluation of user interfaces. Multimedia objects and interfaces. Usability engineering; user interface design and project organization. Case studies and project. Prerequisite: CMP 350.CMP 470 Formal Languages and Computability (3-0-3). Provides an introduction to theoretical computer science. Topics include regular expression and finite state concepts, basic automata theory, formal grammars and languages, computability, Turing machines and elementary recursive function theory. Prerequisite: CMP 213.
CMP 472 Multimedia Computing (3-0-3).
Hardware and software components and processes involved in multimedia development. Digital representation and coding of multimedia building blocks: text,
images, graphics, video, sound. Hypertext and hypermedia concepts. Compression and decompression techniques. Multimedia authoring tools. Building Web applications. Selected multimedia applications.
Prerequisite: CMP 310 or COE 381.
CMP 473 Game Programming (3-0-3). Covers openGL architecture; 3D graphics theory and coordinate transformations; motion equations; colour spaces; lighting models; shading and texture mapping. Working with audio and 3D models. Making a game. Prerequisite: CMP 340 CMP 490 Project in Computer Science (3-0-3). Faculty supervised projects by students on special topics of current interest. Both oral and written presentations on the topics are required. Prerequisite: CMP 350 and senior standing.
CMP 494 Topics in Computer Science (1 to 4 credits). Selected topics of current interest in computer science. Prerequisites: CMP 232.

## CMP 496 Independent Study

( $\mathbf{1}$ to $\mathbf{4}$ credits). Involves investigation under faculty supervision beyond what is offered in existing courses. Prerequisite: senior standing.

## CMP 497 Internship in Computer

Science (0-0-0). A student spends at least 240 hours of work in a computer related job. A Pass or Fail grade will show on the transcript. Prerequisite: senior standing.

## COM

Communication

## English Communications Competency Program

## COM 001 Fundamentals of Writing

(3-0-3). Develops the skills of reading and writing, and teaches grammar competencies needed to write complex English sentences. Students will learn how to write and support topic sentences and build coherent and unified paragraphs. Prerequisite: EPT below 4.
COM 101 Academic Writing (3-0-3).
Students practice the process of writing different essay types by reading a variety of texts and focusing on the development of writing unified, coherent and supported academic essays. Students are expected to refine their grammatical skills and demonstrate the ability to produce appropriate sentences. Prerequisite: EPT 4 or COM 001.
COM 102 Writing and Reading Across the

Curriculum (3-0-3). Builds upon the skills developed in COM 101 and focuses on the development of critical thinking, active reading and analytical writing skills across the curriculum. Students are expected to read and respond to texts from a variety of disciplines and achieve further refinement of grammar and vocabulary skills. Students are also introduced to basic research techniques. Prerequisite: EPT 5 or COM 101.
COM 203 Writing about Literature (3-0-3). Builds upon the skills acquired in COM 102 to develop further students' critical thinking and academic writing competencies. Students read short stories, poetry and drama and produce a research paper using analytical and critical skills in response to literary texts. Prerequisite: COM 102.
COM 204 Advanced Academic Writing
(3-0-3). Builds upon the skills acquired in COM 102 to develop further students' critical thinking and academic writing competencies. Students read and respond to a variety of texts from different disciplines and produce a research paper using analytical and critical skills in response to non-literary texts. Prerequisite: COM 102.
COM 207 English for Engineering (3-0-3). Intended for Engineering students only. Its purpose is to introduce them to English used for communication in their field with a special emphasis on writing and presenting technical reports. Prerequisite: COM 203 or 204.

COM 208 Public Speaking (3-0-3).
Introduces students to the art of public speaking, debate and argument. Students gain confidence as public speakers by learning the techniques of making effective presentations and by gaining extensive practice in public speaking. Prerequisite: COM 102.
COM 209 Dramatic Expression (3-0-3). (cross-listed as MCM 209). Gives students an opportunity to perform publicly in a variety of formats, including poetry reading, acting, miming and singing. Prerequisite: COM 102.

## COM 220 Intercultural Communication

(3-0-3). (cross-listed as MCM 220).Provides an overview of world cultural literacy and shows how cultures influence communication. Students acquire broad knowledge about the interrelation of the humanities, music, mythology, art, theatre, history and science. Prerequisite: COM102.

## COM 225 Global Business

Communication (3-0-3). (formerly COM
206). Aims at developing 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. It also focuses on developing oral communication skills in business settings. Prerequisite: COM 203 or 204.
COM 231 Writing for Visual Media (3-0-3). (cross-listed as MCM 231). Introduces students to existing and emerging communication technology and examines its impact on the communication process. This course also prepares students to manage the process of designing documents, from the planning stage through final production. Students learn basic rhetorical principles and apply them by writing articles, stories and advertising copy. Prerequisite: COM 102.
COM 315 Shakespeare on Film (3-0-3). (Cross-listed as MCM 393). This course 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: COM 203 or COM 204.
COM 396 Independent Study of Language,
( 1 to $\mathbf{4}$ credits). Explores how language is used in communication, for personal and social functions, in its written and oral channels. Students reflect on language issues and practice the use of language in selected disciplines. Students are expected to analyze texts exploring various issues in language and write critical evaluations of the essays studied.

## CSC Cultural Studies

## CSC 201 Western Cultural Studies I

(3-0-3). Introduces the student to the basic doctrines and concepts of Western civilization. It covers reading material from the Renaissance to modern times, focusing on selections from the great books that have made Western civilization what it is. Readings cover theology, politics, science and literature. Prerequisite: COM 102.
CSC 202 Western Cultural Studies II (3-0-3). Like CSC 201, this course continues to introduce students to the basic doctrines and concepts of Western civilization. It covers reading material from modern and contemporary authors focusing on selections from the great books that have
made Western civilization what it is. Readings cover theology, politics and literature. Prerequisite: COM 102.
CSC 204 Belief Systems and Ideology in the Western Tradition (3-0-3). Explores major belief systems and ideologies of the West from the Greco-Roman period to the present. The goal of the course is to introduce students to the major theological, philosophical and political traditions of Western culture and society. Prerequisite: COM 102
CSC 205 World Cultures (3-0-3). Explores the varied cultures of the world. Student acquire an appreciation for the critical importance of societal culture as a tool of human survival. The course provides the framework for an appreciation of cultural differences and similarities and thereby increases understanding of the complex world with which we must cope. Prerequisit/concurrent: COM 102.

## ECO

## Economics

ECO 201 Principles of Microeconomics
(3-0-3). Introduction to the basic principles of microeconomics and their applications: supply and and demand, operation of markets, consumer and enterprise behavior, competition and monopoly, income distribution and international trade.
ECO 202 Principles of Macroeconomics (3-0-3). Introduction to the basic principles of macroeconomics, stressing national income, unemployment, inflation, economic growth, business cycles and open economies.
ECO 301 Intermediate Microeconomics
(3-0-3). Theory of relative prices of commodities and productive services under perfect and imperfect competition. Theory of the firm and consumer demand.
Prerequisite: ECO 201, ECO 202, COM 102.

ECO 302 Intermediate Macroeconomics
(3-0-3). Concepts and theory of national income determination, unemployment, inflation and economic growth.
Prerequisite: ECO 201, ECO 202, COM 102.

ECO 305 International Trade (3-0-3). Introduction to 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, COM 102.

## ECO 306 International Finance (3-0-3).

Starts with basics of international capital flows, exchange rate determination, and the analysis of the international monetary system. The course uses theory to analyze contemporary issues such as globalization and liberalization of capital flows.
Addresses the stability of foreign exchange markets with reference to currency crises in emerging markets. Prerequisite: ECO 201, ECO 202, COM 102.

## ECO 310 Development Economics

(3-0-3). Theories of economic development. The colonial and neo-colonial legacy. Problems of poor countries. New strategies of development and economic relations between poor and rich countries.
Prerequisite: ECO 201, ECO 202, COM 102.

ECO 311 Capitalism (3-0-3). Capitalism, or economic individualism, is a system of unfettered voluntary exchange where the role of government is to enforce property rights. Are capitalist economies succcessful? Who are the proponents and opponents of capitalism, and what arguments and evidence do they use? Prerequisite: ECO 201, ECO 202, COM 102.
ECO 312 Economics of Labor (3-0-3). Economic analysis of employment and wages, including the economics of education, unemployment, labor unions, discrimination and income inequality. Prerequisite: ECO 201, ECO 202, COM 102.

## ECO 315 Economics of the Middle East

(3-0-3). 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. Prerequisite: ECO 201, ECO 202, COM 102.

## ECO 318 Economics of Water Resources

 (3-0-3). Examines the supply, demand, pricing, allocation and distribution of water resources. Explores the impact of water policy on economic growth and conservation. Considers the planning, development and management of water resources. Prerequisite: ECO 201, ECO 202, COM 102.
## ECO 320 History of Economic Ideas

(3-0-3). Exposition and analysis of the development of economic theory. Emphasis
on tracing evolution of economic theories out of specific historical contexts. Explores the major figures and schools in economic thought from Adam Smith to the present. Prerequisite: ECO 201, ECO 202 and COM 102.

## ECO 321 Theories of Political Economy

(3-0-3). Provides an analysis of political economic theories including old and new institutionalists, neo-Ricardians and modern Marxist perspectives. Emphasis on interdependence of political, economic and social problems. Prerequisite: ECO 201, ECO 202 and COM 102.
ECO 325 Public Economics (3-0-3).
Examines the microeconomic theory as a framework for understanding the problems of public managers. Resource scarcity, consumer behavior, production costs, economics of efficient management, operation of product markets under competition and monopoly, labor markets, market failure and public goods are considered. Prerequisite: ECO 201, ECO 202 and COM 102.

## ECO 326 Economics and the Law

(3-0-3). Major topics include property rights, contract rights and liability rules. Both efficiency and fairness will be analyzed. For efficiency, emphasis is placed upon the incentive effects that legal rulings create for economic behavior in the future. Fairness is analyzed mostly in terms of the effects that legal rulings have upon the distribution of wealth. Prerequisite: ECO 201, ECO 202 and COM 102.
ECO 327 Competition, Free Markets and Antitrust (3-0-3). Firms take actions that improve their own competitive position and that harm their rivals. This course discusses the benefits and harms of such actions and introduces the basic framework which can help determine which actions should be legal and which should not. Topics include a comparison of competition with market power, vertical integration, price fixing and cartels, vertical restrictions, price discrimination and predatory pricing. Prerequisite: ECO 201, ECO 202 and COM 102.

## ECO 328 Government Regulation of

Business (3-0-3). Examines the reasons why governments regulate business. Such reasons include: fairness, excessive competition, natural monopoly, externalities, imperfect information and transactions costs. Class time is divided
between examining the theories for regulation and investigating actual legal cases. Prerequisite: ECO 201, ECO 202, COM 102.
ECO 330 Money and Banking (3-0-3). Examines the role of money and credit in the economy. Topics include: the structure and operations of commercial banks; Central banking and the operation of monetary policy; non-banking institutions and the structure of financial markets; and elements of monetary theory. Prerequisite: ECO 201, ECO 202 and COM 102.

ECO 333 Islamic Economics I (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. Prerequisite: ECO 201, ECO 202 and COM 102.

ECO 334 Islamic Economics II (3-0-3). Studies the origin and contemporary development of Islamic banking and finance. Examines case studies of the experience of Islamic finance in several countries. Current and future challenges to Islamic finance in an integrated world economy are explored. Prerequisite: ECO 333 and COM 102.
ECO 335 Economic History of the World
Economy (3-0-3). Examines the historical investigation of economic development using Western, Europe, Russia, the Third World and the United States as case studies. Prerequisite: ECO 201, ECO 202 and COM 102.

## ECO 340 Great Economic Thinkers

(3-0-3). Explores in-depth the economic thinking of well-known economists, including those of earlier history and Nobel Prize winners. The instructor chooses the economists covered. Prerequisite: ECO 201, ECO 202 and COM 102.

## ECO 345 Economics of Collective

 Decision-Making (3-0-3). This course is designed as an introduction to the economics of collective decision-making, including decision-making in a democratic government. It describes the history of the subject, explores alternative definitions of public choice, describes the major subject areas, and discusses some well-known economists' views of a democratic society.Subjects include the theory of constitutions, voting and elections, political parties, law making, bureaucracy, rent seeking, and privatization. Prerequisite: ECO 201, ECO 202 and COM 102.

## ECO 394 Special Topics in Economics

 ( 1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.
## ECO 403 Economics of Natural and

 Energy Resources (3-0-3). Addresses the policy issues related to the changing role of natural resources in modern economies. Issues related to valuation of renewable and non-renewable resources, optimal resource extraction rates and economic development will be central to the course. The issues of oil and gas supply, demand and pricing the role of energy in Gulf economies will also be addressed in detail. Prerequisite: ECO 201, ECO 202 and COM 102.
## ECO 404 Economics of Environmental

 and Natural Resources (3-0-3). Deals with the economic issues that arise in the use of environmental resources. The course begins with an economic analysis of the contention that markets fail to adequately control environmental pollution. Alternative policy mechanisms that have been proposed for control on environmental pollution will also be addressed. The environmental problems covered may include water and air pollution, global climate change, temperate and tropical forest management, fisheries, biodiversity and habitat preservation. Prerequisite: ECO 201, ECO 202 and COM 102.ECO 405 Introduction to Econometrics (3-0-3). Reviews the theory of economic statistics and statistical techniques. Emphasis on applying statistical models to economic data. Regression analysis and estimation of economic models includes violations of the basic assumptions of the regression model, dummy variables, analysis of variance, cross section and time series data analysis, index numbers and time series analysis. Prerequisite: ECO 301, ECO 302, STA 202, MTH 101 and COM 102.

## ECO 494 Special Topics in Economics

( 1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic
specific.

## ECO 495 Senior Seminar in Economics

(3-0-3). Intensive investigation of special topics in economics chosen by the instructor. Prerequisite: ECO 301, ECO 302, COM102 and senior standing.

## ECO 496 Independent Study

( 1 to 4 credits). A theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisites: junior standing and approval of instructor.

## ECO 497 Internship in Economics

(3-0-3). Applied work in economics with business or government organizations. Prerequisite: ECO 301, ECO 302 and senior standing,

## ENG

## English Language

ENG 123 Introduction to Language Study (3-0-3). Defines language and how it works. Leads students to examine their own beliefs and attitudes about language and provides them with techniques of language analysis. Topics covered include grammar and appropriate usage, oral vs. written language, formal vs informal language, standard vs non-standard languages, language universals and language typology. Prerequisite: COM 203 or 204 or 231.
ENG 126 Development of the English
Language (3-0-3). Traces the development of the English language from its IndoEuropean roots to the present day. Linguistic change in English throughout the various periods (Indo-European, Germanic, and Old, Middle and Modern English) is studied, covering phonological, morphological, syntactic, lexical and semantic changes. Prerequisite: COM 203 or 204 or 231.

## ENG 221 Phonetics, Phonology and

Morphology (3-0-3). Examines the nature of the rules governing the sound system of language with special emphasis on English. Introduces the study of the physiology of speech production and phonetic transcription through practical exercises. Students also examine inflectional and derivational rules in language and study word formation processes. Prerequisite: ENG 123.

ENG 224 English Grammar (3-0-3). Focuses on the fundamental rules of English grammar as they relate to sentence structure and function. Students learn about different systems of analysis, including an introduction to the analysis of texts. Prerequisite: COM 102.
ENG 234 Language in Society (3-0-3). Introduces the student to the sociolinguistic approach to language. Focuses on issues about how language structure and language use are interrelated. It also examines variables responsible for language variation within a speech community. Explores definitions of language, dialect, diglossia and multilingualism. The practicum component of this course initiates the student to field methods techniques in data collection. Prerequisite: ENG 123.

## ENG 334 Semantics and Pragmatics

(3-0-3). Introduces the various approaches
to the study of meaning in language both at the word and sentence levels. This course examines linguistic reference and truth conditions of linguistic signs and expressions. It also explores the role of shared inferential strategies, presuppositions and speech acts in human communication, and how situational context determines language use. Prerequisite: ENG 224.
ENG 336 Discourse Analysis (3-0-3). Looks at the interpretation of meaning situated beyond the level of the sentence. To achieve a better understanding of how language works as a communication medium, the role of notions such as background knowledge, cohesion and coherence in texts and conversational interaction are examined. Prerequisite: ENG 224.
ENG 338 Psycholinguistics (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: COM 204.

## ENG 400 Second Language Acquisition

(3-0-3). Focuses on the prominent research trends in second language learning, the process of L2 acquisition and learning, and the social and individual factors affecting this process. Examines ways in which
research in this area can be used in ESL classroom contexts. Prerequisite: ENG 224.

## ENG 401 Advanced English Grammar

(3-0-3). (Cross-listed with ENG 501). The course provides an intensive investigation into contemporary English sentence structure, function and meaning. It also analyzes how structure types and sentence relationships are realized in various texts and genres. In addition, the course discusses issues relative to descriptive/ prescriptive approaches to language. Prerequisites: ENG 224. Meets with ENG 501.

ENG 402 Applied Linguistics (3-0-3). (Alternate years). Investigates the relationship between the field of applied linguistics and the language communication process, in and outside the classroom. Views linguistics in terms of real-world applications and from the perspective of teaching practitioners in different professional settings. Prerequisite: ENG 336.

## ENG 404 Using Literary Texts in TEFL

Classrooms (3-0-3). Introduces practicing teachers to the use of literature in teaching English in the more advanced levels of instruction. Early short stories and other selected texts would be used by teachers to motivate students to read and continue learning English by developing vocabulary and structure and gaining an appreciation of literature. Prerequisite: ENG 400.
ENG 406 Survey of Topics in Linguistics and Communication (3-0-3). Presents an overview of different trends in linguistic inquiry and examines how these trends have influenced various fields such as computational linguistics, lexicography, sign language, speech pathology, artificial intelligence and artificial voice communication. Prerequisite: ENG 336.
ENG 408 Reading and Writing in ESL/TEFL (3-0-3). Discusses various theoretical models dealing with teaching literacy skills in a foreign language to children and adults. Processes involved in reading and learning strategies in language learning are examined and discussed, together with effective instructional strategies based on current research. Prerequisite: ENG 400.
ENG 410 Language Teaching Methodology (3-0-3). Overviews theories,
methodological approaches and techniques of teaching English as a Second or Foreign Language. Analyzes aspects of classroom practice, including teacher and learner roles. Offers opportunities to survey and create ESL/TEFL materials, evaluate commercially available texts and consider their value and adaptation of authentic texts. Prerequisite: ENG 400.

## ENG 412 Curriculum Development

(3-0-3). Introduces students to principles of ESL/TEFL course design. Examines the stages of developing and evaluating learner centered/communicative curriculum. Topics to be discussed include students' needs analysis, setting goals and objectives, analyzing resources, content selection, methodology, materials and texts, implementation, evaluation and assessment. Prerequisite: ENG 410.

## ENG 420 Seminar: Bridging the

Disciplines (3-0-3). Introduces an interdisciplinary approach to the analysis of English language issues within the contexts of English literature, communication and translation. Develops students' understanding of how texts work across these three disciplines to heighten their understanding of critical issues that cross linguistic and cultural boundaries.
Prerequisite: ENG 401 or 406 or 411 or 413 or 415 .

## ENG 495 Seminar in English Language

(3-0-3). The content of this course changes from year to year. The focus will be on various topics of the English language from the practical such as computer-assisted language learning to studies in dialectology and bilingualism or linguistic anthropology. Prerequisite: ENG 401 or ENG 406.

## English Literature

## ENG 105 Contemporary World

Literature (3-0-3). Introduces students to contemporary literary movements such as postmodernism, magic, realism, feminism, regionalism and postmodernism. Students study the works of major international writers such as Grass, Calvino, Kundera, Allende, Mahfouz, Mimouni and Soyenka. Works studied will be written in or translated into English. Prerequisite: COM 203 or COM 204 or COM 231.

ENG 108 Introduction to Literature (3-0-3). Focuses on the study of fiction, poetry or drama and shows how writers use the basic elements of their craft to convey
their insights into human nature. Whatever genre is featured in a given semester, the course focuses primarily on accessible modern and contemporary work. The course is designed for non-majors who need to fulfill their communications or humanities requirement as well as for English majors. Prerequisite: COM 203 or COM 204 or COM 231.

ENG 201 Creative Writing (3-0-3). This course is an introduction to the basic elements of writing and evaluating poetry, fiction and creative non-fiction. Students will submit at least 20 pages of material suitable for inclusion in the student literary magazine. Students are responsible for editing the magazine. Fulfills writing requirement for majors. Prerequisite: COM 203 or COM 204 or COM 231.

## ENG 203 Introduction to Literary

Theory (3-0-3). Highlights a variety of 20th century critical practices and theoretical approaches to the study of literature. It offers practical applications of the theoretical texts under examination. Prerequisite: ENG 105 or ENG 108.
ENG 205 Modern Drama and Beyond (3-0-3). Introduces students to developments in drama from the modern period to the present. It exposes students to major literary developments in drama such as realism, theater of the absurd, epic theater and various types of experimental and contemporary theater. The course may include works by such playwrights as Ibsen, Chekov, Shaw, Brecht, Ionesco, Beckett, Fornes, Helman, Hansberry, Hwang, Mishima, Soyenka, Havel, Mroczek, Gad and Wanoos. Prerequisite: ENG 105 or ENG 108.
ENG 209 Survey of English Literature I (3-0-3). Surveys English poetry and prose from the Anglo-Saxon, Medieval, Renaissance, Restoration and the Age of Reason literary periods. Representative texts are studied in relationship to their social, political and historical background. Prerequisite/ concurrent: COM 203 or 204.

ENG 213 Survey of English Literature II (3-0-3). Surveys English literature (poetry, prose and drama) from the Romantic, Victorian and Modern literary periods. Representative texts are studied in relationship to their social, political and historical background. Prerequisite/ concurrent: COM 203 or 204.

ENG 219 Survey of American Literature I (3-0-3). Examines American literature from the colonial period to the present, concentrating on the philosophical, social and political issues that shaped the styles and ideas of such writers as Franklin, Poe, Emerson, Thoreau, Dickenson, Whitman, Twain, O'Neil, Cather, Hemingway and Faulkner. Focus is on poetry, drama, the essay and the short story. Prerequisite/ concurrent: COM 203 or 204.
ENG 303 Shakespeare and his Contemporaries (3-0-3). Examines works by both Shakespeare and other major dramatists of his time. The course focuses on at least three Shakespearean plays, a history play, a comedy, and a tragedy, considering the work in the context of such contemprary playwrights as Marlowe and Jonson. Other Renaissance dramatists such as Beaumont and Fletcher, Middleton, Webster and Ford may also be included. Prerequisite: ENG 209.
ENG 309 The American Novel (3-0-3). 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, Post Modernism and Magic Realism, with particular emphasis on how American novelists adapted these styles to suit their own society and culture. The course includes such novelists as Melville, Hawthorne, Twain, Crane, James, Wharton, Cather, Hemingway, Welty, Pynchon and Morrison. Five novels will be studied. A term paper is required.
Prerequisite: ENG 219.

## ENG 311 Early English Novel (3-0-3).

 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. It includes such writers as Defoe, Smollett, Richardson, Fielding, Austen, the Brontes, Dickens, Elliot and Hardy. Prerequisite: ENG 209.ENG 313 Modern British Novel (3-0-3). Examines trends in the 20th century British novel, including such literary movements as Realism, Modernism and Post Modernism. It considers the novels of such authors as Joyce, Conrad, Wolfe, Forster, Lawrence, Snow, Greene, Byatt and Lessing. Five novels will be studied. A term paper is required. Prerequisite: ENG 209.

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. It also addresses the responses to and representations of westerners by nonwestern writers. Some of the writers studied may include Kipling, Forster, Durrell, Camus, Hersey, Kiteley, Desai, Shamas, Ghali, El-Saadawi, Kabbani, Adnan and Maalof. The course introduces students to basic ideas in the writings of such postcolonial theorists as Said, Spivak, Mohanty, Mernissi and others. A term paper is required. Prerequisite: ENG 201 or ENG 203.

## ENG 378 Literature as Film (3-0-3).

(Cross-listed as MCM 378). An interdisciplinary course which uses literary works, and their cinematic adaptations, to introduce students to film theory ideas and their parallel techniques in literature. Prerequisite/concurrent: COM 203 or COM 204.

ENG 411 Seminar in English Literature (3-0-3). Examines in-depth the career of a single literary figure with particular interest in historical and cultural milieu. The needs and desires of students and the preferences of the instructor determine the literary figure. Among the literary figures typically considered are Spenser, Shakespeare, Milton, Dryden, Pope, Swift, Johnson, Blake, Byron, Keats, Austen, Dickens, Eliot and Joyce. Prerequisite: ENG 311 or ENG 313.

## ENG 413 Seminar in American

Literature (3-0-3). Focuses on the work of a major American writer and the critical assessment of that writer. Some of the writers to be studied may be Melville, Whitman, Dickinson, Twain, Faulkner, Cather, Hemingway, Welty, Frost or Morrison, as decided by the instructor. A critical paper will be required. Prerequisite: ENG 309.

## ENG 415 Seminar in Post-Colonial

Literature (3-0-3). Focuses on the work and the historical, political and social context of a major writer who was raised in a culture other than that of Britain or North America but who writes in English. It also examines the literary theories underlying the "subaltern voice" and the inclusion or exclusion of texts from the mainstream literary canon, with particular emphasis on
the ideas of literary and cultural critics such as Edward Said and Gayatri Chabravorty Spivak. Some of the writers studied may include Derek Wollcott, Chinua Achebe, R.K. Narayan, V.S. Naipaul, Gita Mehta, and Michael Ondaatje. Prerequisite: ENG 315.

## ENG 490 Senior Research Project

(3-0-3). Focuses on the study of a literary movement or literary writer of the student's and professor's choice and the writing of a long critical paper on this writer or movement. Prerequisite: ENG 411 or ENG 413 or ENG 415.

## ENG 494 Special Topics in English

( 1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.

## ENG 496 Independent Study

(1 to 4 credits). A theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisites: junior standing and approval of instructor.

## ENV

## Environmental Science

## ENV 100 Environmental issues and

Problems (3-0-3). Introduces the basic principles of environmental science followed by discussion of local, regional and global environmental issues. Main topics will include environmental concepts and models, population growth, management of natural resources, energy, air, water and soil pollution: causes, remedies and prevention; global warming, acid rain, ozone depletion; environmental regulations and social and economic implications of environmental issues. Not open to Science and Engineering students.

## ENV 101 Introduction to Environmental

Science (3-0-3). Combines ideas and information from chemical, physical and biological disciplines. Students acquire knowledge on how nature works and how environmental systems are interconnected. This course employs scientific laws, principles and concepts to help understand environmental and resource problems and their possible solutions. Connections are made between natural systems and
environmental issues using different physical science perspectives. The information presented in this course is ultimately be related to real-world environmental problems. No credit may be given to both ENV 100 and ENV 101. Prerequisites: CHM 101.

## ENV 231 Transition Metals and their

 Compounds in the Environment (3-0-3). Introduces the basic principles of bonding, stereochemistry, and reactivity of transition metals and their compounds; surveys coordination compounds that occur in, or have relevance to natural processes of the environment; and discusses applications of coordination compounds in the environment, with emphasis on catalysis, enzymes, biological activity and pollution. Prerequisite: CHM 102.ENV 251 Environmental Ecology (2-3-3). (formerly BIO 251). Deals with the general principles of ecology with a strong emphasis on the ecological effects of pollution, disturbance, natural and anthropogenic stress factors. Students learn from case studies unique to the topics covered, with emphasis on the United Arab Emirates. Laboratory exercises emphasize basic ecological techniques, ecosystems structures, energy flow, data collection and analysis from a case study approach. A final written professional-quality report is required. Prerequisite: BIO 102.

## ENV 252 Environmental Chemistry

(3-0-3). (formerly CHM 251). Investigates in detail the interaction between natural systems and human activity. The following topics are emphasized: aquatic chemistry, with special attention paid to water pollution and water treatment; atmospheric chemistry, with emphasis on air pollution, protection of the atmospheric environment, and global atomsphere problems; soil chemistry; and sources and treatment of hazardous wastes. Local and regional pollution problems are emphasized and investigated in detail. Prerequisite: CHM 102.

ENV 261 Physical Geography (3-0-3). Deals with the physical aspects of the geographic environment. Topics include cartography and geographic information systems, the global energy balance, air temperature and pressure, atmospheric moisture content and precipitation, global wind circulation, weather systems, earth materials, forming and weathering
processes, water cycling, fluvial processes and landforms. Prerequisite: PHY 101.

## ENV 311 Environmental Modeling

(3-0-3). Involves the study of the collection, evaluation and interpretation of data and the modeling and analysis of urban and environmental problems. Topics include population, pollution, mass transportation systems and climate modeling. Prerequisite: MTH 104 and ENV 252.

## ENV 335 Environmental Microbiology

(3-3-4). (formerly BIO 331). Covers the biology of microorganisms (viruses, bacteria, fungi and helminthes). It emphasises the role they play in our lives in pathology, industry, bioremediation and the environment. Students learn sterile techniques, how to culture and identify bacteria and how to control them in clinical, personal and environmental settings. Prerequisite: BIO 101.
ENV 351 Environmental Monitoring and Analysis Techniques (2-3-3). Covers chemical and radiation safety, risk assessment, regulatory legislation, statistics and monitoring, as well as chemical and nuclear detection and identification procedures and their impact on living organisms. Practical work is supplemented by case studies, together with visits to municipal offices and other environmental monitoring agencies. Prerequisites: STA 201 and ENV 252.

## ENV 352 Environmental Toxicology

(3-0-3). This course is interdisciplinary combining principles of chemistry, biochemistry, biology and environmental science. The basic principles of toxicology, including health effects, dose-response relationships, toxicity testing and metabolism of toxicants, are discussed. Among the toxicants studied are drugs, industrial products, food additives and pesticides. Special attention is given to environmental pollutants. Principles of risk assessment and legal regulation governing toxins are briefly covered. Prerequisites: CHM 215 and ENV 252.

## ENV 361 Evolution and Biodiversity

(3-0-3). Introduces the principles of evolution as applied to all organisms. The course covers the origins of life, prehistoric events, biogeography, history of evolution and applications to current problems in agriculture, species conservation, population dynamics, the effects of
environmental changes and genetic manipulation of species. The emphasis is on obtaining skills that allow the student to accurately predict evolutionary outcomes in a changing global environment. Prerequisite: BIO 260.

## ENV 400 Environmental Physiology

Systems (2-3-3). Explores the natural and anthropogenic stresses encountered by microorganisms, plants and animals in the environment and the roles they play in the environment. The general physiology of organisms is explored first and then taken to the cellular and metabolic pathway levels. The student gain an understanding of the functions and dysfunctions in plants and animals and the reactions and adaptations to environmental stresses, pollution and manipulation. Prerequisite: ENV 335.

ENV 411 Environmental Assessment and Management (3-0-3). Deals with the impact of human activities on the ecosystem. It demonstrates how environmental assessment results provide a basis for comparing various management options, enabling decision makers and the public to make informed decisions about the management of ecological resources. Ethical and legal dimensions of a number of environmental problems will be discussed. Local and regional issues are emphasized. Prerequisite: ENV 252.
ENV 421 Aquatic Environments (2-3-3). Focuses on the interactions between biological, chemical and physical processes in the unique local marine environments found in the United Arab Emirates. The interactions between the terrestrial sources of freshwater and the marine ecosystems is covered with specific topics on the diversity of environments found in the UAE and how they are related to open and closed marine systems and the broader regional and global concerns. Topics include the migration and introduction of species, effects of pollution, food webs modeling, energy flow, niche partitioning, physiological stress, climate, geochemical cycling, habitat conservation, conservation of biodiversity, protection of endangered habitats and species.
Prerequisite: ENV 251.
ENV 430 Environmental Systems in the Arabian Peninsula (3-0-3). Emphasizes the terrestrial ecosystems that are located in the Arabian Peninsula, particularly in the UAE and the surrounding areas, and how
they relate to the larger regional and global systems in the same latitudes. The systems include deserts, grasslands, tropical forests, mountain, fresh water and marine influenced terrestrial habitats. Readings from research done throughout the region and neighboring environments as well as local examples are used to obtain an in depth understanding of specific methods and research techniques currently used by environmental scientists working in industry and for the government. Prerequisite: ENV 251.
ENV 451 Waste Treatment (3-0-3). Introduces the modern concepts of solid and liquid waste treatment. It 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). Discusses the development of soil/water chemistry. It includes modern analysis methods for humic substances, minerals, particulates and pollutants in the soil. Topics covered are mineralogy, soil solution, ion exchange/sorption, water acidity, wetlands and redox processes in aerobic soils and nitrogen transformations. Prerequisite: ENV 252.

## ENV 491 Senior Research Project I

(0-6-3). Students select an environmental problem for independent research project. Upon approval by the department, the student begins with a literature search then conducts field and laboratory studies. In addition to the scientific component of the project, students are expected to comment on the ethical and legal dimensions of the environmental issues being investigated. The results are then presented in a seminar as well as in a thesis form. This is a capstone course in the development of the student as an environmental scientist. Prerequisite: senior standing.

## ENV 492 Senior Research Project II

(0-6-3). Continuation of ENV 491. Student selects a new or related environmental problem for independent research. Upon approval by the department, student begins with a literature search then conducts field and laboratory studies. The results are presented in a seminar as well as in a thesis form. Prerequisite: senior standing.

## FRN

 FrenchFRN 101 French For Beginners I (3-0-3).
Introduces the student to the main patterns of French grammar, written exercises, directed composition and conversation practice. Language lab may be required.
FRN 102 French for Beginners II (3-0-3).
The course is a continuation of FRN 101 using French in Action (the Caprentz method) to improve students' conversational French, use of basic grammar patterns, everyday vocabulary and basic reading and writing skills. The course uses audio and video material to practice listening and speaking skills, and to facilitate the understanding of languages in social interaction and in a cultural context. Prerequisite: FRN 101.

## GEO

Geography

## GEO 201 World Cultural Geography

(3-0-3). Provides a broad survey of the cultural geography of the world. Among other topics, the course will address cultural systems, agriculture and natural resources, urbanization, industrialization, development, and political geography. Prerequisite/concurrent: COM 102.

## HIS

History
HIS 204 Modern Arab History (3-0-3).
Studies the history of the modern Arab world focusing mainly on the history of the region from 1800 and the changes that began to take place at that time. It concentrates on four aspects of the region's transformation: the experience of imperialism and colonialism, modernity, nationalism and the development of the modern state system. Prerequisite: COM102.
HIS 205 World History I (up to 1500) (3-0-3). A study of the world's major civilizations prior to 1500 concentrating on their primary institutions and their cultural contacts. Particular attention is devoted to the Arab and Islamic world and Western Europe. Prerequisite: COM 102.

## HIS 206 World History II (1500 -

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: COM 102.

## HIS 207 History of Modern Palestine

 (3-0-3). A historical study of modern Palestine with particular emphasis on the conflict with Israel from its genesis in the late 19th century to the present. Students examine the issues and events that led to the social, economic and political transformation of the Arab State of Palestine, with a majority Arab population, to the Jewish State of Israel, with a majority Jewish population. Prerequisite: COM 102.HIS 208 Women in History (3-0-3). A comparative survey of women's history from antiquity to the present in Europe and the Middle East. The course aims not only to examine the lives, achievements, contributions and position of women historically, but also to introduce students to the methodology of women's history, the sources for the study of women and the theories that provide the framework for the research and writing of women's history. Prerequisite: COM 102.
HIS 209 Modern Arab History through Literature (3-0-3). (formerly HIS 394). Introduces students to modern Arab history through literature and links literary production to its historical and cultural context. In this course, students become aware of how history and literature intersect and of the similarities and differences in historical and literary writing. The readings for the course include works of fiction and non-fiction such as novels, short stories, memoirs, biographies and autobiographies. Prerequisite: COM 102.
HIS 210 The Modern Arab Gulf (3-0-3). Introduces students to the modern history of the Arab Gulf, which is the period from 1820 to post-independence, and the cultural heritage of the region.The major topics of the course are British imperialism and indigenous resistance to British domination, the socio-economic transformation of the region as the traditional economy based on pearling and trading goes into decline; the rise of nationalism and the creation of the
modern state system; and the impact of oil production on the society and culture. Prerequisite: COM 102.
HIS 211 Modern Arab History and Biography (3-0-3). (formerly HIS 394). This course takes a biographical approach to the subject Modern Arab History. It examines the major social and economic changes of the 19th and 20th centuries through the lives of ordinary men and women who lived through these changes. Prerequisite: COM 102.
HIS 220 The Modern History of Europe and North America (3-0-3). Focuses on Europe and North America from the late 19th century to the present and on the major political, economic, social and cultural developments of the period. Some of the issues and events covered in the course include the economic and social effects of the Second Industrial Revolution, the economic and political crisis of the 1930s, global conflicts of the 20th century, the explosion of science and technology, the ethnic and cultural diversity of the population, major social movements, the Cold War and the fall of totalitarian regimes and the military and economic institutions that link both sides of the Atlantic. Prerequisite: COM 102.

## HIS 221 History of Science and

Technology (3-0-3). Studies the development of scientific thought and methodology from ancient Greece to the modern era. Topics include contributions of China, Islamic lands and Europe, the surge of French and 17th century English science; and influence of science on patterns of thinking and behavior. The course touches upon diverse areas such as the histories of astronomy, nuclear energy, chemistry, forensics, as well as life and environmental sciences. Prerequisite/ concurrent: COM 102.

HIS 230 Resistance and Collaboration in Modern France and Algeria (3-0-3). Analyzes the nature of resistance and collaboration in France and Algeria in the period 1940-1970. Students investigate the reasons why different groups and individuals chose to either resist or collaborate in the Second World War and the Algerian War of Independence. Through films, original documents, novels and academic writing, the course studies the history of moral behavior in war, the role of Islam in colonial struggles, and the ways in
which western and Islamic forms of history are constructed in Europe and North Africa. The course demands a personal engagement with ethical questions such as: For what causes is it just to kill? And, in what circumstances would you collaborate with an enemy? Prerequisite: COM 102.

## IEP <br> Intensive English

IEP BSC Basic Level (1-0-1). This level provides students with an introduction to the English language. They learn to understand simplified prose texts dealing with general topics, develop writing fluency and accuracy at the sentence level, improve discrete listening and basic conversation skills, and increase their confidence in speaking. They are also introduced to the form and function of simple verb tenses and grammatical structures.
IEP 001 Novice Level (3-0-3). At this level, instruction involves the presentation of large amounts of language. The primary goals are to improve student fluency in both the conversational and written modes, increase vocabulary as rapidly as possible, develop basic reading skills and introduce the mechanics of writing at the sentence and paragraph level.
IEP 002 Elementary Level (3-0-3). At this level, language instruction moves from functional, survival English to academic discourse. To that end, important reading skills such as skimming, scanning and predicting are practiced, and writing activities extend beyond the paragraph to the multi-paragraph essay. Complex grammatical concepts involving time relationships are also introduced, notetaking from authentic materials is practiced, and oral presentations are given.
IEP 003 Intermediate Level (3-0-3). At the intermediate level, instruction takes on an overtly academic quality. High-level reading skills such as inferencing and synthesizing information from more than one source are introduced, while writing instruction involves the exploration of various rhetorical modes. Students are also expected to develop an awareness of contextual clues, an understanding of speaker purpose, a recognition of idiomatic usage, and an accurate and fluent speech production.
IEP 004 Advanced Level (3-0-3). This level prepares students for university
studies, though the focus is still on the major language skills rather than the actual content being covered. Students are required to read longer texts and write longer essays. They study complex grammatical usage at the clause level. Finally, public speaking skills are refined through the discussion of complex source material and through oral presentations on topics involving persuasion and argumentation skills.
IEP 005 Bridge Level (3-0-3). This level simulates university-level course work by integrating academic listening, speaking, reading and writing into the daily classroom pedagogy. Extensive reading is expected and major reading skills are reviewed and reinforced through large amounts of practice. The instruction includes an introduction to writing term papers.

## INS International Studies

INS 314 Political Economy of the Asia Pacific Region (3-0-3). Provides an exploration of political, economic, social and environmental issues in the Asia Pacific. This region includes South, Southeast, East and Northeast Asia, Australasia, and the Pacific littoral states of North, Central and South America. Special emphasis is placed upon the efforts of regional cooperation organizations and lessons to be gleaned by the states of Southwest Asia and the Middle East. Prerequisites: POL 202, ECO 201 and ECO 202.

## INS 322 Global Political Economy

(3-0-3). Deals with the roots and evolution of the global political economy from the end of the World War II and the launching of the Bretton Woods system to the Asia crisis of 1997 and its spread to Russia, Latin America and the Middle East. It focuses on the interplay between politics and economics for topics such as management of the international financial system via the IMF, World Bank, World Trade Organization, globalization, trade, multinational corporations and changes in world production patterns, trade agreements such as the European Union, development strategies, debt crises, and attempts at political and economic liberalization in various countries. Prerequisite: POL 202, ECO 201 and ECO 202.
INS 413 Political Economy of the Arab

World (3-0-3). Explores the political and economic incentives and events that have influenced, and continue to influence, the political and economic environment in the Arab World. Topics include world energy markets, trade patterns, global environmental issues, nationalism, globalization, economic development policies, impacts or regional and international conflict, regional organizations, and international political movements. Prerequisite: POL 202, ECO 201 and ECO 202.
INS 494 Special Topics in International Studies (3-0-3). Addresses issues in international studies that, in the judgment of the faculty, would not be addressed indepth in other courses and which are worthy of special consideration. Normally, these issues would be topical and related to on going world events that are important and evolving during the period of the students' course of study. The topics may range from economics and trade, conflict and diplomacy, world politics, technological change, or cultural change. Prerequisites: senior standing.
INS 495 Senior Seminar (3-0-3). This course is offered once a year and is considered the capstone course of the concentration. The topic of the course changes from year to year. Students are required to write a major research paper on the seminar topic. Prerequisite: senior standing.

## INS 497 Internship in International

Studies (3-0-3). Applied work in International Studies with businesses, government organization or private agencies. Admission to class must be approved by the student's advisor. Only fourth year students may take this course. Prerequisite: senior standing.

MCM Mass
Communication

## MCM 150 Intro to Mass Communication

 Studies (3-0-3). (formerly MCM 223) 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: COM 102.MCM 155 Introduction to Film Studies
(3-0-3). Looks at influences and impact of pioneer and early silent film makers on
modern popular film. Topics include the evolution of the comedic form, cinema and society, and the effect of artistic movements such as impressionism and expressionism. Relationships between the film and its technological and cultural impact will help develop students' analytical and interpretive skills. A variety of techniques and concepts will be discussed. Prerequisite/concurrent: COM 102.
MCM 156 Introduction to Film Studies:
The Sequel (3-03). Looks at influences and impact of landmark films and filmmakers on modern popular film. Specific topics will include the development of new technologies and techniques, as well as approaches that helped make film a distinct art form. Comparison with other art forms and the use of frame and image to convey emotional content will be discussed, along with concepts such as montage, genre, auteur and mise-en-scene. Prerequisite: COM 102.
MCM 209 Dramatic Expression (3-0-3). (Cross-listed as COM 209). Gives students an opportunity to perform publicly in a variety of formats, including poetry reading, acting, miming and singing. Prerequisite: COM 102.

## MCM 220 Intercultural Communication

 (3-0-3). (Cross-listed as COM 220). Provides an overview of world cultural literac, and shows how cultures influence communication. Students acquire a broad knowledge about the interrelation of the humanities, music, mythology, art, theatre, history and science. Prerequisite: COM 102.
## MCM 225 Theories of Mass

Communication (3-0-3). Introduces students to the various prevailing communication theories, including agenda setting, uses and gratification, and diffusion constructs. Prerequisite: MCM 150.
MCM 227 Principles of Public Relations (3-0-3). Surveys the fundamentals and techniques involved in public relations operations, including the history, philosophy and ethics of the practice, the functions of management, planning, research and commnications. It explores the theoretical and practical applications of public relations in contemporary society. Prerequisite: MCM 150.
MCM 229 Mass Communication and Society (3-0-3). Provides students with an
overview of the effect of media on culture and society. The course explores how media reflect and mold culture. It examines the role the media play in creating "the global village." The course examines how the audience uses and is used by various media outlet and how that use affect perception of various cultures. Prerequisite: MCM 150.
MCM 231 Writing for Visual Media (3-0-3). (Cross-listed as COM 231). Introduces students to existing and emerging communication technologies, and examines their impact on the communication process. This course also prepares students to manage the process of designing documents, from the planning stage through final production. Students learn basic rhetorical principles and apply them by writing articles, stories and advertising copy. Prerequisite: COM 102
MCM 255 Principles of Advertising (3-0-3). (formerly COM 235). Provides students with an analysis of commercial advertising from a global perspective with attention to communication theory. Students will examine the structure of advertising messages, how they are adapted to specific audiences, and the social settings in which they occur. Issues of Internet advertising and e-commerce will be explored. Prerequisite: MCM 150.
MCM 269 Public Relations Writing
(3-0-3). Designed to introduce the student to the essentials of how to prepare and present written material for use in the practice of public relations. It 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 150.
MCM 271 Public Relations Publications (3-0-3). Introduces students to producing and editing techniques for public relations for a variety of publications, including brochures, business reports, newsletters, corporate videos., etc. Students also become proficient in art of copy preparation, typography, graphic design, layout, and desktop publishing. Prerequisite: MCM 150.

## MCM 275 Principles of Journalism

(3-0-3). Introduces students to the basic principles of journalism as it occurs in a variety of media forms. The history of journalism is discussed including the penny press, yellow journalism, muck racking, all
the way to modern responsible journalism and tabloid journalism. The class also discusses a variety of legal and ethical journalistic concerns. Writing techniques for newspapers, radio and television broadcast news are practiced. Prerequisite: MCM 150.

## MCM 277 Film Criticism (3-0-3).

Introduces students to film genres and formulas (film noir, polyphonic narrative, comedy, romance, verite, etc.) and to critical approaches with which to analyze the cinematic text. Students explore, discuss, research and write about films as well as screenplay-texts, using such theoretical approaches as semiotics and structuralist, feminist, psychoanalytic, formalist, and social criticism. Prerequisite: MCM 150.

## MCM 280 Mass Communication

Research Methods (3-0-3). Introduces students to social science research methods within a mass communication context. It emphasizes the scientific method; survey of basic concepts of theoretical and empirical research; a variety of methodologies; elementary statistics;and criteria for adequate research. Prerequisite: MCM 150.

## MCM 281 Principles of Media

Production and Performance (3-0-3).
Surveys a variety of media production and performance techniques. Media elements, such as concept development, writing, supervision, performance, scheduling and execution of a variety of media formats, are presented. Background information on the history of specific media, media theory and aesthetics are discussed. Prerequisite: MCM 150.

MCM 321 Mass Media Law (3-0-3). Examines the law as it affects the mass media.Discusses such areas as libel, privacy, public records, criminal pre-trial publicity, freedom of information, obscenity. Prerequisite: MCM 150 and COM 203 or 204.

MCM 351 Advertising Copy and Layout
(3-0-3). Explores issues, strategies, theories and practices in writing and editing advertising messages. This course also teaches the technical aspects of advertising: writing advertising copy and designing effective layouts based on clients' strategies, elements of reproduction mechanicals. Students learn how to embrace new technologies and design parameters to produce effective advertising. Audience differentiation, media strategy
and creative strategy all are considered. Emphasis is on persuasive and attentiongetting techniques. Prerequisite: MCM 255.

MCM 353 Direct Response Advertising. (3-0-3). Introduces students to the marketing communication that achieves an action-oriented objective as a result of the advertising message sent through a number of media. These include telemarketing, direct mail, and point-of-purchase. Prerequisite: MCM 255.

## MCM 360 Public Relations Crisis

 Management (3-0-3). Provides practical insights into how public relations professionals prevent corporate crises and how public relations professionals plan, execute and evaluate damage control mechanisms. Prerequisite: MCM 227.MCM 361 Case Studies in Public
Relations (3-0-3). Teaches students how to apply the principles and theories of public relations to solve problems or initiate opportunities for actual occurrences in the practice of public relations. Prerequisite: MCM 227.

## MCM 363 Organizational

Communication (3-0-3). Teaches students the role of communication in creating a productive organizational environment in terms of interpersonal and group behavior. Reviews the theory and practice of teambuilding, conflict resolution, and problemsolving and explores how communication and organizational cultures relate to each other. Prerequisite: MCM 150 and (COM 203 or 204).

## MCM 365 Employee Relations/Media

Relations (3-0-3). Examines interactive employee communication programs, strategies, and the manager's role in establishing an environment that encourages smooth dialogue and information flow. Also focuses on media relations, with specific attention to media/information management through strategic initiatives targeted at business/ financial, electronic and print media. Prerequisites: MCM 150 and (COM 203 or COM 204).
MCM 371 News Writing (3-0-3). Builds students' expertise in the writing of news for newspapers and magazines. Students experience concentrated practice in the methods of research, interviewing, writing, marketing and publishing of articles, and in the skills required in the production of the

AUS student newspaper, The Leopard. Prerequisite: MCM 150 and (COM 203 or COM 204).

## MCM 372 Advanced News Writing

(3-0-3). (formerly MCM 417). Teaches students how to write carefully researched stories, using writing, reporting, and interviewing skills acquired in previous classes. Emphasis is placed on immersion or in-depth reporting; students spend a great deal of time with a subject to develop skills in storytelling and organization. Prerequisite: MCM 150 and (COM 203 or COM 204).
MCM 373 Scriptwriting (3-0-3). Teaches students the craft of writing for the electronic media and broadcasting. Students explore the types of scripts used in the media profession, such as industrials, inhouse promotional vehicles, corporate training, public service and documentary forms, as well as entertainment and features. Coursework consists of practice in research, interviewing, production planning and budgeting, the treatment, writing for picture, and writing for talent (actors, narrators). Prerequisite: MCM 150 and (COM 203 or COM 204).
MCM 374 Feature Writing (3-0-3). Teaches students how to plan, write and edit news features, personality profiles, issue-oriented articles, and human impact stories for the print media. Emphasis is placed narrative, descriptive, analytic and storytelling skills. One-on-one instructorstudent conferences stress story-building and revision techniques. Prerequisite: MCM 150 and (COM 203 or COM 204).

## MCM 375 Editing for the Print Media

(3-0-3). Provides students practical exposure to skills in preparing and editing manuscripts for publications. Emphasis is placed on a number of editing styles, and appropriate editing symbols employed. Prerequisite: junior standing and instructor permission.
MCM 377 Photojournalism (3-0-3). This course teaches the technical basis of using a 35 mm 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 assigned weekly photojournalism assignments for the student newspaper, The Leopard. Access to a digital or 35 mm camera is required. Prerequisite: MCM 150
and (COM 203 or COM 204).
MCM 378 Literature as Film (3-0-3). (cross-listed as ENG 378). Introduces the student to the critical terms and techniques used in both film and literary fiction, examining the ways of conveying meaning that both film and literature employ. It focuses on the attempts to translate literary classics to the medium of film, and evaluates the reasons for the success and/or failure of these attempts.
Prerequisite/concurrent: COM 203 or COM 204.

## MCM 380 Persuasive Communication

(3-0-3). Teaches students a comprehensive and critical treatment of theory and research in persuasion. Attitudes, behaviors/actions, functional approaches to attitude, belief-based models of attitude, cognitive dissonance theory, theories of behavioral intention, campaign strategies, message factors, receiver and context factors, and persuasive effects constitute the most important subjects of discussion. Prerequisite: MCM 150 and (COM 203 or COM 204).
MCM 391 Shakespeare on Film (3-0-3). (Cross-listed as COM 391). 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: COM 203 or COM 204.
MCM 410 Media Producing and Project Management (3-0-3). Discusses media producing and its individual components of media supervision, operational management, contact and free lance personnel management. The course will also focus on project management as well as discussions on audience/marketing and advertising revenue. Other areas will include broadcast management, scheduling and budgeting. Prerequisite: MCM 150 and (COM 203 or COM 204).

## MCM 451 Advertising Campaign

Research (3-0-3). (formerly Advertising Research and Design). Introduces students to the concept of media mix-matching product, consumer and media profiles for retail and business-to-business applications; conception, researching and planning, and designing of advertising campaigns for print, broadcast and new media. Focuses on research methods in advertising.

Prerequisite: MCM 351.
MCM 453 Advertising Media Planning (3-0-3). (formerly Advertising Media Management). Examines media planning, buying and sales as performed by advertising agencies, clients and the media. Students learn how to evaluate and select advertising media for various market situations. Examines target audience, media characteristics and media data sources. Prerequisite: MCM 255.
MCM 454 Case Studies in Advertising (3-0-3). (formerly CMM 353). Seminar. Exposes students to the major issues in advertising, with a focus on the characteristics of successful ad campaigns. In addition, students examine international and cross-cultural problems in advertising within and across industry, government and institutions. Prerequisite: MCM 255.

## MCM 455 Advertising Campaigns

(4-0-4). (Capstone for Advertising students). Class functions as an advertising agency that prepares advertising campaigns for actual clients. Students embark on a semester-long project, collaborating on the conception, research, planning and execution of advertising campaigns. Special emphasis is given to advanced copywriting, as well as to layout and production concerns for print, broadcast and new media. Students organize, manage and perform all functions: solicit business, perform market and consumer research, contact clients, write plans, create advertising campaigns, evaluate media and prepare campaign evaluations for community-service agencies. Prerequisite: MCM 255.

## MCM 461 International Mass

Communication (3-0-3). Helps students gain an understanding of world mass media systems: what they are like, how they operate, what impact they have on people, and what policies are, and could be used by the various countries to develop or regulate them, and how they are influenced by a country's political, economic, social and cultural make-up. Prerequisites: MCM 150 and COM 203 or COM 204.

## MCM 463 International Public

Relations (3-0-3). Helps students develop the skills necessary to plan and implement international public relations programs, taking into account social, economic, political, legal and cultural factors.

## Prerequisite: MCM 227.

MCM 465 Public Relations Campaigns (3-0-3). (Capstone for PR students). Class functions as a full-service public relations firm. The aim is to have students embark on a semester long PR project using all the relevant skills gained in other MCM courses. Prerequisite: MCM 227.
MCM 467 Public Relations for NonProfit Organizations. (3-0-3). Explores fund-raising techniques, alumni relations and foundation management. Prerequisite: MCM 227.

## 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 expected to regularly create scripts, and at least three news packages by the end of the semester. Prerequisite: MCM 150 and COM 203 or COM 204.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 150 and COM 203 or COM 204.
MCM 473 Writing for Multimedia (3-0-3). Offers advanced students hands-on experience with writing and producing shorter-form texts for electronic media. Comparative perspectives of writing for radio, television, Internet and CD-Rom texts is studied. Projects will include generating ideas, writing proposals, research and development of topics, planning, and employing the stylistic conventions of professional writers in the field. Students learn the distinctive competencies of writing for each medium and of working from concepts to actual productions. Prerequisite: MCM 150 and COM 203 or 204.

## MCM 475 Writing for Documentaries

 (3-0-3). Exposes students to representative documentaries with regard to history, form, technique, trends and audience objectives. Students examine different formats used in documentary production and the concepts used in transforming research efforts intoproduction of a full half-hour program. The course emphasizes genre-specific research methodologies, planning a production schedule, interviewing skills, videotape shooting, sound, scriptwriting and rewriting for longer form reports, sound and video editing, graphics and post-production. Prerequisite: MCM 150 and COM 203 or COM 204
MCM 477 Print Media Project. (3-0-3). (formerly Print Media Project Management). (Capstone for Journalism students). Requires students to conceptualize, write, develop, manage and produce a multimedia campaign using a variety of forms (print, broadcast, Webbased, etc.). The semester-long project culminates in discrete, marketable productions as well as a coherent campaign, thus providing each student with a writerproducer's portfolio and demo-reel to present to prospective employers as the student embarks on a career as a media professional. Prerequisite: MCM 150 and COM 203 or COM 204.
MCM 494 Special Topics in Mass Communication (1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: MCM 150 and COM 203 or 204 and senior standing.
MCM 496 Independent Study ( 1 to 4 credits). A theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisite: MCM 150, COM 203 or 204, senior standing and/or approval of instructor.

## MCM 497 Mass Communication

 Internship (3-0-3). Provides MCM students with a minimum of six weeks of on-the-job training and experience with a professional firm, either in advertising creativity, sales, advertising media, writing and/or editing for print and/or electronic media. Graded as Pass/Fail. Prerequisite: MCM 150, COM 203 or 204, junior standing and approval of instructor.
## MTH

Mathematics

## MTH 001 Preparatory Mathematics

(3-0-3). This course is preparatory for MTH103. Topics include polynomials,
functions, exponents and logarithms, coordinate geometry and graphing, complex numbers, vectors and their basic operations.

## MTH 002 Preparatory Business

Mathematics (3-0-3). This course is preparatory to MTH 101 Mathematics for Business. It covers integers and variable expression, fractions, decimals and real numbers, polynomials, ratio and proportion, percentage, geometry and application.
MTH 003 Preparatory Mathematics for Architects (3-0-3). This course is preparatory for MTH 111. It covers a review of basic arithmetic, algebra, geometry and trigonometry to prepare students for the geometry and calculus based MTH 111.

## MTH 100 Fundamentals of Logic and

 Geometry (3-0-3). Covers logic and set theory, geometry in the plane and space, and basic algebra.Topics include fundamentals of inductive and deductive reasoning; propositional and first order logic; sets, relations and functions; Euclidean and Analytical geometries in two and three dimensions; linear transformations and quadratic forms. (Not open to science or engineering 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, topics in the mathematics of finance. Emphasis is placed on techniques and applications. Not open to Science or Engineering students. Prerequisite: MTH 002 or math placement test.

## MTH 102 Mathematics for Business II

(3-0-3). Examines 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, applications to optimization. Emphasis is placed on techniques and applications. Not open to science or engineering students. Prerequisite: MTH 101.

MTH 103 Calculus I (3-1-3). Covers functions and limits, differentiation with applications including maxima and minima, related rates, approximations, theory of integration with applications including
areas, volumes, lengths, moments, center of mass and work. Computer laboratory component. Prerequisite: MTH 001 or math placement test.
MTH 104 Calculus II (3-1-3). Covers transcendental functions, exponential and logarithmic functions, trigonometric functions. Techniques of integration, indeterminate forms. Infinite series, power series, parameterized curves, polar coordinates and integration in polar coordinates. Computer laboratory component. Prerequisite: MTH 103.
MTH 111 Mathematics for Architects (3-2-4). Introduces topics of geometry and calculus needed for architecture. Review of trigonometry, areas and volumes of elementary geometric figures, and the analytic geometry of lines, planes and vectors in two and three dimensions. Differential and integral calculus, including applications optimization, areas and volumes by integration. Computer laboratory component. Prerequisite: MTH 003 or math placement test.
MTH 203 Calculus III (3-1-3). Examines 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. 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 213 Discrete Mathematics (3-0-3). (Cross-listed as CMP 213). Covers prepositional and predicate calculus, sets, functions and related algorithms, mathematical induction, recursive definitions, counting, relations, graphs, trees and Boolean algebra. Prerequisite: MTH 102 or MTH 103.
MTH 221 Linear Algebra (3-0-3). Covers systems of linear equation, algebra of matrices, linear transformations, determinants, vector spaces, inner product spaces, eigenvalues and eigenvectors,
diagonalization and orthogonality, special matrices and applications. The use of computer software is essential. Prerequisite: MTH 104.
MTH 311 Advanced Calculus I (3-0-3). Covers the real number system; rigorous presentation of limits, continuity, differentiability and Taylor's theorem for functions of a real variable; definition, existence and properties of the Riemann integral. 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. Applications in communication, public key cryptography, computer arithmetic, random number generators and music. Prerequisite: MTH 213.

MTH 314 Combinatorics (3-0-3).
Examines techniques for counting configurations of objects, recurrence relations, principle of inclusion-exclusion; graphs, trees and circuits. Additional topics include Polya's Theorem, generating functions and network flows. Prerequisite: MTH 213.
MTH 320 Modern Algebra (3-0-3).
Explores groups, subgroups, normal subgroups, quotient groups,
homomorphisms, permutation groups, matrix groups, symmetry groups. Definition and examples of rings. Prerequisite: MTH 213 and MTH 221.
MTH 325 Coding Theory I (3-0-3). Introduction to 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, convolutional codes, encoding and decoding. Prerequisite: MTH 221.
MTH 341 Computational Methods (3-0-3). (Cross-listed as CMP 341). An introduction to 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.
MTH 342 Numerical Linear Algebra
(3-0-3). Covers direct and iterative methods for solving general and special systems of linear equations, includes LU and Choleski decomposition, nested dissection, Jacobi, Gauss-Seidel, successive overrelaxation, alternating directions and conjugate gradient methods. Singular value decomposition. Iterative methods for algebraic eigenvalue problem. Prerequisite: MTH 221.

## MTH 351 Methods of Applied

Mathematics I (3-0-3). Examines initial and boundary value problems; higher-order equations; the Laplace transform and its inverse, applications of Laplace transform to linear ordinary differential and integral equations; the z-transform, applications of $z$-transform to difference equations and linear networks. Prerequisite/concurrent: MTH 205.

## MTH 352 Methods of Applied

Mathematics II (3-0-3). Explores the Fourier series, the Fourier transform, inverse Fourier transform, introduction to partial differential equations, classification of second-order partial differential equations, initial and boundary value problems, the method of separation of variables, methods of solution and behavior of elliptic, parabolic and hyperbolic equations. Prerequisite: MTH 351 or MTH 205.

## MTH 381 Linear Control Systems

(3-0-3). Covers linear systems, time and frequency domain representation, open and closed loop systems, time and frequency domain analysis, stability, root locus, frequency response, compensators, output and state feedback. Prerequisite: MTH 205.
MTH 382 Linear Programming (3-0-3). Explores methods and applications of optimizing a linear function subject to linear constraints. Theory of the simplex method and duality, parametric linear programs, sensitivity analysis, integer linear programming and some applications, modeling and computer implementation. Prerequisite: MTH 221.
MTH 411 Advanced Calculus II (3-0-3). Covers the theory of sequences and series of numbers and functions; power series, topological structure of Rn; continuity, differentiation, and integration of real functions of several variables, chain rule, Taylor's theorem, Fubini's theorem, differentiation of integrals involving a
parameter. Prerequisite: MTH 311.
MTH 412 Complex Variables (3-0-3). A first study of 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 problems. Prerequisite: MTH 311.
MTH 418 Graph Theory (3-0-3). Covers graphs and subgraphs, connected and disconnected graphs, matrices, trees and girth, planar and nonplanar graphs, graph embeddings, connectivity and edge connectivity, Hamiltonian graphs, matchings, factorization and coverings, Networks, applications to science and engineering. Prerequisite: MTH 213.
MTH 421 Applied Matrix Theory (3-0-3). Reviews the theory of linear systems, eigenvalues and eigenvectors, the Jordan canonical form, bilinear and quadratic forms, matrix analysis of differential equations. Variational principles and perturbation theory: the Courant minimax theorem, Weyl's inequalities Gershgorin's theorem, perturbations of the spectrum, vector norms and related matrix norms. Prerequisite: MTH 221.
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, the existence of periodic solutions, applications to various fields. Prerequisite: MTH 221 and MTH 205.

## MTH 432 Partial Differential Equations

(3-0-3). Covers mathematical formulations and solutions of partial differential equations of physical problems, includes the wave, heat and Laplace's equation. The mathematical tools include Fourier transform, Fourier series and Laplace transform. Prerequisite: MTH 351 and MTH 352.

## MTH 441 Numerical Solutions of

 Ordinary Differential Equations (3-0-3). Explores the theory of numerical techniques for linear and nonlinear initial, boundaryvalue and eigenvalue problems. Stiff equations and multiple time scales. The analysis of the numerical techniques will focus on consistency, accuracy, stability, stiffness, numerical efficiency, etc.Prerequisite: MTH 342.
MTH 442 Numerical Solutions of Partial Differential Equations (3-0-3). Covers computationally efficient schemes for solving PDE numerically: Finite difference schemes, stability and convergence of finite difference schemes, an introduction to finite element methods. Prerequisite: MTH 441.

## MTH 451 Methods of Applied

 Mathematics III (3-0-3). Examines integral equations, volterra and Fredholm type equations, relation to differential equations, solutions by Neumann series, Green's function, asymptotic analysis of solutions, perturbation techniques connection with eigenvalue problems. Prerequisite: MTH 351.
## MTH 460 Mathematical Logic (3-0-3).

Provides a formal study of truth and provability, propositional calculus; predicate calculus, Godel's completeness theorem, applications to formal number theory and incompleteness. Additional topics chosen from areas such as undecidability or nonstandard analysis. Prerequisite: MTH 320.

## MTH 470 Modeling and Simulation

 (3-0-3). Covers basic principles of modeling and simulation, description and treatment of deterministic and random processes, computational methods and applications with emphasis on the use of microcomputers. The course includes a major project. Prerequisite: MTH 205.MTH 481 Calculus of Variations and Control Theory (3-0-3). Gives an introduction to the classical theory of calculus of variations, necessary and sufficient conditions for optimality, the Pontryagin maximum principle, dynamic programming in continuous-time and Hamilton-Jacobi theory, introduction to control theory, the linear regulator problem. Prerequisite: MTH 205.
MTH 483 Discrete Optimization (3-0-3). Covers the Theory and applications of discrete optimization algorithms, transportation problems and network flow problems; integer programming; computer implementation. Prerequisite: MTH 382.
MTH 494 Topics in Mathematics (1 to 4 credits). Topics of current interest in mathematics not covered in existing courses. May be repeated under a different subtitle. Prerequisite: senior standing.

## MTH 495 Seminar in Mathematics

(3-0-3). Investigation of and oral report on a mathematical topic under the direction of a faculty member. Prerequisite: senior standing.
MTH 496 Independent Study (1-6 credits). Involves investigation of special topics, under faculty supervision beyond what is offered in existing courses. Prerequisite: senior standing.

## PBA Public Administration

## PBA 101 Introduction to Public

Administration (3-0-3). Introduces the basic concepts and models of public administration including organization theory, leadership, communication, decision making, interpersonal relations, public policy processes, regulations, legal authority, politics and power relations.
PBA 201 Public Management (3-0-3). Introduces students to the contemporary techniques of management and leadership in public organizations. Problems of public agencies, nonprofit organizations and others are analyzed. Focuses on how to cope with the challenges, internal and external, that the top level of management faces. Prerequisite: PBA 101 and COM 102.
PBA 204 Women in Public Management (3-0-3). Examines and analyzes of the emerging role of women in management positions in government, business and nonprofit organizations. Examines the unique problems and challenges that may be related to gender including building effective management, teamwork and espirit de corps in the context of a diverse workforce. Prerequisite: PBA 101 and COM 102.
PBA 205 Intergovernmental Relations (3-0-3). Explores the political, fiscal and administrative relationships that help to shape complex intergovernmental systems. Focuses on federal, centrally unified, Emirate (provincial), municipal and other jurisdictions. Prerequisite: PBA 101 and COM 102.
PBA 210 Urban Management (3-0-3). Topics include structure, process and policy issues in urban public administration and public policy. Considers major theoretical approaches to urban government, local autonomy, public and private authority, economic constraints, social welfare, and
service delivery. Also examines race, gender, and ethnicity; and policy focus on education, crime, social welfare and economic development. Prerequisite: PBA 101 and COM 102.

## PBA 301 Organizational Behavior

 (3-0-3). Focuses on leadership, communication, techniques of motivation, delegation of authority and strategic planning. Prerequisite: PBA 101 and COM 102.
## PBA 302 Comparative Public

Administrative Systems (3-0-3). Examines governmental administrative systems in Europe, North America, the Arab world, Asia and Africa. The emphasis is on a comparative analysis of industrialized nations with nations of the Third World. Prerequisite: PBA 101 and COM 102. PBA 304 Public Budgeting (3-0-3). Surveys the principles of and problems of financial organization and management in the public service, with emphasis on fiscal planning, the annual budget process, program budgeting, political factors and accounting in Western systems and ThirdWorld nations. Prerequisite: PBA 101 and COM 102.
PBA 305 Classification, Job Analysis, Compensation and Fringe Benefits in Public Organizations (3-0-3). Looks at classification systems and techniques, rational job analysis, compensation and incentive plans, and fringe benefit management as aspects of achieving maximum organizational efficiency and effectiveness. Prerequisite: PBA 101 and COM 102.
PBA 306 Human Resources Management in Public Organizations (3-0-3).
Introduces students to management and leadership tasks of running a professionallevel, human resources subsystem. Focuses on the challenges, opportunitie, and strategies, which human resources managers face, including the dynamics of external and internal conflict resolution and acting in an advisory capacity to executivelevel managers. Prerequisite: PBA 101 and COM 102.

## PBA 310 Research in Public

Administration (3-0-3). Introduces research methods in public administration. Topics include research design, the concept of validity, data collection and data analysis. Prerequisite: PBA 101 and COM

## 102.

## PBA 311 Nonprofit Organization

Management (3-0-3). Covers concepts of management and organizational development that are appropriate to the nonprofit sector. Emphasis is on developing people skills, a volunteer workforce, fundraising, goal-setting, motivation and communication techniques. Prerequisite: PBA 101 and COM 102.
PBA 380 Contemporary Issues in Human Resources Management (3-0-3). Focuses on selected contemporary human resources trends, the impact of social changes and workforce demographics, or contemporary problems in human resources management, in the Middle East, Asia, Europe and the U.S. Prerequisite: PBA 101 and COM 102.

## PBA 394 Special Topics in Public

Administration (1 to 4 credits). Selected topics of current interest in Public Administration. Prerequisites: PBA 201 and COM 102.

## 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: PBA 101 and COM 102.

## 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: PBA 101 and COM 102.

## PBA 408 Development Management

(3-0-3). Covers the concepts and techniques of development administration with a focus on Third World nations and societies that are pre-eminently concerned with basic economic development, capital formation and exports. Prerequisite: PBA 101 and COM 102.

## PBA 410 Public Program Evaluation

(3-0-3). Introduces the elements of program evaluation in public organizations. Covers qualitative and quantitative analysis; valid methods. Prerequisite: PBA 101 and COM 102.

PBA 411 Foundations of Public Policy

Analysis (3-0-3). Examines of 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: PBA 101 and COM 102.

## PBA 413 Public Financial Analysis

 (3-0-3). Covers how to analyze the financial health of state and local governments and other organizations and develop remedies for financial problems. Financial condition is related to expenditures, revenue, borrowing, the economic base, needs of the community, capital markets and public employees. Prerequisite: PBA 101 and COM 102.PBA 415 Law and Public Policy (3-0-3). Analyzes selected public policy issues such as poverty, population, density, housing, transportation, energy, education, crime and environmental pollution. Considers the response of laws and regulations to social problems, and the political processes that affect governmental decision making. Prerequisite: PBA 101 and COM 102.
PBA 417 Public Finance (3-0-3).
Considers public revenue sources for public organizations. Examines the concepts of taxation, export sales revenues, public accounting systems, auditing and maximizing the search for additional revenue funds. Prerequisite: PBA 101 and COM 102.
PBA 419 Seminar in Executive-Level Public Management (3-0-3). Concentrates on identifying the tasks, challenges and responsibilities of being a CEO, a CAO or an executive director of an organization. Prerequisite: PBA 101 and COM 102.

## PBA 495 Seminar in Public

Administration (3-0-3). Concentrates on expertise and bureaucratic power, relations between political institutions, the role of public employees, the politics of administrative processes, and administrative ethics. Prerequisite: PBA 201 and COM 102.

## PBA 496 Independent Study

( 1 to 4 credits). A theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisite: junior standing and approval of instructor.

## PBA 497 Internship in a Public

Organization (3 to 6 credits). Placement
of students by a Public Administration professor in a government agency, a nonprofit organization or a private firm. The emphasis is on administrative-level, hands-on experience that benefit the agency and the student. A written report, a daily journal and an agency supervisor's evaluation are required. Graded as Pass/Fail. Prerequisite: PBA101, COM102, senior standing and the approval of the department.

## PHI

## Philosophy

## PHI 201 Introduction to Philosophy

(3-0-3). Introduces students to basic issues and concepts of philosophy; including epistemology, ethics, classical idealism, naturalism, humanism, existentialism, ontology, ethics, skepticism, postmodernism and phenomenology. Thinkers are selected from the classic, modern and contemporary periods. Prerequisite: COM 102.

## PHI 202 Introduction to Islamic

 Philosophy (3-0-3). Surveys major philosophers in Islam such as, Al-Ghazzi, Ibn Rashid, the Sufis or Al-Farabi. Focus will be on the concepts of religious and philosophical doctrines. Prerequisite: COM 102.PHI 204 Ethics for Professionals (3-0-3). Examines the ethical duties of professional practice in such fields as engineering, architecture, business, public administration or environmental science. The emphasis is on developing a framework for moral thinking and judging, and becoming aware of the moral viewpoint of others. Focuses on case studies, which evoke conflicts between personal convictions and public responsibilities. A special concern is an emphasis on how institutions may support or inhibit professionals in exercising moral leadership and making moral choices. Prerequisite: COM 102.
PHI 303 Political Philosophy (3-0-3). (Cross-listed as POL 303). An introduction to the abiding questions of a civil society, pertaining to freedom, equality, justice, glory, power, law, nature, convention and civic virtue. Prerequisite: POL 202.

## PHY

Physics
PHY 001 Preparatory Physics (3-0-3). This course is designed for science and
engineering students with an insufficient background in physics. Through the study of elements of kinematics (motion in one and two dimensions) and dynamics (Newton's laws, momentum, work and energy), students will develop problemsolving skills using algebra, trigonometry and calculus.
PHY 100 Conceptual Physics (3-0-3). Introductory course for non-science and non-engineering majors designed to give the student an understanding of the basic concepts of physics without complex mathematics. The course emphasizes conceptual understanding of physical phenomena, firmly grounded in the scientific method. Topics covered include simple elements of mechanics, waves and light, electricity and magnetism, atoms and nuclei. Prerequisite/concurrent: MTH 002, 003 or MTH100 or math placement test. (Not open to science and engineering students.)
PHY 101 General Physics I (3-3-4). A calculus-based introductory course for scientists and engineers covering the fundamental principles, laws and concepts of physics. The course covers mechanics, and mechanical waves. Laboratory includes experiments illustrating the principles, laws and concepts discussed in the course. Prerequisite: PHY 001 or placement test and prerequisite or concurrent MTH 103.
PHY 102 General Physics II (3-3-4). This is a continuation of General Physics I. Topics covered are electricity and magnetism as well as light and optics. The laboratory includes experiments illustrating the principles, laws and concepts discussed in the course. Prerequisite: PHY 101.
PHY 103 Astronomy (3-0-3). Presents a broad view of descriptive astronomy without complex mathematics. It is designed to introduce and familiarize the students with basic astronomical facts and phenomena that one can observe, study, and explain using scientific methods. It 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). This is a general physics course, based on algebra, with selected emphasis appropriate
to the background and needs of architecture students. The course covers elements of mechanics (kinematics and dynamics); optics (geometrical as well as interference); sound (including general principles of acoustics, such as the propagation, transmission, attenuation, and reverberation of sound); heat and energy. Not open to Engineering and Science students. Prerequisite/ concurrent: MTH 101 or MTH 103 or MTH 111. (Not open for students who have taken PHY101.)

## PHY 105 Physics for Environmental

Sciences (3-3-4). This is an introductory course for Environmental Science majors designed to give the student an understanding of the basic concepts of physics as they apply to environmental problems. Topics covered include elements of fluid mechanics (fluid flow, Bernoulli's equation); electricity and magnetism (high voltages, electric power, transmission); optics (light dispersion, interference); atomic physics (Bohr model, atomic and molecular structure, absorption and emission, X-rays), and radioactivity. The course also considers some specific applications in the general areas of energy processes. Restricted to Environmental Science students. Prerequisite: PHY 101.
PHY 201 Modern Physics (3-3-4). This is a course required for Environmental Physics majors but is also very useful to Engineering majors, particularly Electrical and Computer Engineering. It deals with special relativity, introductory quantum mechanics, nuclear physics, elements of solid state and semi-conductor physics. The laboratory part consists of experiments illustrating the principles, laws and concepts discussed in the course. Prerequisite: PHY 102 or PHY 105.
PHY 251 Meteorology (3-0-3). This is an introductory course in meteorology, required for Environmental Physics majors but also very useful to other Environmental Science majors as well as Engineering students. It deals with weather phenomena, general climatology, meteorological control, techniques and problems of weather forecasting, air quality, atmospheric effects, radiation and pollution, storms and general air circulation, and meteorological instruments. Prerequisites: PHY 101.
PHY 301 Energy Sources (3-0-3). This course is required for Environmental Physics majors but is also very useful to
other Environmental Science majors as well as Engineering students. It examines energy from a Physics perspective. Present and future alternative energy sources are examined. These include hydroelectric, nuclear, solar, geothermal and tidal energy. The course also investigates the problems caused by each energy source and the issue of sustainability. Prerequisites: PHY 102 or PHY105.
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; atmospheric dynamics. Prerequisite: PHY102 or PHY 105.

PHY 304 Issues in Environmental Physics (3-0-3). Examines current environmental issues from a physical perspective. These include nuclear waste disposal and contamination, nuclear radiation and shielding, electromagnetic radiation and its effects, ozone depletion and global warming. Prerequisites: PHY 102 or PHY105.
PHY 351 Analytical Techniques (3-3-4). Deals with the various physical analytical tools for pollution detection, characterization, and measurements. The analysis of remote sensing data is also studied. Satellite remote sensing data is analyzed and interpreted. Laboratory experiments deal with applications of nuclear and spectroscopic techniques to environmental pollution measurements. Prerequisites: PHY 201.

## POL

## Political Science

## POL 201 Introduction to Political Studies

(3-0-3). An introduction to the science of politics, including an examination of the nature of government and public policymaking. Focuses on the processes of government, including public administration, foreign policy and international relations. Prerequisite: COM 102.

## POL 202 International Relations

(3-0-3). Aims at making students acquainted with the main stages of the evolution of IR as a discipline since 1945, which can be seen as an ongoing debate
about the explanatory value of one particular theory, namely Realism. The course gives a profound introduction into theories of International Relations as well as a theory-based introduction into foreign policy analysis. It offers an analysis of the different schools of IR Theory as well as their respective critiques. Prerequisite: POL 201.

POL 300 Comparative Chief Executives of Nation-States (3-0-3). Analyzes the legal framework and political power relationships between heads of government, vis a vis parliaments, and/or national public bureaucracies, in the East and the West. Focuses on executive privilege, administrative discretion, legislative oversight, separation of powers, rule of law and an independent judiciary. Prerequisite: POL 202 .

POL 301 Globalization (3-0-3). The process of globalization is well underway at all levels of society, with socio-political impacts on all cultures. An introduction to the globalization of economic systems, multinational organizations, technological, consumerism and worldwide communication systems. Prerequisite: POL 202.

## POL 303 Political Philosophy (3-0-3)

(Cross-listed as PHI 303). Introduces the abiding questions of a civil society, pertaining to freedom, equality, justice, glory, power, law, nature, convention and civic virtue. Prerequisite: POL 202.

## POL 304 International Organizations

(3-0-3). 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. Selected legal institutions such as the International Court of Justice in The Hague and other tribunals, dealing with international disputes are analyzed. Prerequisite: POL 202.

POL 306 Theories of Democracy (3-0-3). Discusses alternative definitions and viewpoints of democracy. It compares fullparticipation democracy with different types of representative democracy, including the constitutional democracy and the majority rule democracy. It compares different types of representative democracy, including the presidential and parliamentary systems and their variations. It discusses the relationship between democracy and human welfare, including the prospect for war and economic progress. Prerequisite: POL 202.

## POL 307 Wars, Conflicts, and

Diplomacy (3-0-3). Provides an introduction to the causes of war and other levels of violent international conflict and the efforts that nations and international organizations make to avoid it. Among other topics, the course includes an examination of the techniques of diplomacy, which have been utilized, historically speaking, in these attempts to avoid wars and violent conflicts. Special emphasis will be placed on concepts of national self-interest, realpolitik, just and unjust wars, non-interference with internal sovereign issues, and nuclear weapons issues. Case studies of specific wars are analyzed, and consideration is made of various theories for controlling potential future flare-ups, and real international conflict situations. Prerequisite: POL 202.

## PSY

Psychology
PSY 101 General Psychology (3-0-3).
Topics include 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: COM 102.
PSY 102 Social Psychology (3-0-3). Focuses on the impact of group dynamics on individual behavior. Topics to be discussed include the nature and methodology of social psychology research and various major theoretical concepts, including childhood development and socialization, causality attribution, attitude formation, anti-social behavior,
interpersonal attraction and intimacy and the social effects and function of groups. Particular emphasis is placed on the application of social psychology concepts in the workplace. Prerequisite: COM 102.

## PSY 205 Industrial and Organizational

 Psychology (3-0-3). Presents topics of using psychology at work (the history of I/O Psychology, methods of study and research), establishing a strong work force (preparing for employee selection, the selection of effective personnel, using psychological tests in selection, training and development at work, evaluating job performance), social organization (the motivation to work, satisfaction with work, leadership at work, designing effective work organizations, the dynamics of interaction) and solving the human problems of work (stress and its effects on work, employee health problems and organizational interventions, designing the work environment). Prerequisite: COM 102.PSY 301 Abnormal Psychology (3-0-3). (formerly PSY 202). 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. How such disorders arise from subtle interactions between organic or psychological predisposition. Prerequisite: PSY 101.

## PSY 302 Developmental Psychology

(3-0-3). Examines the biological, psychological, and sociocultural determinants of human development from conception until death. Special attention is given to adolescent development with regards identity, parent-adolescent relationships, values, sexuality, career development, psychopathology, substance abuse, delinquency and alienation. Prerequisite: PSY 101.
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 on the psyche. Prerequisite: PSY101.

SOC
Sociology

## SOC 201 Introduction to Sociology

(3-0-3). Introduces the basic concepts and models of sociology, including functionalism, conflict theory and symbolic interaction theory. The sociology of the family, organizations, social systems, religion and social movements is examined. Concepts such as social inequality, social deviance, culture, social structure, socialization, social stratification, poverty, gender, the environment and power will be introduced. Prerequisite: COM 102.
SOC 202 Environmental Sociology
(3-0-3). Introduces critical issues entailed in the reciprocal relations between human populations and the environment. The environment, broadly defined, includes the air, the water, the plant-life, animals; and the economic, aesthetic, political and social mores, aspects of the human culture. An analysis of social change and public policy that affects environmental degradation and natural resources depletion, and the social groups that affect the protection of the environment. Prerequisite: COM 102.

## SOC 380 Sociology of Urban Politics (3-

$0-3$ ). Analyzes cities and the suburban areas, including the community power structure, the inequalities of wealth, and the problems of transportation, housing, poverty, homelessness, crime, social class, social change, racism, public health and education. A special focus on the politics of public service delivery systems related to economic development policies and redistribution policies. Prerequisite: COM 102.

## STA

## Statistics

## STA 101 Engineering Statistics (2-0-2).

Covers summarizing data and descriptive statistics; designing experiments; sampling distributions; introduction to statistical inference (estimation and hypothesis testing); simple regression and correlation; using statistical software; probability. Examples from the five engineering disciplines are used.

## STA 201 Introduction to Statistics for Engineering and Natural Sciences

(3-1-3). Explores descriptive statistics; probability distributions; experimental design; estimation; hypothesis testing; mean and variance tests; analysis of variance; simple regression and correlation;
and the use of statistical computer software.

## STA 202 Introduction to Statistics for

Social Sciences (3-1-3). Covers acquisition and development of statistical methods that are commonly used in social sciences. Methods include: techniques for classification of data, descriptive statistics; probability distributions; experimental design; sampling techniques; index numbers; estimation; hypothesis testing; analysis of variance; nonparametric techniques; simple regression and correlation; and the use of statistical computer software. Prerequisite: MTH 100, MTH 101 or MTH 111.

## STA 361 Probability and Statistics I

(3-0-3). Covers random variables and their probability distributions; moments and generating functions; random vectors; some special distributions; limit theorems; sample moments and their distributions; the theory of point estimation. Prerequisite: MTH 104 and STA 201.

## STA 362 Probability and Statistics II

(3-0-3). Examines theory of testing of hypotheses (Neyman-Pearson, likelihood ratio, etc.); some further results on hypotheses testing; confidence estimation; the general linear hypothesis; nonparametric statistical inference; sequential statistical inference. Prerequisite: STA 361.

## STA 380 Applied Statistics with

 Applications in Economics (3-0-3). Covers estimation, inference, multiple regression and correlation; elementary decision theory; introduction to time series; quality control techniques; applications in economics such as organization and interpretation of economic data, analysis of price, production and income data. Prerequisite: STA 201.STA 401 Regression Analysis (3-0-3). Examines simple and multiple regression; least squares; curve fitting; graphic techniques; diagnostics and remedial measures (topics include multicollinearity, autocorrelation, problems with the model); polynomial models; intrinsically linear and nonlinear models; the general linear model; categorical response variable. Prerequisite: STA 201.

## STA 450 Introduction to Stochastic

Processes (3-0-3). Provides an introduction to random walk, Markov chains and processes; birth and death processes,

Poisson processes, renewal theory, Brownian motion, Gaussian processes, white noise, spectral analysis; queuing systems and applications. Prerequisite: STA 361 or STA 360.

## STA 460 Applied Time Series Analysis

(3-0-3). Gives an introduction to the theory of time-dependent data; moving average and autoregressive processes; spectral theory and filtering; some large sample theory; estimation of the mean and autocorrelations; the periodogram, estimated spectrum; parameter estimation; regression, trend, and seasonality; unit roots; applications from economics, finance, engineering and others. Prerequisite: STA 361 or STA 380.

## STA 470 Applied Multivariate Statistics

(3-0-3). Covers aspects of multivariate analysis with applications; matrix theory and random vectors; sample geometry and random sampling; multivariate normal distribution; test of hypotheses; multivariate analysis of variance; multivariate regression; analysis of covariance structure (topics include: principal components, factor analysis, discriminant analysis, canonical correlation); classification and grouping techniques. Prerequisite: STA 361 or STA 401.

## STA 480 Sampling Techniques (3-0-3).

 Explores theory of probability sampling and survey designs; methods for determining expected value, bias, variance; unrestricted random sampling, stratified sampling, cluster sampling, multistage or subsampling, ratio estimates, regression and composite estimation, double sampling; introduction to measurement error and comparison of alternative designs. Prerequisite: STA 201.
## THM

## Theme courses

## THM 301 Arabs and the West: The

 Andalusian Symbiosis I (3-0-3). A twosemester interdisciplinary course that introduces students to the cultural symbiosis between Arabs and Europeans during the eight centuries of Arab/Muslim rule in Spain. The literary, cultural and scientific developments of that time will be closely examined and reevaluated. In the first semester, students will learn about the historical, literary, linguistic, artistic and architectural products of al-Andalus. (This course satisfies the Arabic Heritagerequirement.) Prerequisite: junior standing .

## THM 302 Arabs and the West: The

 Andalusian Symbiosis II (3-0-3).Examines the channels through which philosophical and religious, as well as scientific and technological knowledge, in Muslim Spain was produced and transmitted. The course ends with a reevaluation of the Andalusian legacy to the Arab World and the West. (This course satisfies the Arabic Heritage requirement.) Prerequisite: junior standing.
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. Among other topics the course will provide 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. The environmental problems addressed will include, among others, global climate change, acid rain, ozone depletion, solid waste disposal, water resources, energy resources, fisheries, forests and biodiversity. Prerequisite: junior standing.

## TRA 101 Introduction to Translation

(3-0-3). Aims to familiarize students with the field of translation and the skills necessary to work as successful translators. Emphasis is placed on 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: COM 101.
TRA 201 Theoretical and Practical Issues in Translation (3-0-3). Views translation practice as seen in the light of various
theories and models of translation. Theories informed by modern linguistics, cultural studies and literary criticism are invoked with the aim of sensitizing the translator to the intricacies of the task. Throughout, the key notion of "equivalence" is assessed and examined at various levels of language organization (word level, sentence level, text level, pragmatics, etc.) Issues covered include the translation of metaphors and idiomatic expressions, dealing with meaningful repetition, biased translation shifts. Prerequisite: TRA 101.
TRA 203 Modern Media Translation and Interpreting (3-0-3). Focuses on those modes and situations that relate to the translation and interpreting of the non-print media, film and television. Areas covered include: transcription and translation of narration and dialogue; translation of film scripts and sound tracks; subtitling; dubbing; interpreting for documentary and feature films, TV newscasts, video clips and commercials, teleconferences, telephone communication. Work on advertising, the translation of PR and promotional literature, publicity materials, etc. is also included. Prerequisite: TRA 201.
TRA 303 Interpreting: Focus on the Community (3-0-3). Introduces interpreting and distinguishes this skill from translation. The course is intended to develop the basic professional skills of Liaison Interpreting, with special emphasis on community interpreting (doctor-patient, court, official transactions). Other areas covered include business meetings, diplomatic/political negotiations, press interviews. The course aims to prepare students for these interpreting situations 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. Prerequisite: TRA 201.

## TRA 401 Translation Evaluation and

History (3-0-3). Aims to explore the conceptual map of translation studies and to reflect on important points in the history of translation. Emphasis is placed on both Western and Eastern translation traditions and on the role of translation in the development of culture and identity. Translation evaluation is introduced, and rigorous assessments schemes worked out. The course draws on both literary and nonliterary materials, as well as technical and
non-technical texts. Prerequisite: TRA 201.
TRA 494 Special Topics in Translation (1
to 4 credits). Focuses on salient issues in the theory and practice of translation and interpreting. Various themes are selected, and the arguments for and against the various proposals examined. Topics will differ in subject matter and scope, invoking paradigms ranging from linguistics to cultural studies, feminist translation and deconstruction. Prerequisite: TRA 401.

# School of Architecture and Design 

## ARC

Architecture


#### Abstract

ARC 201 Architectural and Interior Design Studio I (12-0-6). (Cross-listed as IDE 201). Studio-based investigation of the fundamentals of making architectural form and space with emphasis on design inquiry, exploration and process. Concentrates on classic instances of form sources in architectural and interior design: function, experience, structure, construction and context. Digital media are integral to the studio, and students receive instruction in software appropriate for design purposes. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131, DES 132, MTH 003 or MTH 111 or MTH 103.


ARC 202 Architectural and Interior Design Studio II (12-0-6). (Cross-listed as IDE 202). Continues the content and purpose of ARC 201, with increased emphasis on design development and physical and technical resolution. Digital media are integral to the studio, and students receive continued instruction and practice in software appropriate for design. Prerequisite: ARC 201 or IDE 201.
ARC 213 Analysis and Methods in Architecture (3-0-3). (formerly ARC 212). Introduces models of process and conception in architectural design, addressing fundamental concepts of method, spatial organization, material, structure and context as aspects of a comprehensive design intention. Course format includes lectures, seminars, field visits and readings. Assignments involve written and graphic communication. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131, DES 132.
ARC 215 Descriptive Geometry (4-0-3). Introduces concepts and practices of the precise description of form in space. Systematic treatment of projection systems, including orthographic, oblique and perspective projections. Instruction and assignments involve both traditional and digital design media. Course format includes lectures and supervised applications. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.

ARC 224 Modern Foundations of Art and Architecture (3-0-3). (formerly ARC 220). Covers principles and practices fundamental to an understanding of the art and architecture of the modern era. Presentation integrates history and theory with practical design and application and proceeds topically rather than chronologically. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.
ARC 232 Survey of Materials and Practices in Construction (3-0-3). (formerly ARC 231). Broad survey of building materials and their properties, assembly sequences and methods of construction in the context of their influence on the form, cost and quality of the built environment. Taught utilizing a case study approach to demonstrate both the continuing evolution of the building process and the timeless nature of the issues involved. Course format includes lectures and supervised applications. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131, DES 132
ARC 242 Statics and Mechanics for Architecture (2-2-3). (Cross-listed as CVE 272). (formerly ARC 240). Covers Newton's laws; forces, free body diagrams and equilibrium equations; analysis of beams and trusses; geometric properties; centroid and moment of inertia; normal stress and strain; mechanical properties of common building materials; tensile, compression, bending and torsion tests for different building materials (steel, conrete, wood); and bending stress and shearing stress. Not open to Civil Engineering students. Prerequisite: PHY 104.
ARC 301 Architectural Design Studio III (12-0-6). Investigates spatial, structural, environmental and visual design of actual site projects. Exploration of the syntax of architecture and advanced means of representation, and integration of building systems into the design. Emphasis on site and context analysis. Several individual and group assignments are presented.
Prerequisite: (ARC 202 or IDE 202) and PHY 104.
ARC 302 Architectural Design Studio IV
(12-0-6). Continuation of ARC 301, with emphasis on investigation of urban programs and sites, requiring not only the integration of form, structure, space and technologies, but the consideration of specific contextual issues of physical form and activities. Fundamental urban design and planning issues, methods and techniques are explored. Several individual and group assignments are presented.
Prerequisite: ARC 301 and ARC 213.
ARC 311 Illustration and Rendering (4-0-3). (Cross-listed as IDE 311). Illustration and rendering techniques enabling students to express their ideas faster with more precise results. This course covers freehand color drawing techniques using markers, color pencils and watercolors. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.
ARC 312 Advanced Representation (4-0-3). Expands on representational techniques. Focuses on the application and use of these techniques in the presentation and representation of design concepts and drawing compositions. Introduces to color drawing techniques using mixed media of hand drawing and computer generated drawings and illustrations, photomontage and collage. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.
ARC 315 Modeling and Rendering (4-0-3). (Cross-listed as IDE 315). (formerly ARC 310). Presents a rationalized, geometrical approach to the conception and description of form. Selected examples of architectural form are first rigorously analyzed to re-derive their constructional logic then "built" as detailed electronic models. Students explore the potential of digital design technologies as instruments to achieve vivid, authentic, holistic simulations of architectural reality, appropriate to the testing of architectural ideas. Taught in a modified studio format. Prerequisite: ARC 301 or IDE 301
ARC 322 Global Issues in Architecture (3-0-3). Examines of 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: ARC 224, PHY 104.
ARC 325 Ideas in Architecture (3-0-3). (formerly ARC 321). A seminar to introduce the conceptual basis of the work of specific architects, historical and contemporary architectural historians and theoreticians, and schools of thought in architecture with an emphasis on the understanding of both written and visual analysis of built form and design. Prerequisite: ARC 224.
ARC 333 Rough Construction Processes (2-3-3). (formerly ARC 330). Offers an indepth presentation of contemporary regional construction practices used to prepare the sites and to erect the building's basic structure. These include site preparation, foundations, concrete, steel and timber structures, and masonry work. Spans production to preliminary construction drawings for small buildings. Prerequisite: ARC 232.

## ARC 343 Structural Analysis for

Architecture (2-2-3). (Cross-listed as CVE 371). (formerly ARC 341). Introduces to structural analysis. Covers classification of structures and sources of loads; load path and load tracing in structural systems; analysis of simple beams, trusses, arches, cables, and frames; internal forces: Axial, shear and moment diagrams for beams and frames; qualitiative analysis of structures; elastic buckling of columns and computer analysis of structures. Prerequisite: ARC 242 or CVE 272.

## ARC 344 Structural Design for

Architects (2-2-3). (Cross-listed as CVE 372). (formerly ARC 342). Examines structural systems and behavior of structural members and assemblies; the structural design process, codes and specifications; qualitative and preliminary design of structural members; design of simple steel structures, including tension members, compression members, beams and connections and design of simple concrete structures, including beams, columns, one-way slabs and isolated footings. Introduces design of wood and masonry structures. Prerequisite: ARC 343 or CVE 371.
ARC 354 Environmental Energies and

Building Form (2-3-3). (formerly ARC 351). Studies the physical phenomena that make climate (rain, humidity, temperature, wind, sun, etc.) influence buildings. The topics include heat transfer methods, solar radiation, vapor in air, air leakage and water condensation and wind movement. Studies indoor thermal environment and thermal comfort of building occupants is offered as well. Prerequisite: PHY 104.
ARC 364 Introduction to ComputerAided Drawing (0-2-1). (Cross-listed as IDE 364). (May test out of course.) Training for mainstream CAD applications using Windows operating system. Develops basic familiarity and proficiency with applications commonly encountered during professional training. Graded as Pass/Fail. Prerequisite: ARC 202 or IDE 202.
ARC 365 Computer Aided Design (4-0-3) (Cross-listed as IDE 365). (formerly ARC 371). Systematic introduction to 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. Modeling of existing buildings utilizing CAAD applications from the core software suite utilized by SA\&D. Topics include: objects, layers, classes, dimensions, units, scales, groups, symbols, different description models in 3D, levels of precision, different construction methods, work strategies. Prerequisite: ARC 201 or IDE 201.

## ARC 366 Applied Computer Aided

 Design (4-0-3). (Cross-listed as IDE 366). Systematic introduction to the basic practice of computer aided architectural design. Presentation and training focuses on two mainstream production CAAD applications, ArchiCAD and AutoCAD, with the intent to develop basic familiarity and proficiency with the applications most likely be encountered in offices during professional training. Introduction to AutoCAD occurs on PCs running the Windows NT operating system. Topics extend those introduced in ARC 365 to include detailed treatment of tool palettes and inter-platform compatibility. Prerequisite: ARC 201 or IDE 201.ARC 374 Environmentally Sustainable Design (4-0-3). (Cross-listed as IDE 374). This course develops a greater focus on
holistic and sustainable approaches to design. Issues such as demand and supply of energy and water and the generation of waste will be covered. Principles of reduce, reuse and recycle will be reiterated. Predominant emphasis will be on practical strategies directly applicable in design. Material is presented as lectures and seminars, supplemented with readings. Prerequisite: PHY 104.
ARC 397 Internship I (0-0-0). Minimum of six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Prerequisite: ARC 302.
ARC 401 Architectural Design Studio V (12-0-6). Study and analysis of large scale projects through a sequence of design problems of increasing complexity. Emphasis on the planning of buildings and the inter-relationship among form, structure, technologies, materials and detail. Prerequisite: ARC 224, ARC 232, ARC 242 or CVE 272 and ARC 302.
ARC 402 Architectural Design Studio VI
(12-0-6). Advanced individual problems requiring a synthesis of spatial, structural, environmental, programmatic, technological and historical issues. Emphasis is placed on program generation, formal synthesis and advanced levels of complexity and comprehension of the process of design and construction. Problems are presented, analyzed and studied with the aid of the faculty. However, students are given increased freedom and responsibilities in determining the scope of their work and their methods of exploration. Semester long problem. Prerequisite: ARC 325, ARC 333, ARC 354, ARC 397 and ARC 401.
ARC 424 Evolution of Cities (3-0-3). Introduction to 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: ARC 202 or IDE 202.
ARC 434 Finish Construction Processes (2-3-3). (formerly ARC 431). In-depth examination of the trades and processes
involved in finishing a building. These are the major components that are built following the erection of the building's basic structure. They include stairs, doors, windows, partitions, ceilings, floors, claddings and joints. Discussion of design considerations and construction methods with hands-on experience in producing detailed drawings of some elements. Prerequisite: ARC 333.
ARC 436 Working Drawings (4-0-3). (formerly ARC 472). Introduces the production of working drawings used in the building industry. A preliminary building design is developed to produce a set of complete architectural working drawings. Emphasis is placed on the use of computer technology in drawing production and information coordination. Prerequisite: ARC 301 or IDE 301.

ARC 451 Lighting and Acoustics (2-3-3). Introduces the basic concepts of acoustics and illumination. Explains and demonstrates both the qualitative and quantitative aspects of sound and light in the built environment to obtain an awareness and understanding of their impact on overall design decisions. The course is divided into two parts: the architecture of sound, its terminology, process of transmission and practical applications; and the architecture of light, its nature, sources, characteristics, calculation and application. Each part addresses both the art and science of the respective disciplines. Computer simulation and modeling is used as research tools. Prerequisite: (ARC 202 or IDE 202) and PHY 104

## ARC 455 Environmental Control

 Systems (2-3-3). (formerly ARC 452). A presentation of the basic principles for the selection and the design of the main environmental control systems in buildings. These include plumbing, heating, ventilation, air conditioning, electric, lighting, and fire suppression and protection systems. Prerequisite: ARC 354.ARC 461 Project Management (3-0-3). (Cross-listed as IDE 461 and DES 461). Introduction to the basic and advanced concepts of running design projects. Exploring the design process and project phases, analyzing in detail under the project management concept of delivering projects "on time, on budget, every time." Prerequisite: ARC 397 or IDE 397 or DES 397.

ARC 462 Design Management (3-0-3). (Cross-listed as IDE 462 and DES 462). (Formerly ARC 460). Introduction to the principles and practices of the economic and commercial aspects of architectural and design practice in a global economy. Includes microeconomics theory as it applies to private enterprise: basic business economics, planning and management. Attention is also given to the processes and skills required in establishing an independent architectural office. Prerequisite: ARC 397 or IDE 397 or DES 397.

## ARC 465 Advanced Computer Aided

 Design (4-0-3). (Cross-listed as IDE 465). Concentrates on the specific demands on CAD systems by the architecture and building professions. Application of CAD systems to the different phases of planning: preliminary design, design, construction documents, extraction of volumetric data and transfer to spreadsheet and/or database software, rendering software, postrendering work in pixel-editing software, technical drawing layout software, etc. Prerequisite: ARC 301 or IDE 301.ARC 471 Site Planning (4-0-3). Focuses on one of the fundamental components of building design. In site planning, determination of the interrelationship of intended site use with the environment with consideration of topography, vegetation, climate, geographic aspects and theoretical aspects of site development. Focus on the synthesis of programmatic and environmental requirements into a coherent concept for the placement of buildings and/or other improvements on a site. Prerequisite: ARC 302.

## ARC 473 Introduction to Landscape

 Architecture (4-0-3). Provides an introduction to the techniques of site inventory, analysis and design. Specific skills in reading and modifying topography, understanding micro-climatic influences, vehicular and pedestrian access, formal and functional relationships to surrounding buildings, respect for ecology and other site and site-use factors will be treated in lecture/demonstration class settings. Prerequisite: ARC 302.ARC 493 Study Abroad (1 to 3 credits). On-site visits offer the opportunity to experience first hand regional and international design practices, highlighting particular themes relevant to the specific
location. Department permission is required for enrollment and credit. Prerequisite: ARC 302 or IDE 302.

## ARC 494 Special Topics in Architecture

 ( 2 to $\mathbf{4}$ credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: ARC 202 or IDE 202.ARC 496 Independent Study (1 to 4 credits). This course involves investigation under faculty supervision beyond what is offered in existing courses. May be repeated to a maximum of six credits of Independent Study. Prerequisite: junior or senior standing and consent of the instructor.

ARC 497 Internship II (0-0-0). Minimum of eight weeks of on-the-job experience with an approved professional firm. Work undertaken must be documented in a formal report to the department by mid-semester of the following term. Prerequisite: ARC 402.
ARC 498 Studio Abroad ( 3 to 6 credits). Studio activities conducted in regional and international sites promoting a globaloriented approach to design. Prerequisite: ARC 302 or IDE 302.
ARC 505 Architectural Design Studio VII (12-0-6). Comprehensive design project integrating all aspects of design, theoretical, technological, urban and representational, allowing students various scales of investigation with one design problem. Prerequisite: (ARC 344 or CVE 372) and ARC 402.

ARC 506 Architectural Design Studio VIII (12-0-6). Research-directed design studio. Studio topic is related to some aspect of architectural design (history/ theory, technology, representation, urban or heritage resource management, etc.).
Students pursue directed research in support of a design investigation. Prerequisite: ARC 497, ARC 505.
ARC 520 Architectural Criticism (4-0-3). Addresses a coherent understanding of contemporary architecture by focusing on readings, discussions and presentations in order to mature the student's cognition to today's architectural strategies.
Prerequisite: ARC 325.
ARC 530 Case Studies in Building Construction (4-0-3). Provides in-depth study of the interrelationship of building construction and architectural design with
consideration of the design development, taking into account the resulting changes throughout the development of a design. Students will gain the ability to assess and analyze the relationship between tectonics and architecture, as well as to apply this to their own design work. Prerequisite: ARC 333.

ARC 561 Construction Management (3-0-3). (Cross-listed as CVE 561). Indepth study of 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. Includes review of standard practices of tendering, contracting, quantity surveying, cost estimation, supervision, quality control and economy. Taught in Department of Civil Engineering. Prerequisite: ARC 397 or IDE 397.
ARC 573 Principles of Urban Planning and Design (4-0-3). (formerly ARC 573). Examines the basic theoretical frameworks that foster the making of livable cities. Explores approaches, methods, and tools commonly used in the practice of urban planning and urban design. Hands-on exercises deal with such problems as housing and community development, urban conservation, environmental protection and public space provision and design. Prerequisite: ARC 301.

## ARC 591 Final Project Research (6-0-3).

 Students choose a design topic with the guidance of an advisor and approval of the faculty. Each student prepares an individual program for ARC 592. Final Project Design, concluding with a formal, bound document. Prerequisite: ARC 344 or CVE 372, ARC 402, ARC 434, ARC 455, ARC 462 or IDE 462, and consent of the department.ARC 592 Final Project Design (12-0-6).
Individual resolution of the design problems initiated in ARC 591, prepared under the guidance of a selected faculty advisor, presented and defended in a formal public critique. This course may substitute for ARC 506. Prerequisite: ARC 497, ARC 505, ARC 591, and consent of the department.

## DES

DES 100 Digital Media in Design (4-0-3). (Formerly ARC 211 or CMP 103 or ARC

230 or CMP 101 in 1997/98). Intended to introduce digital media as an integral part of design process and Internet communications. Covers care and operation of hardware, an introduction to the function and features of the Mac operating system, use of the keyboard, mouse, and other input devices such as digital cameras and scanners, and output devices such as printers and plotters. The course introduces students to the integrated use of software appropriate for word processing, document layout, spreadsheets, communication and research, drawing and modeling. This course is restricted to SA\&D and MCM majors.

## DES 111 Descriptive Drawing I (6-0-3).

(Formerly AA111). Introduces the students to the fundamental principles of observational and analytical drawing. Various representational and analytical approaches are explored through assignments that encourage the development of skills needed to effectively represent and communicate visual information. Restricted to SA\&D students.
DES 112 Descriptive Drawing II (6-0-3). (Formerly AA112). This drawing course further introduces the student to the principles of drawing. Emphasis is given to the development of an individual approach to representation and a wide variety of assignments encourage the student to develop an understanding of a range of techniques and materials of drawing. Restricted to SA\&D students. Prerequisite: DES 111.

## DES 121 History of Material Culture I

(3-0-3). (Formerly AA121). Examines the artistic material culture of humanity through architecture, monuments, sculpture and painting. The technological, religious and social forces that shaped these works are explored. The first part of this course covers the time span from the Stone Age through the Ancient Middle East, Classical, Medieval and Islamic eras. Restricted to SA\&D students.
DES 122 History of Material Culture II (3-0-3). (Formerly AA122). This course is a continuation of DES 121. It traces development of world artistic material culture from the 15 th century to the present time. Restricted to SA\&D students.
DES 131 Design Foundations I (6-0-3).
(Formerly AA131). In this course students are introduced to the principles, conceptual
and critical skills, and the techniques of design. Students learn to observe the world critically and meticulously, to analyze both the broad structures and the small details of visual phenomena, and master skills needed to conceptualize and communicate their observations through traditional means (drawing, painting and drafting), as well as through digital and other media. They learn craft and acquire making skills with a variety of materials and methods. Class assignments, critiques and presentations will enable students to begin developing an aesthetic awareness coupled with critical thinking skills. Restricted to SA\&D students.
DES 132 Design Foundations II (6-0-3). (Formerly AA132). Continues the principles of design, with an emphasis on testing aesthetic and perceptual assumptions. Students develop problemsolving 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 threedimensional design concepts. Restricted to SA\&D students. Prerequisite: DES 131.
DES 141 Introductory Painting (6-0-3).
This course is a basic introduction to the fundamentals and principles of observational painting. Various representational strategies, methods, materials and techniques are explored, with exercises and assignments designed to develop skills needed to communicate visual information in a painterly context. Restricted to SA\&D students.
DES 142 Painting: The Practice of Color (6-0-3). This course is suitable to both beginners and intermediate level students interested in learning about color and paint. The course is designed to both build on the students' knowledge of the principles, techniques and critical skills developed in Introductory Painting I, as well as introduce new students to the basic theories of color and paint application. Restricted to SA\&D students.

## DES 151 Introduction to Printmaking

(6-0-3). Introduces the fundamental methods, materials and processes of printmaking. The emphasis is placed on technique, craft and development of proper studio working habits, studio safety and the
development of accurate printing skills and printing consistency. Students will work on monochrome and polychrome projects working with single and multiple matrixes. They will learn the essentials of color printing and how to build color through CMYK methods.

DES 200 Communication Design (6-0-3). This course provides an introduction to the materials and techniques most commonly used by designers in the field of communication and stresses the development of skill in these areas through the completion of class assignments and projects representative of the concepts discussed in class. Students develop a deeper understanding of visual communication and become well-versed in the capacities and restrictions inherent in the materials and techniques most commonly used by professional designers. Prerequisite: DES 100. (Multimedia Design and Visual Communication majors may not take this course.)

## DES 211 Intermediate Drawing Studio

(6-0-3). This course is suitable to intermediate level students interested in expanding their drawing skills and contextual knowledge of the field of drawing. DES 211 encourages experimentation through the introduction and exploration of various mediums and techniques. This course also further explores and enhance the student's knowledge of analytical and observational drawing skills. These objectives will be pursued through intensive studio-based practice. Prerequisite: DES 111 and 112.

## DES 230 Digital Media in

Communication Design (6-0-3). This course is a continuation of DES 100 and builds on the development and skills associated with digital design.Working with the latest in industry-specific hardware and software, students gain a more complete understanding of how digital media is used in electronic design and will learn the capabilities available to communication designers. Emphasis is given to the creation, preparation and presentation of finished digital media projects.
Prerequisite: DES 100. (Multimedia Design and Visual Communication majors may not take this course.)
DES 310 Introduction to Video and Audio Production (6-0-3). Provides a basic, hands-on introduction to the practical
techniques of scriptwriting, video and audio production, and post production editing using computer-based, non-linear technology. The development of skills is accomplished through the completion of individual and group projects that are representative of the concepts discussed in class. Students develop some practical abilities in the use of a comprehensive range of production equipment while gaining a deeper understanding and appreciation of the materials and techniques most commonly used by professional producers, directors and editors of educational, commercial, industrial and dramatic media programs. Prerequisite: DES 100. (Multimedia Design and Visual Communication majors may only take this course as a free elective.)

## DES 320 Introduction to Web Design

(6-0-3). Provides an introduction to Web site design. Students learn to use a variety of graphic design and Web page authoring tools, and Internet technologies and other relevant issues will be discussed. Students are expected to learn and use software packages for developing real life Web pages. Prerequisite: DES 100. (Multimedia Design and Visual Communication majors may not take this course.)
DES 397 Internship (3-0-3). Minimum of six weeks of on-the-job experience with an approved professional firm. Students may be required to pay an insurance fee. Prerequisite: consent of the chair.
DES 461 Project Management (3-0-3). (Cross-listed as ARC 461 and IDE 461). Introduces basic and advanced concepts of running design projects. Exploring the design process and project phases, analyzing in detail under the project management concept of delivering projects "on time, on budget, every time." Prerequisite/concurrent: DES 397.

DES 462 Design Management (3-0-3). (Cross-listed as ARC 462 and IDE 462). Introduces the principles and practices of the economic and commercial aspects of architectural and design practice in a global economy. Includes microeconomics theory as it applies to private enterprise: basic business economics, planning and management. Attention is also given to the processes and skills required in establishing an independent architecture or design office. Prerequisite/concurrent: DES 397.

DES 493 Study Abroad (1 to 3 credits).
On-site visits offer the opportunity to experience first-hand regional and international design practices, highlighting particular themes relevant to the specific location. Department permission is required for enrollment and credit. Prerequisite: Second year standing and consent of the department. Prerequisite: ARC 202 or IDE 202 or MUM 202 or VIS 202.

## DES 494 Special Topics in Design (2 to 4

 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit.
## DES 496 Independent Study (1 to 4

 credits). This course involves investigation under faculty supervision beyond what is offered in existing courses. May be repeated to a maximum of 6 credits of Independent Study. Prerequisite: junior or senior standing and consent of the instructor.DES 498 Studio Abroad (3 to 6 credits). Studio activities conducted in regional and international sites promoting a globaloriented approach to design. Prerequisite: ARC 202 or IDE 202 or MUM 202 or VIS 202.

## HRM

## Heritage Management

HRM 201 History of Material Culture in the Arabian Gulf I (3-0-3). Tracing the historical development of art and architecture in the Arabian Gulf region, this course examines the material culture of the ancient Middle East, medieval Islam and its associated pan-Islamic and regional styles. Specific attention is paid to the art and architecture of the United Arab Emirates. Prerequisite: COM 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 15 th century, including the impact of non-Arab colonization on the material culture of the Emirates. It also examines the development of contemporary artistic and architectural expression. Prerequisite: COM 102.

HRM 321 Introduction to Issues in Heritage Management I (3-0-3). Introduces the relevant theories and history, this course defines the practice of Heritage

Management. It also outlines the different disciplines and professions involved and their roles in the conservation of both movable and immovable cultural property. It further discusses the development of inter-government and non-government agencies for conservation and analyzes current critical thinking about defining and displaying heritage. Prerequisite: HRM 201 or HRM 202.
HRM 322 Introduction to Issues in Heritage Management II (3-0-3). This course introduces students to the specific issues, skills and techniques associated with museum management, documentation, exhibition design, and the preservation and conservation of movable and immovable cultural property. Instruction is through a combination of faculty lectures, assigned readings, field trips and guest lectures and workshops. Prerequisite: HRM 201 or HRM 202.
HRM 331 Traditional Regional Material and Climate (3-0-3). Introduces students to how traditional building types were molded by indigenous building materials and climate. Students visit and explore the existing sites to study design responses to lifestyle and climate traditionally employed in the region.

## HRM 332 Theory and Practice of

 Building Restoration (3-0-3). Students explore the steps involved in the rehabilitation and restoration of historic buildings, including documentation, assessment, structural and material analysis, project planning, conservation and preservation intervention strategies. Discrete techniques to incorporate contemporary requirements regarding sanitary and air conditioning are explored. Instruction combines on-going readings and lectures, guest lectures, workshops and field trips. Prerequisite: HRM 201 or HRM 202.
## HRM 494 Special Topics in Heritage

 Management (2 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: HRM 201 or HRM 202 or ARC 202 or IDE 202.
## IDE Interior Design

## IDE 201 Architectural and Interior

 Design Studio I (12-0-6). (Cross-listed as ARC 201). Studio-based investigation ofthe fundamentals of making architectural form and space with emphasis on design inquiry, exploration and process. Concentrates on classic instances of form sources in architectural and interior design: function, experience, structure, construction and context. Digital media are integral to the studio, and students receive instruction in software appropriate for design purposes. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131, DES 132, MTH 003 or MTH 111 or MTH 103.

## IDE 202 Architectural and Interior

 Design Studio II (12-0-6). (Cross-listed as ARC 202). Continues the content and purpose of ARC/IDE 201, with increased emphasis on design development and physical and technical resolution.Digital media are integral to the studio, and students receive continued instruction and practice in software appropriate for design. Prerequisite: IDE 201.
## IDE 223 History of Interior Design

 (3-0-3). (formerly IDE 320). Gives an overview of interior design's historical development as a collective expression of art, architecture, science and culture, however, as by-product of its own time and as a resource for stimulating new ideas. The history of interior design draws upon several different fields of scholarly study. It is based on architectural history but incorporates unique interior space typology, specific elements of the interior decorative arts and ornamentation including furniture, metal work, glass, ceramics and textiles. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.
## IDE 235 Interior Construction (4-0-3).

 (formerly IDE 204). Covers basic interior detailing, millwork and cabinetry elements. These elements must be developed and coordinated to construct interior space. Detailing, technical drawings, specifications and scheduling are therefore integral to design development. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.IDE 236 Soft Furnishings (4-0-3). Introduction to the aesthetic, practical and technical aspects of interior finish materials. Presents composition of materials, texture, installation and maintenance, covering several categories of applied finishes: floor finishes, wall and
ceiling finishes, window treatments, furniture and joinery finishes, and others. Prerequisite: IDE 235 or ARC 232.

## IDE 251 Color and Light (4-0-3).

 (formerly IDE 310). Introduction to the fundamentals, principles and art of lighting and color, and their visual and physical effects in interior design. Content explores light and color as important elements in interior space through the study of related perceptual and physical factors. Introduces relevant terminology to define light and color as attributes of architectural and interior space: illumination levels and temperatures, light sources, fixtures, materials, etc. Prerequisite/concurrent: PHY 104.
## IDE 301 Interior Design Studio III

(12-0-6). Studio-based investigation focusing on advanced concepts used in the development and application of planning techniques and spatial concepts. Concentrates specifically on the design of medium-scale residential and commercial projects. Emphasis is on research and analysis of existing structures, contextual development of interior solutions, building constraints, accessibility standards and specialized product and materials specifications. Prerequisite: IDE 202 and PHY 104.

## IDE 302 Interior Design Studio IV

(12-0-6). Continues the content and purpose of IDE 301, with special emphasis on planning techniques and volumetric concepts for the design of large-scale residences and public spaces. Course components: research applied to selected client identities, design criteria for special population groups, building constraints and accessibility standards, project specifications and creative presentation methods. Prerequisite: IDE 301 and IDE 223.

## IDE 311 Illustration and Rendering

 (4-0-3). (Cross-listed as ARC 311). Covers illustration and rendering techniques that enable students to express their ideas faster with more precise results. This course covers free hand color drawing techniques using markers, color pencils and watercolors. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.IDE 315 Modeling and Rendering
(4-0-3). (Cross-listed as ARC 315). Presents a rationalized, geometrical
approach to the perception and description of form. Selected examples of architectural form are first rigorously analyzed to rederive their constructional logic, then "built" as detailed electronic models. Students explore the potential of digital design technologies as instruments to achieve vivid, authentic, holistic simulations of architectural reality, appropriate to the testing of architectural ideas. Taught in a modified studio format. Prerequisite: ARC 301 or IDE 301.

## IDE 324 Modern Practices in Interior

 Design (3-0-3). Focuses on 19th and 20th century interior design theories and practices, exposing students to the various international schools of thought. Lectures and discussions focus on practitioners who have influenced contemporary practices worldwide. Prerequisite: DES 100, DES 111, DES 112, DES 121, DES 122, DES 131 and DES 132.IDE 335 Furniture Design Basics (4-0-3). (formerly ARC 410). Explores the basic function and design of furniture as it relates to human factors, such as anthropometrics and ergonomics. The course provides a link between historical, theoretical and practical experience. It defines the elements of form, function and aesthetic by exploring experimental concepts and adopting alternative ways of thinking about the objects that surround us. Furniture models built to scale, or other presentation techniques, will be applied as needed to effectively support the evolution of new concepts. Prerequisite: IDE 235 or ARC 232.

IDE 352 Environmental Control Systems in Interior Design (2-3-3). (formerly ARC 352). An integrated presentation of environmental control systems (lighting, heating, ventilating, air conditioning, sanitary and acoustics) with special attention to the needs of interior designers. Systems are presented as they influence one another and as they constrain interior space planning and design. Prerequisite: PHY 104.

## IDE 364 Introduction to Computer-

Aided Drawing (0-2-1). (Cross-listed as ARC 364). Training for mainstream CAD applications using Windows operating system. Develops basic familiarities and proficiency with applications commonly encountered during professional training. Prerequisite: ARC 202 or IDE 202.

IDE 365 Computer-Aided Design (4-0-3). (Cross-listed as ARC 365). Systematic introduction to 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, modeling of existing interior spaces, utilizing selected CAAD applications. Prerequisite: ARC 201 or IDE 201.
IDE 366 Applied Computer Aided Design (4-0-3). (Cross-listed as ARC 366). Systematic introduction to the basic practice of computer aided architectural design. Presentation and training focuses on two mainstream production CAAD applications, ArchiCAD and AutoCAD, with the intent to develop basic familiarity and proficiency with the applications most likely be encountered in offices during professional training. Introduction to AutoCAD occurs on PCs running the Windows NT operating system. Topics extend those introduced in ARC 365 to include detailed treatment of tool palettes and inter-platform compatibility.
Prerequisite: ARC 201 or IDE 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. Issues such as demand and supply of energy and water, and the generation of waste, will be covered. Principles of reduce, reuse and recycle will be reiterated. Predominant emphasis will be on practical strategies directly applicable in design. Material is presented as lectures and seminars, supplemented with readings. Prerequisite: PHY 104. (Formerly ARC 352).IDE 397 Internship (0-0-0). Minimum of six weeks of on-the-job experience with an approved professional firm. Work
undertaken must be documented in a formal report to the department by mid-semester of the following term. Prerequisite: IDE 302.

## IDE 405 Interior Design Studio $V$

(12-0-6). Comprehensive design project integrating all aspects of design, theoretical, technological and representational, allowing students various scales of investigation within one design problem. Prerequisite: IDE 302 or ARC 302.

## IDE 406 Interior Design Studio VI

(12-0-6). Research directed design studio. Focus of studio is a topic related to some
aspect of architectural design (history/theory, technology, representation, heritage resource management, etc.).
Students pursue directed research in support of a design investigation. Prerequisite: IDE 397, IDE 405.
IDE 432 Advanced Detailing (4-0-3). Continuation of Interior Construction, focusing on advanced levels of detailing, design development, conceptual and technical drawing, specifications and craftsmanship. Prerequisite: IDE 235 or ARC 232.

IDE 460 Exhibition Design (4-0-3). (formerly IDE 503). Equips students with the essential research, planning and design tools to conceive, prepare and produce persuasive exhibition and educational environments such as product shows, museums and gallery interiors. Explores issues of planning, lighting, stagecraft, narrative composition and human perception. Prerequisite: IDE 202 or ARC 202.

IDE 461 Project Management (3-0-3). (Cross-listed as ARC 461 and DES 461). (Formerly IDE 431). Introduction to the basic and advanced concepts of running design projects. Exploring the design process and project phases, analyzing in detail under the project management concept of delivering projects "on time, on budget, every time." Prerequisite: ARC 397 or IDE 397.
IDE 462 Design Management (3-0-3). (Cross-listed as ARC 462 and DES 462). Introduction to the principles and practices of the economic and commercial aspects of architectural and design practice in a global economy. Includes microeconomics theory as it applies to private enterprise: basic business economics, planning and management. Attention is also given to the processes and skills required in establishing an independent architectural office. Prerequisite: ARC 397 or IDE 397.
IDE 465 Advanced Computer Aided Design (4-0-3). (Cross-listed as ARC 465). Concentrates on the specific demands on CAD systems by the architecture and building professions. 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, postrendering work in pixel-editing software,
technical drawing layout software, etc. Prerequisite: ARC 301 or IDE 301.
IDE 491 Final Project Research (6-0-3). (formerly IDE 401). Students choose a design topic with the guidance of an advisor and approval of the faculty. Each student prepares an individual program for IDE 492 Final Project Design, concluding with a formal, bound document.
Prerequisite: IDE 302, IDE 335, IDE 352, and consent of the department.
IDE 492 Final Project Design (12-0-6). (formerly IDE 490). Individual design resolution based upon the research findings initiated in Final Project Research (IDE 491). The final project is developed under the guidance and advice of a faculty member and is presented and defended in a formal public jury. This course may substitute for IDE 406. Prerequisite: IDE 405, IDE 491, IDE 397, and consent of the department.
IDE 493 Study Abroad (1 to 3 credits). On-site visits offer the opportunity to experience first-hand regional and international design practices, highlighting particular themes relevant to the specific location.Department permission is required for enrollment and credit. Prerequisite: ARC 302 or IDE 302.
IDE 494 Special Topics in Interior Design ( 2 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: IDE 302.

## IDE 496 Independent Study ( 1 to 4

 credits). This course involves investigation under faculty supervision beyond what is offered in existing courses. May be repeated to a maximum of six credits of Independent Study. Prerequisite: junior or senior standing and consent of the instructor.IDE 498 Studio Abroad (3 to 6 credits). Studio activities conducted in regional and international sites promoting a globaloriented approach to design. Prerequisite: ARC 302 or IDE 302.

## MUM

Multimedia Design
MUM 301 Design Studio III (6-0-3).
(Cross-listed as VIS 301). Using a variety of media, this core studio focuses on the potential contribution of design in the visual
culture of society. The course emphasizes exploration and experimentation and encourages the students to apply acquired knowledge and skills to a set of hypothetical problems. Restricted to MUM and VIS students. Prerequisite: VIS 202, VIS 213 and VIS 360.

## MUM 310 Film Production I (6-0-3).

 (formerly MUM 210). An introduction to the development and production of video and sound projects. This class is a "handson" experience with production planning, pre-visualization, storyboarding, and the use of video camera and audio recording equipment during location production. Prerequisite/concurrent: MUM 301 or VIS 301.MUM 312 Film Production II (6-0-3). (formerly MUM 211). A continuation of MUM 310 that emphasizes digital and analog audio recording, location production of audio and video, and non-linear/ computer-based post-production processes and techniques. Prerequisite/concurrent: MUM 301 or VIS 301.
MUM 320 Web Design (6-0-3). Provides an introduction to Web site design. Students learn to use a variety of graphic design and Web page authoring tools, and Internet technologies and other relevant issues are discussed. Students are expected to learn and use software packages for developing real-life Web pages. Prerequisite or concurrent: MUM 301 or VIS 301.
MUM 321 Photo-Journalism (6-0-3). (Cross-listed as VIS 321). Explores the history and practice of photo-journalism. Students are expected to have sound black and white technical skills as the course focuses on developing personal awareness and vision within the medium of photography. Through a series of slides, lectures and small photographic assignments, the course investigates subject matter through the development of the photographic essay. A lab fee of AED 150 is applied. Prerequisite/concurrent: MUM 301 or VIS 301 and VIS 221.
MUM 330 Interactive Design (6-0-3). Focuses on special techniques for authoring and producing interactive and stand-alone applications. Students learn creative strategies employed to produce interactive media for entertainment, education, advertising and the information industry. Prerequisite/concurrent: MUM

301 or VIS 301.
MUM 331 Modeling and Animation
(6-0-3). Provides an introduction to 2-D and 3-D modeling, animation and various modeling and animation tools. The course shall help students advance into the realm of computer modeling, animation, and video and motion picture production. Students are able to use high-end software and hardware for developing a professional quality portfolio. Prerequisite/concurrent: MUM 301 or VIS 301.

## MUM 397 Internship for Multimedia

(3-0-3). Minimum of six weeks of on-thejob experience with an approved professional firm. Students may be required to pay an insurance fee. Prerequisite: MUM 301.

## MUM 401 Design Studio IV (6-0-4).

(Cross-listed as VIS 401). This core studio encourages the development of individual creativity through practical project work at a significant level of depth and complexity. Toward the end of this course students will be asked to professionally present their project work and to critically evaluate this work within the context of contemporary commercial expectations. Prerequisite: MUM 301 or VIS 301.
MUM 402 Senior Multimedia Design Portfolio (6-0-4). (Cross-listed as VIS 402). Students in this core studio design a comprehensive digital portfolio (plus a hard copy where applicable) in preparation for professional career opportunities after graduation. This portfolio should demonstrate the cumulative knowledge and skills acquired over four years of academic design education. Prerequisite: MUM 401 or VIS 401.

## MUM 410 Film Production III

(Advanced Technique) (6-0-3). (Formerly MUM 311). Advanced studies in video and audio program development, production and non-linear/computer-based postproduction for third- and fourth-year students. Prerequisite: MUM 310 or MUM 312.

MUM 493 Study Abroad (1 to 3 credits). On-site visits offer the opportunity to experience first hand regional and international design practice, highlighting particular themes relevant to the specific location. Department permission is required for enrollment and credit. Prerequisite: VIS 202.

MUM 494 Special Topics in Multimedia ( 2 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: ARC 202 or IDE 202.

## MUM 496 Independent Study ( 1 to 4

credits). This course involves investigation under faculty supervision beyond what is offered in existing courses. May be repeated to a maximum of six credits of Independent Study. Prerequisite: junior or senior standing.
MUM 498 Studio Abroad ( $\mathbf{3}$ to 6 credits). Studio activities conducted in regional and international sites promoting a globaloriented approach to design. Prerequisite: VIS 202.

VIS 201 Design Studio I (6-0-3). Introduces the broad field of graphic design. It is design based and is an extension of DES 132. This course involves the application of design principles to graphic forms. Prerequisite: DES 100, 112 and 132; DES 121 or 122; MTH XXX; and COM 101 or 102.
VIS 202 Design Studio II (6-0-3). As a continuation of VIS 201, this course places an increasing emphasis on identifying the design process. The course material is focused entirely on the components of graphic design. Prerequisite:VIS 201, VIS 221 and VIS 230.
VIS 213 Illustration Drawing (6-0-3). This course, building on skills introduced in foundation drawing, 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: VIS 201, VIS 221 and VIS 230.
VIS 221 Photography Basics (6-0-3). Introduction to basic photo skills and to some of the issues associated with the practice and history of photography. The course covers camera operation, black and white film developing, contrast control, depth of field, focal length and print finishing. A lab fee of AED 150 is applied. Prerequisite: DES100, 112 and 132; DES

121 or 122 ; MTH XXX; and COM 101 or 102.

## VIS 230 Digital Media in Visual

 Communication (6-0-3). (formerly MUM 230). This course is a continuation of DES 100 and continue the development of the skills associated with digital design. Working with PostScript illustration, bitmapped images and desktop publishing, students use industry specific software to create vector based and bitmapped images. An introduction to layout and desktop publishing will be included and class discussion encourages students to explore various design concepts. Emphasis is given to the creation, preparation and printing of finished designs. Prerequisite: DES 100,112 and 132; DES 121 or 122; MTH XXX; and COM 101 or 102.

VIS 301 Design Studio III (6-0-3). (Crosslisted as MUM 301). A development of VIS 202, this course focuses on what graphic design could/might be. This level emphasizes exploration and experimentation. Prerequisite: VIS 202, VIS 213 and VIS 360.
VIS 311 Illustration Design (6-0-3). By focusing upon illustration as a means of conveying ideas and concepts, this course introduces the student to various techniques of idea generation. Students are encouraged to arrive at visual equivalents to written and/or oral texts. Prerequisite or concurrent: MUM 301 or VIS 301.
VIS 312 Illustration Genres (6-0-3). This course 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 or concurrent: MUM 301 or VIS 301.
VIS 320 Multiples I (Printmaking) (6-0-3). (formerly VIS 222). Students are introduced to a variety of techniques in traditional and alternative printmaking methods. These may include, but are not limited to, intaglio, linocuts, monoprints, collographs, photoetching, stamping, relief and alternative methods. Traditional mechanical reproductive processes as well as a basic history and theory of the graphic arts are investigated. Issues surrounding the mechanical reproduction of images using digital media to create a global visual culture are also considered. A lab fee of

AED 150 is applied. Prerequisite or concurrent: MUM 301 or VIS 301.
VIS 321 Photo-Journalism (6-0-3). (Cross-listed as MUM 321). Explores the history and practice of photo-journalism. 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. A lab fee of AED 150 is applied. Prerequisite: VIS 221 and prerequisite or concurrent: MUM 301 or VIS 301.
VIS 322 Multiples II (Printmaking) (6-0-3). tudents conduct further and more in-depth investigation into the processes of mechanical reproduction with possible concentration(s) in a specific printing medium. This course is a confluence of media, technologies and ideologies that include the information technologies, digital and analog photography, and many other methods and media of mechanical reproduction. Attention is paid to the role of the reproduced image in the economy and material culture and the structure and manipulation of meaning through image production and reproduction. A lab fee of AED 150 is applied. Prerequisite or concurrent: MUM 301 or VIS 301.

## VIS 323 Photography for Communication

 (6-0-3). Covers the theory and practice of image manipulation through the extension of the traditional boundaries of photography. A wide range of techniques and processes will be covered such as polarization, nonsilver methods, toning and digital media. A lab fee of AED 150 is applied. Prerequisite VIS 221 and prerequisite or concurrent: MUM 301 or VIS 301.VIS 325 Creative Studio Photography (6-$0-3$ ). This course explores the control and manipulation of artificial lighting for creative effect in the photography studio environment. In addition to learning the practical skills of handling a range of studio flash equipment, students will explore the creative use of lighting in photographic image making both in practical work and in the review of historical examples of this genre. Prerequisite VIS 221 and prerequisite or concurrent: MUM 301 or VIS 301.

VIS 360 Fundamentals of Media Theory (3-0-3). A survey of the elements which make up film, video, audio, still images and an analysis of how these elements are used in the design of visual and textual message design and structure. Includes analysis of how information is crafted to create meaning as well as the history of the various media, to include the social, economic, cultural, political, ethical and theoretical bases of the media. Prerequisite: DES 122, DES 132.
VIS 361 The Media Industry (3-0-3). Surveys of the contemporary practical application(s) across the media industries in local, regional and global contexts. This includes investigation into the workings of the media industry and issues relating to digital and analog technologies in the free and controlled flow of information. Special attention will be given to media industry issues germane to the GCC region and the Islamic viewing audience and consumer. Prerequisite: COM 101 or COM 102.
VIS 397 Internship (3-0-3). Minimum of six weeks of on-the-job experience with an approved professional firm. Students may be asked to pay an insurance fee. Prerequisite: VIS 301.
VIS 401 Design Studio IV (6-0-4).
(Cross-listed as MUM 401). Encourages the development of individual creativity through practical project work at a significant level of depth and complexity. Toward the end of this course students are asked to professionally present their project work and to critically evaluate this work within the context of contemporary commercial expectations. Prerequisite: MUM 301 or VIS 301.
VIS 402 Senior Design Portfolio (6-0-4). (Cross-listed as MUM 402.) Students in this core studio design a comprehensive digital portfolio (plus a hard copy where applicable) in preparation for professional career opportunities after graduation. This portfolio should demonstrate the cumulative knowledge and skills acquired over four years of academic design education. Prerequisite: MUM 401 or VIS 401.

VIS 410 Senior VisCom Studio (6-0-3). Based upon their experience in third year major electives, students are encouraged to develop work that reflects and identifies their own personal stylistic strengths.

Emphasis on an individual approach to image generation within the context of photography, illustration and/or printmaking is encouraged. Prerequisite: Any four of the following: VIS 311, 312, 321, 323, 320 and 322.
VIS 420 Senior VisCom Portfolio (6-0-3). Students are encouraged to develop their own individual expertise and style within the realms of photography, illustration and/or printmaking. Toward the end of the semester, students are required to organize an exhibition that demonstrates a high level of proficiency in their chosen discipline. Prerequisite: VIS 410.

## VIS 493 Study Abroad (1 to 3 credits).

On-site visits offer the opportunity to experience first-hand regional and international design practices, highlighting particular themes relevant to the specific location. Department permission is required for enrollment and credit. Prerequisite: VIS 202.

## VIS 494 Special Topics in Visual

 Communication (6-0-3). The course and subject matter is announced in the university course listings each semester. May be repeated for credit. Prerequisite/ concurrent: MUM 301 or VIS 301.VIS 496 Independent Study ( 1 to 4 credits). This course involves investigation under faculty supervision beyond what is offered in existing courses. May be repeated to a maximum of six credits of Independent Study. Prerequisite: junior or senior standing.
VIS 498 Studio Abroad ( $\mathbf{3}$ to 6 credits). Studio activities conducted in regional and international sites promoting a globaloriented approach to design. Prerequisite: VIS 202.

# School of Business and Management 

## ACC <br> Accounting

## ACC 201 Fundamentals of Financial

 Accounting (3-0-3). Introduces the principles and concepts underlying financial statements. Course includes an introduction to the accounting profession, control, concepts, business entities and all elements of basic financial statements. Prerequisite/concurrent: MTH 101 and QAN 201.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 and MTH 101. Prerequisite/concurrent: QAN 201.

## ACC 301 Intermediate Financial

 Accounting I (3-0-3). Begins a two-course sequence providing an in-depth study of principles and elements associated with financial statements. This includes: financial statement analysis, income measurement, valuation of assets and equities and generally accepted accounting principles.Prerequisites: COM 102 and ACC 202. Prerequisite/concurrent: MGT 201.
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. Prerequisite: ACC 301 and FIN 201. Prerequisite/concurrent: MIS 201.

ACC 303 Cost Accounting (3-0-3). Uses of accounting data for planning control and decision-making. Topics include budgets and cost concepts, techniques and behavior. Prerequisite: ACC 202 and FIN 201. Prerequisite/concurrent: MIS 201 and MKT 201.Normally offered only in Fall semester.

ACC 304 Auditing (3-0-3). Studies auditing theory, generally accepted auditing standards, audit procedures, audit reports and the responsibilities and ethics of the auditing profession. Topics include risk, evidence and audit tests, 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.

Normally offered only in Spring semester.
ACC 305 Income Tax I (3-0-3). Introduces the U.S. 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 302 and BLW 301. Prerequisite/concurrent: FIN 301 and QAN 202. Normally offered only in Fall semester.
ACC 306 Income Tax II. (3-0-3). Introduces the U.S. federal income tax system as it applies to corporations, partnerships, estates and trusts. Course includes a comparison and contrast of personal and corporate taxation, as well as an examination of corporate organization and capital structure, distributions and reorganizations and accumulated earnings rules. Prerequisite: ACC 305. Normally offered only in Spring semester.

## ACC 394/494 Special Topics in

 Accounting ( $\mathbf{1}$ to $\mathbf{4}$ credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.
## ACC 401 Advanced Financial

Accounting (3-0-3). Covers theory and practices of accounting for partnerships, business combinations and consolidated financial statements. Advanced topics in financial accounting. Prerequisite: ACC 302, QAN 202 and BLW 301.
Prerequisite/concurrent: FIN 301. Normally offered only in Fall semester.
ACC 407 Accounting Theory (3-0-3). Examines models, hypotheses and concepts underlying financial accounting practice. Emphasizes understanding the basis of traditional accounting principles and analysis of the relevance of decisionusefulness, economic consequences and game theory models to accounting standard setting. Specific issues related to earnings management and executive compensation, and the social, political and economic influences on accounting standard setting are also considered. Prerequisite: ACC 401. Prerequisite/concurrent: MGT 360 and BLW 301. Normally offered only in Spring
semester.

## ACC 496 Independent Study in

 Accounting (1 to 4 credits). A theoretical or practical project intitiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisites: junior standing, approval of department.
## BIS Business Information Systems

## BIS 001 Software Applications for

 Business (3-0-3). Introduces students to popular application software. Three types of applications are covered: HTML editing and Web development; spreadsheets; and DBMS. This course provides students with the essential computer literacy skills needed in higher-level courses.
## BIS 201 Business Information Systems

 (3-0-3). Applies knowledge accumulated by students in BIS 001 to solve basic business problems. Students work on major case assignments throughout the semester to develop spreadsheet and database applications for business. HTML editors are used to Web-enable various business applications. Students build a learning portfolio structure to keep track of the learning accumulated in SBM. Not open to Computer Science and Engineering majors. Prerequisite: BIS 001 or DES 100 or placement test.
## 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. Survey of contracts, sales, agents, legal forms of business and the regulation of businesses. Prerequisite: ACC 201, COM 102 and ECO 202. Prerequisite/concurrent: COM 204 or COM 208
BLW 302 Advanced Corporate Law (3-0-3). Covers proprietorships, partnerships, limited partnerships and corporations; advantages and disadvantages of each form; factors in selection of which form to use; partnership agreements; how to create corporations; closed corporations vs. publicly-traded corporations. U.S. and U.A.E corporate law are compared. 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 multi-national organizations and attend seminars given by the professionals from these corporations. Prerequisite: Good academic standing and junior standing.

## BUS 392 Resume Writing \&

Interviewing Skills. (3-0-0) Introduces students to the essential skills necessary to obtain employment. Topics covered include self-evaluation techniques, interviewing skills, resume writing and job search strategies. Prerequisite: business junior standing. Prerequisite or Concurrent: COM 225.

## BUS 394/494 Special Topics in Business

(1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.
BUS 397 Business Internship (3-0-3). The School of Business Internship office places students in corporations for the purpose of utilizing the skills and knowledge acquired in the classroom. Prerequisite: junior or senior standing.
BUS 496 Independent Study in Business ( 1 to 4 credits). A theoretical or practical project intitiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisites: junior standing, approval of department.

## FIN

Finance
FIN 201 Fundamentals of Financial Management (3-0-3). Introduces business finance, including global aspects; acquisition and use of short-term funds and long-term capital; overview of money and capital markets; management of assets, liabilities and capital accounts; financial analysis and time value of money; cash operation, and long-range budgeting; leasing; corporate securities; dividend policy; and cost of capital.
Prerequisite/concurrent: QAN 202 and ACC 202
FIN 301 Financial Statement Analysis
(3-0-3). Integrates and synthesizes the core business courses such as accounting, finance, marketing, management and
statistics. Students use the case method to study and analyze corporations, and utilize computer-based business information systems such as EDGAR to download and analyze financial statements. Prerequisite: ACC 202, FIN 201 and COM 102.

## FIN 302 Financial Markets and

 Institutions (3-0-3). Covers the history, purpose, function and organization of the short-term money market and long-term capital market. Offers an integrated view of the participating institutions and the markets in which they operate, their investment constraints and their resulting portfolios. Prerequisite/concurrent: MIS201. Prerequisite: COM 102 and FIN 201. Normally offered only in Fall semester. FIN 303 Investment Analysis (3-0-3). Covers investment objectives; methods of appraising corporate equity, debt and other securities; portfolio theory and management; technical analysis; random walk theory; and the role of institutional investors. Prerequisites: ACC 202, FIN 201 and COM 102. Prerequisite/concurrent: MKT 201 and MGT 201.FIN 304 Real Estate Finance (3-0-3). Covers terminology, legislation, principles and analytical techniques pertaining to financing of real estate. Perspective of lender, residential borrower and income property borrowers. Prerequisite: ACC 202, FIN 201 and COM 102. Prerequisite /concurrent: QAN 202. Normally offered only in Fall semester.

## FIN 306 Insurance and Financial

 Planning (3-0-3). Introduces insurance, risk management and personal financial planning. Includes theory of insurance and risk management with specific applications to property, disability, health and life insurance. The course also discusses mutual funds, retirement planning, estate and tax planning, offshore banking and investments. Prerequisite: ACC 202, FIN 201 and COM 102. Normally offered only in Spring semester.
## FIN 394/494 Special Topics in Finance

(1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated.for credit. Prerequisite: topic specific.
FIN 401 International Finance (3-0-3). Covers financing international trade and investment, foreign exchange markets and exchange rate, balance of payments and current developments in international
finance co-operations. Prerequisite: FIN 301, FIN 303 and QAN 202. Normally offered only in Fall semester.
FIN 402 Futures and Options (3-0-3). Covers conceptual and practical aspects of the functioning of speculative markets in futures, options, and hard assets; stock option strategies, financial engineering, financial futures, stock index options and contemporary issues in futures and options. Prerequisite: FIN 301, FIN 303 and QAN 202. Prerequisite/concurrent: BLW 301. Normally offered in Spring semester.
FIN 403 Commercial Banking (3-0-3). Covers the structure and internal organization of commercial banks and emphasizes the dynamic nature of assets, liability and equity management. It also covers the application of decision-making procedures to financial management situations, including evaluation of bank performance, capital acquisition, liquidity and loans. Prerequisite: FIN 302, BLW 301. Normally offered only in Fall semester.
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. Prerequisite:FIN 303 and QAN 202. Prerequisite/concurrent: FIN 301. Normally offered only in Fall semester.

## FIN 405 Advanced Financial

Management (3-0-3). Covers investments, financing and dividend policy decisions of the financial manager. Prerequisite: FIN 201, junior standing second semester. Normally offered only in Spring semester.

## FIN 496 Independent Study in Finance

( 1 to 4 credits). A theoretical or practical project intitiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisites: junior standing and approval of department.

MGT
MGT 201 Fundamentals of Management (3-0-3). Surveys the basic concepts and issues of management and the various functions and activities of the manager. Topics may include plans, goals, decision
making, change, motivation, human resources, ethics and social responsibility, groups and teams, organization design, leadership, and control. Prerequisite/ concurrent: COM 102

## 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, ACC 201, QAN 201 and COM 102.

## MGT 302 Managing Human Resources

(3-0-3). Examines the foundations, functions and activities involved in the managing of human resources, striking a balance between current theory and practice. Topics include manpower planning, recruitment and selection, policy and procedures, performance appraisal, compensation and benefits, training, safety and industrial relations. Prerequisite: MGT 201, QAN 202, ACC 202, FIN 201 and COM 102.

MGT 303 Management and Leadership Development (3-0-3). Focuses on the necessary skills and abilities of the successful leader and manager. Students are not only introduced to these success factors, but are challenged to both assess and develop their own managerial and leadership skills throughout the course. Prerequisite: MGT 201, FIN 201, ACC 202 and COM 102.
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. Prerequisite: MGT 201, FIN 201, ACC 202 and COM 102.
MGT 311 Organizational Behavior (3-03). 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. Not open to SBM students. Prerequisite: MGT201.
MGT 315 International Business (3-0-3). This course 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. Not open to SBM students. Prerequisite: MGT201.
MGT 360 Business Ethics and Social Responsibility (3-0-3). Introduces the ethical dimensions of business as they relate to the various stakeholders inside and outside the organization. Topics include business ethical theory, ethical decisionmaking, typical dilemmas and corporate social responsibility. Cases and projects are used to examine these issues, with special attention to local applications.
Prerequisites: MGT 201, ACC 201 and QAN 201. Prerequisite/concurrent: COM 204.

MGT 361 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. Cases and projects are used to examine these issues, with special attention to local applications. Not open to SBM students. Prerequisites: MGT201.
MGT 380 Project Management (3-0-3). Examines the concepts and techniques of managing projects in service and manufacturing settings. Topics include project selection and evaluation, dynamics, motivation and evaluation of team members, scheduling, budgeting and closure. Prerequisite: MGT 301 or MIS 303, MIS 201, FIN 201 and ACC 202.

## MGT 394/494 Special Topics in

 Management ( $\mathbf{1}$ to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.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. Prerequisite: university senior standing or by permission of department. Normally offered only in Spring semester. MGT 406 Business Policy and Strategy (3-0-3). Applies the functional knowledge acquired in previous coursework to the analysis of strategic-level business problems and decisions. Business cases are used extensively in this course to highlight the diversity and complexity of organizational environments and systems. Topics include missions and objectives; environmental analysis; formulating, implementing and assessing strategies and policies; and international, social and ethical issues. Prerequisite: business senior standing, MGT 201, MKT 201, MIS 201, or by permission of department. Prerequisite/concurrent: FIN 301
MGT 496 Independent Study in Management ( 1 to 4 credits). A theoretical or practical project intitiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisites: junior standing, approval of department.

## MIS

 ManagementInformation Systems
MIS 200 Business Process Logic (3-0-3).
Introduces students to the logic of business processing independently of any programming language. Students learn to extract program specifications from business narratives or business process descriptions. Flowcharts, decision tables, decisions trees, use cases and structured English is used to document program specifications, which can be easily translated into any programming language. Prerequisite: MTH 101 and BIS 201.

MIS 201 Fundamentals of Management Information Systems (3-0-3). Covers information as an organizational resource. It focuses primarily on the organizational foundation of management information systems by establishing a link between business processes and information technology. Topics include decision making frameworks, transaction processing systems, decision support systems, interorganizational information systems, office automation, strategic information systems, enterprise systems, systems development,
networks and IT infrastructure, social impacts of IT, and more. A technology update is provided in hardware and software basics, database management and telecommunications. Prerequisite: BIS 201.

## MIS 203 Software Development for

 Business Applications (3-0-3). Analyzes business problems to design and implement the software component of an information system. An introduction to application development using an object-oriented language/event-driven language. The course emphasizes the concepts and techniques for developing business applications as well as an overview of object-oriented programming techniques and visual programming techniques. The laboratory sessions illustrate various aspects of visual programming languages as well as testing and debugging.Prerequisite: MIS 200 and MIS 201.
MIS 300 Business Data Communications (3-0-3). (formerly MIS 401). Deals with the fundamental concepts of data communications. The design and management of computer-based networks for business applications, hardware, software and security in business environments are discussed. The topics covered include business data requirements, transmission media, transmission techniques, multiplexing and data compression, WANs, LANs, data encoding and flow control, network protocols, electronic commerce and network security. Prerequisite: MIS 201 and COM 102. Normally offered only in Fall semester.
MIS 301 Fundamentals of Database Management (3-0-3). Addresses the beginning technical, business and application development issues associated with managing and using an organization's data resources. Employing ORACLE-SQL as the database language, the course covers organizational data management, data analysis and modeling with the entity relationship model, database design with SQL, normalization and the relational model. Prerequisite: MIS 200, MIS 201 and COM 102. Prerequisite/concurrent: FIN 201.

## MIS 302 Advanced Database

Management (3-0-3). Addresses advanced technical, business and application development issues associated with managing and using an organization's data resources. Employing ORACLE DEVELOPER as an application development environment, the course
covers the database development process, physical database design, database implementation with client/server and middleware technology, database access, data administration, and an introduction to object-oriented database management systems. Prerequisite: MIS 301. Prerequisite/concurrent: QAN 202. Normally offered in Spring semester. MIS 303 Introduction to Systems Analysis (3-0-3). Examines traditional analysis, logical design through a data flow analysis and the system development life cycle approach. Methods for structured analysis and design are covered. Data structures, definitions and normalization are also addressed. Emphasis is on gaining the ability to use the various tools associated with systems analysis. Prerequisite: MIS 200, MIS 201 and COM 102. Prerequisite /concurrent: FIN 201, MGT 201 and MKT 201.

MIS 304 Applied Systems Design (3-0-3). (formerly MIS 403). Builds on previous courses and allows students to apply the tools studied in MIS 303. It follows the life cycle process to produce specifications for a current system, develop the physical design for the system and implement the system using ORACLE tools. Project teamwork is emphasized. Prerequisite: MIS 301, MIS 303. Prerequisite/concurrent: QAN 202.

MIS 305 Object Oriented Analysis and Design (3-0-3). Covers object-oriented concepts, tools, development life cycle, problem solving, modeling, analysis, and design, while utilizing UML (Unified Modeling Language) for OO modeling. In this course, students will learn how to create detailed object models and designs from system requirements; use the modeling concepts provided by UML; identify use cases and develop into full behavioral designs via use case, sequence, collaboration, statechart, and activity diagrams; develop the analysis into a design ready for implementation and construct designs via class, object, component, and deployment diagrams. Prerequisite: MIS 203 and MIS 304.

## MIS 394/494 Special Topics in

 Management Information Systems (1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.MIS 402 Knowledge Management (3-0-3). Explores the theoretical foundation of knowledge and its value to the organization.

The nature of intellectual capital and valuation of an organization's knowledge assets will also be examined. Prerequisite: MIS 301, MIS 303, QAN 202 and MGT 360. Prerequisite/concurrent: FIN 301. Normally offered in Fall semester.

## MIS 404 Internet Business Applications

(3-0-3). Examines how the Internet and the World Wide Web are used for marketing and business purposes. Students will study well established U.S. and U.A.E. companies that have established a marketing presence on the Internet. Projects include building a web site to market a specific product and establishing a simulated business on the Internet. Students will use tools and techniques for project initiation, project analysis, design and implementation. Prerequisite: MIS 301, MIS 303. Prerequisite/concurrent: BLW 301. Normally offered in Fall semester.

## MIS 405 Information Systems Strategy

(3-0-3). This is the capstone course in MIS. Discusses strategic IS issues, including planning IT infrastructures and architectures, business process reengineering, supply chain management, enterprise computing and systems integration. Emerging issues such as e-government and cyber ethics are also taught within this course. Prerequisite: business senior standing, MIS 304. Normally offered in Spring semester.
MIS 410 Supply Chain Management (3-0-3). Introduces the student to the dynamics and infrastructural requirements of a supply chain management system. Using cases, industry speakers, and software applications, this course combines conceptual models as well as hands-on experience related to demand management, supply chain planning, supply chain integration, as well as the role of IT and the Internet in particular. Prerequisite: MIS 301, MIS 303 and QAN 202.

## MIS 415 Issues in International

 Information Systems (3-0-3). Covers information, computers and communication technologies in multinational business and the strategic management of transborder data flows to optimize worldwide operations and profitability. The course is designed to present issues in the development and deployment of international information systems. The course includes theory and case studies. Prerequisite: MIS 201.MIS 420 Modeling and Simulation of Business Processes (3-0-3). Students learn to build models using commercial
simulation software. The objective of the course is to teach students the methods and best practices of conducting simulation experiments. Prerequisite: MIS 301, MIS 303 and QAN 202.

## MIS 496 Independent Study in

Management Information Systems (1 to 4
credits). A theoretical or practical project intitiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisites: junior standing, approval of department.

## MKT

Marketing

## MKT 201 Fundamentals of Marketing

(3-0-3). Introduces the concept of making marketing decisions in business and in nonprofit organizations. Particular attention is devoted to analyzing customer needs, segmenting markets, and developing product, promotion, pricing and distribution strategies. Relationships between consumers, business and governments are explored. Prerequisite:ECO 201, ECO 202. Prerequisite/concurrent: COM 102
MKT 301 Consumer Behavior (3-0-3). Studies marketing, psychology, sociology and cultural anthropology to determine motivations for product purchases. A multimedia approach is used to illustrate the use of behavioral science theory to create new products and promotional campaigns. Prerequisite: MKT 201, QAN 201, ACC 201, COM 102.
MKT 302 Marketing Research (3-0-3). Examines research tools students can use to help make marketing decisions. Students learn to define research problems, to select projects and to analyze data. The execution of a consumer survey is a major component of the course. Students use computer statistical packages to analyze research data..Prerequisite: MKT 201, QAN 202, ACC 201 and COM 102. Prerequisite/ concurrent: MIS 201.
MKT 303 E-Commerce (3-0-3). Examines how the Internet and the World Wide Web are used for marketing and business purposes. Students study well-established U.S. and U.A.E. companies that have established a marketing presence on the Internet. Projects include building a web site to market a specific product and establishing a simulated business on the Internet. Prerequisite: MKT 201, MIS 201, FIN 201, ACC 202 and COM 102.

MKT 304 Sales Management (3-0-3). Introduces professional sales force management. This course is designed to develop student skills in planning a sales program, organizing the selling effort and in recruiting, training and motivating the sales force. Prerequisite: MKT 201, FIN 201, ACC 202 and COM 102.
MKT 305 Retail Management (3-0-3). Explores the management of large and small retail institutions. Topics include buying, merchandising, pricing, promotion, inventory management, customer service, control and location selection. Prerequisite: MKT 201, FIN 201, ACC 202, COM 102.
MKT 306 Advertising Management (3-0-
3). This course takes an integrative and project/oriented focus on the role of advertising and sales promotion within an institution and within society. Explores a firm's advertising and sales promotion decisions, and focuses on the design and content of advertising messages from a communication standpoint. Also examines media, budget and measurement issues in advertising. Prerequisite: MKT 201, FIN 201 and ACC 202.
MKT 307 Business Marketing (3-0-3). Provides an in-depth understanding of the unique aspects of marketing in a business-to-business environment through the use of lectures, cases, guest speakers and media presentations. Focuses on organizational buying, buyer-seller relationships, market analysis and planning, demand and sales estimation and marketing-mix decisions. Considers a variety of business marketing situations, such as marketing to manufacturers, other commercial organizations, government and institutions. Prerequisite: MKT 201, FIN 201, ACC 202 and COM 102.
MKT 308 Marketing Channels (3-0-3). Surveys, organizes and integrates theories and practices relative to current problems of marketing channel management, with a focus on key strategic marketing principles. Physical distribution is reviewed as a functional area within the firm and its interface with channel intermediaries is analyzed. Topics include retailing, wholesaling, industrial marketing, transportation, warehousing, location, inventory control and channel design. Prerequisite: MKT 201, FIN 201, ACC 202, COM 102.
MKT 309 International Marketing
(3-0-3). Provides a comprehensive
understanding of the issues and challenges inherent in the formulation and implementation of international marketing strategies. This course examines and analyzes environmental forces affecting international marketing decisions, selection of international target markets, and the design and development of international marketing plans. Prerequisite: MKT 201, FIN201, ACC 202 and COM 102.
MKT 394/494 Special Topics in
Marketing ( 1 to $\mathbf{4}$ credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.
MKT 401 Marketing Strategy (3-0-3). Analyzes current marketing management issues. Students develop a marketing plan for an outside organization, analyze case studies and participate in computer simulation exercises. Prerequisite: MKT 301, MKT 302, FIN 201 and ACC 202.

## MKT 496 Independent Study in

 Marketing ( $\mathbf{1}$ to $\mathbf{4}$ credits). A theoretical or practical project intitiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisites: junior standing, approval of department.
## QAN Quantitative Methods

 QAN 201 Fundamentals of Quantitative Methods (3-0-3). Covers descriptive statistics, probability distributions and estimation to include the use of statistical software. An applications oriented course that will prepare the student for more advanced study. Prerequisite/concurrent: MTH 101.
## QAN 202 Quantitative Analysis for

 Decision Making (3-0-3). An applicationsoriented course in a wide range of fields including: accounting, advertising, finance, real estate, general management, macroeconomics, microeconomics, marketing, human resources, production and operations management, public administration and quality control. Topics include but are not limited to: classical techniques of and hypothesis testing, nonparametric analysis, regression and correlation, decision theory and time series and forecasting. Prerequisite: QAN 201.
## School of Engineering

## CHE Chemical Engineering

CHE 203 Principles of Chemical
Engineering (3-2-4). Introduces students
to the analysis of chemical process systems using mass conservation equations, stoichiometry, and steady state calculations. Covers process flow sheets, ideal and real gas relationships, steady state energy balances with and without chemical reactions, heat of solution and mixing, humidity charts and simultaneous material and energy balances. Prerequisite: CHM 101.

CHE 204 Chemical Engineering Thermodynamics I (2-2-3). Examines terms and definitions; first and second law of thermodynamics and their application in chemical engineering; ideal cycles and processes; definitions and use of internal energy, enthalpy, entropy and free energy; Maxwell relations; and residual properties. Prerequisite: PHY 101, CHE 203.
CHE 230 Materials Science (2-3-3). Introduction to material science, relationships between structure and properties of materials. Atomic bonding, crystalline structures, crystal defects and imperfections. Phase diagrams and equilibrium microstructural development. Mechanical properties of materials, alloys, polymers and composites. Electrical and magnetic properties of materials, semiconductors and ceramics. Prerequisite: CHM 101.
CHE 300 Fluid Flow (3-1-3). Explores introductory concept of fluid mechanics and fluid statics; fluid properties; basic equations of fluid flow; flow of compressible and incompressible fluids in pipes and other shapes; velocity distribution; laminar and turbulent flow; flow past immersed bodies; and dimensional analysis. Prerequisite: MTH 205, Prerequisite/concurrent: CHE 203.
CHE 304 Chemical Engineering Thermodynamics II (3-0-3). Examines thermodynamic properties of mixtures; standard and excess free energies; excess mixture properties; phase equilibria and chemical reaction equilibria for gases and liquids. Prerequisite: CHE 204.

CHE 307 Heat Transfer (3-0-3). Covers mechanism of heat transfer; heat transfer by conduction, convection, and radiation; and analysis of heat transfer equipment used in chemical engineering. Prerequisite: CHE 204, Prerequisite/concurrent: CHE 300.

## 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/concurrent: CHE 307, CHM 331, CHE 304.
CHE 329 Mass Transfer I (3-0-3). Covers mechanisms of mass transfer; laws of diffusion; mass transfer coefficients; theories of mass transfer; and mass transfer and chemical reactions. Prerequisite/ concurrent: CHE 204.
CHE 330 Simulation Techniques in Chemical Engineering (2-3-3). Introduces students to dynamic modeling of various chemical engineering problems in fluid, heat and mass transfer by using a variety of mathematical tools including analytical and numerical approaches. Covers Laplace Transform and computer simulations in chemical process design. Prerequisite: MTH 205, Prerequisite/concurrent: CHE 390, CHE 304, CHE 321.
CHE 332 Engineering Economy (2-0-2). Examines interest rates, present values, future worth and asset depreciation, economic service life, financing business ventures, financial statement analysis, replacement of capital assets and alternative investment analysis. Development of spreadsheet programs for project evaluation.

## CHE 350 Chemical Engineering

 Measurements Laboratory (0-3-1). Covers chemical and physical properties measurement and analysis; thermodynamic, fluid flow and heat transfer measurement and analysis devices. Students are required to apply experimental design, prepare reports, and give oral presentations. Safety. Prerequisite: NGN 111. Prerequisite/ concurrent: CHE 307, CHE 329.CHE 390 Mass Transfer II (3-0-3). Examines application of mass transfer
principles to the design of multi-stage systems and countercurrent differential contacting operations. Prerequisite: CHE 329.
CHE 394 Special Topics in Chemical Engineering ( 1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.
CHE 397 Professional Training in Chemical Engineering (0-0-0). Minimum of six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Prerequisite: Approval of training coordinator for the major.
CHE 421 Chemical Process Dynamics and Control (2-3-3). 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. PID controllers; advanced control; process control lab and software Prerequisite: CHE 330.
CHE 432 Chemical Systems Design and Integration (2-2-3). Covers application of chemical engineering principles to the design and integration of chemical equipment and processes; process safety; pollution prevention and waste minimization; and layout and cost estimation. Prerequisite: CHE 330, CHE 332.

CHE 451 Chemical Engineering Laboratory I (0-3-1). Covers hands-on lab experiments illustrating the application of chemical engineering principles and calculations: mass transfer equipment, kinetic and reactor design. Experimental design; report writing and oral presentation. Safety. Prerequisite: CHE 390, CHE 321, CHE 350.

## CHE 452 Chemical Engineering

Laboratory II (0-3-1). Covers integrated experiments illustrating various applications of chemical engineering principles and calculations: separation processes, environmental applications, water purification. Experimental design;
report writing and oral presentation. Safety. Prerequisite: CHE 451.
CHE 460 Wastewater Treatment (2-2-3). Characteristics of wastewater, BOD, COD, THOD. Treatment by physical, chemical and biological processes; activated sludge and effluent disposal; local and state regulations; and industrial applications. Prerequisite: CHM 101, CHE 203. 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: CHM 101, PHY 101. CHE 465 Desalination (2-2-3). Examines principles of desalination; evaporation, vapor compression desalination, membrane technology and ion exchange; seawater chemistry; scale formation in separation equipment; and dual-purpose power desalination co-generation plants. Prerequisite: CHE 329.
CHE 466 Polymer Technology (2-3-3). Covers polymerization and polymers; process of homogeneous and heterogeneous polymerization; methods of production of plastics, synthetic fibers, and synthetic rubber, and physical and chemical properties of polymers. Prerequisite: CHE 321, CHE 304.
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.
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; separations and reaction engineering approaches. Prerequisite: CHE 390.
CHE 472 Unit Operations and Processes in Environmental Engineering (2-2-3). Covers design and selection of unit operations utilized in water and wastewater treatment; advanced wastewater treatment technologies; physical and chemical treatment; biological treatment; and
industrial wastewater minimization. Prerequisite: CHE 329.

## CHE 474 Environmental Transport

 Phenomena (2-3-3). Examines environmental chemodynamics; interphase equilibrium; reactions boundary layers; transport mechanism and models for movement of substances/contaminants across natural resources; and air-watersolid. Prerequisite: CHM 101, CHE 300.
## CHE 476 Environmental Risk

Assessment (3-0-3). Examines risk assessment concepts and their application to environmental analyses such as hazardous waste site evaluation and remediation. Covers principles of human health and ecological toxicology; exposure assessment; estimation of individual and aggregate risk; risk assessment in regulatory decision making and standard sitting. Prerequisite: CHM 101.
CHE 490 Senior Design Project I (0-3-1). 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. Student must present and defend her/his work in an oral presentation. Each student is required to complete a comprehensive assessment exam of engineering fundamentals. Prerequisite concurrent: CHE 432, CHE 421.
CHE 491 Senior Design Project II (0-6-2). Continuation of CHE 490. Prerequisite: CHE 490.
CHE 494 Selected Topics in Chemical Engineering (1 to 4 credits.) A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific

## CHE 496 Independent Study

( 1 to 4 credits). A theoretical or practical topic project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisite: Junior standing and approval of instructor.

## COE

## Computer Engineering

COE 210 Introduction to Computing I
(2-3-3). Provides an overview of computer architecture and programming languages. Examines elements of a C++ program; statements and expressions; formatting and data types; top-down design approach;
modular programming; relational and logical operators; selection structures; repetition and loop statements; declaration and initializations of arrays and strings; recursion; pointers and function arguments. Lab. programming assignments. Prerequisite: MTH 103.

## COE 211 Introduction to Computing II

(2-3-3). Introduces students to object-based program development using $\mathrm{C}++$; class design and implementation;, template classes and functions; single and multiple inheritance and virtual functions; operator overloading; streams I/O and exception handling. Lab. programming assignments in C++. Prerequisite: COE 210.
COE 212 Program Development and Design in Java (2-1-2). Covers structured programming in Java; object-oriented programming; inheritance; interfaces, polymorphism; overloading; Graphical User Interface (GUI); I/O streams; exceptions; Multithreading; layout managers; and applications, including client-server. Prerequisite: COE 211.
COE 221 Digital Systems (3-3-4). (equivalent to CMP 210). Covers number systems; representation of information; introduction to Boolean algebra; combinational circuits analysis and design; and sequential circuits analysis and design. Co-requisite: ELE 211.

## COE 311 Data Structures and

Algorithms (3-1-3). Examines the analysis, design and implementation of abstract data types/data structures and their algorithms. Topics include complexity analysis, linear data structures (stacks, queues, priority queues, lists and strings), non-linear data structures (hash tables, binary trees, search trees, balanced trees, heaps and multi-way trees), searching and sorting algorithms and graph algorithms. Substantial programming assignments. Prerequisite: COE 211 and MTH 213.
COE 331 Microprocessors (3-3-4).
Examines hardware and software model of microprocessors; programming of microprocessors; memory systems, memory interface and memory access (DMA); input/output programming and interface; and design of microprocessors-based systems. Prerequisite: COE 221 or CMP 210.

COE 341 Computer Architecture and Organization (3-0-3). Introduces students to an historical overview of the five classic components of a computer; performance
measures for computers; CPU description at the instruction level; CPU organization; types; register transfer language; hardwired and micro-program control; CISC and RISC processors. Covers instruction and hardware study of a commercial microprocessor. Introduction to parallel computers. Prerequisite: COE 331.
COE 370 Communications Networks (3-0-3). Examines open systems Interconnection reference model; network topologies; transmission media; transmission; error detection; data encoding; modulation; data link protocols: High-Level Data Link Control (HDLC); Local Area Network (LAN) systems: Ethernet; token ring, interconnection devices; and Internet. Prerequisite/ concurrent: COE 331 or CMP 240.
COE 371 Computer Networks I (2-3-3). Covers high-speed LANs; wireless LANs; Transmission Control Protocol/ Internetworking Protocol (TCP/ IP); routing protocols; introduction to network programming; WAN Networks: Frame relay and Asynchronous Transfer Mode (ATM). Prerequisite: COE 370.
COE 381 Operating Systems (3-1-3). (Equivalent to CMP 310). Covers introduction to operating systems; process management, process scheduling; interprocess communication; memory management techniques; virtual memory; 1/0 management; deadlock avoidance; file system design; security issues. Examples from commonly-used operating systems (e.g. Windows and UNIX). Prerequisite: COE 311 or CMP 232.

## COE 394 Special Topics in Computer

Engineering ( 1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.

## COE 397 Professional Training in

 Computer Engineering (0-0-0). Minimum of six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Prerequisite: Approval of training coordinator for the major.COE 412 Embedded Systems (2-3-3). Examines micro-controllers hardware architectures and software models; instruction sets and programming; EPROM; EEPROM; inputs/outputs; ADC/DAC Interface and Programming; timer systems
and interrupts; embedded systems building blocks, design and testing; introduction to DSP hardware architecture, software model and instruction set. Class projects. Prerequisites: COE 331 and ELE 241.
COE 420 Software Engineering I (3-1-3). (Equivalent to CMP 350). Offers an introduction to the basic principles and practices of software engineering. Emphasis will be placed on programming language support for software engineering principles, especially techniques for data abstraction, code reusability and "programming in the large." Other topics include software life cycle models; general design, implementation, and testing issues; specification and design methodologies; and model-based approaches to software design. Prerequisite: COE 311 or CMP 232.

## COE 421 Software Engineering II

(3-0-3). Focuses on the application of principles, tools and methods taught in COE 420 Software Engineering I. Students work in teams to develop a software system, following a process similar to an industry experience. Prerequisite: COE 420 or CMP 350.
COE 422 Database Systems (3-1-3). (Equivalent to CMP 320). Covers an introduction to the basic principles of database management systems; data models; hierarchical, network and relational; query languages; and physical representation of data in secondary storage. Prerequisite: COE 311 or CMP232.
COE 423 Computer Networks II (3-0-3). Examines latest developments in computer networking and communications.
Prerequisite: COE 371 or CMP 415.
COE 424 Advanced Digital System
Design (3-0-3). Covers advanced digital design techniques; Algorithmic State Machine (ASM) method for advanced digital design; case studies of complex digital system design; reliable design techniques; hardware description languages and advanced implementation techniques; and design of microprocessor using ASM. Prerequisite: COE 341.

## COE 425 Modern Computer

Organizations (3-0-3). Covers memory organization: memory hierarchy, cache memory, virtual memory and memory management; pipelining: pipeline hazards; multiple functional units; superscalar and vector processors; parallel processing: SIMD Computer, MIMD computers and

MIMD classification; interconnection networks; interprocessor arbitration; interprocessor communication; software for multiprocessors and commercial computer design examples. Design project. Prerequisite: COE 341.
COE 427 Internet Computing (3-0-3).
Introduces students to the underlying infrastructure of the Internet and the world wide web. Topics include Internet protocols, routing and Internet and webbased non-trivial applications. Prerequisite: COE 212 and COE 371.
COE 428 VLSI Design (3-0-3). Exposes students to digital VLSI design and simulation tools with simple examples. Use of commercial state-of-the-art industrial CAD/CAE tools. Prerequisites: COE 221 and ELE 241.
COE 429 Computer Graphics (3-0-3). (Equivalent to CMP 430). Examines hardware and software aspects of graphics generation. Programming assignments provide practical experience in implementing and using standard graphic primitives and user interfaces. Prerequisite: COE 211 or CMP 220 and MTH 221.

## COE 431 Computer Applications in

Industry (3-0-3). Covers microprocessorbased data acquisition units and its industrial applications; programmable logic controllers and its industrial applications; web-based monitoring and control of industrial plants. Class project.
Prerequisite: COE 412.
COE 433 Distributed Systems Design
(3-0-3). (equivalent to CMP 412). Covers principles of distributed systems, their communication and synchronization structures, and special issues related to distributed control such as election and mutual exclusion, clock synchronization, Byzantine agreement, distributed routing and termination. Prerequisite: COE 381 or CMP 310.

## COE 434 Mobile Computing (3-0-3).

Introduces students to the challenging field of mobile computing. Topics include location management, routing in ad hoc wireless network, file systems issues and caching strategies. Prerequisites: COE 341 and COE 371.

## COE 490 Design Project I (0-3-1).

Introduces design methodology in computer engineering through lectures and an openended, in-depth design project of significance in computer engineering. The project includes the design of a system
process or component to achieve the functional objectives representative of problems encountered by practicing computer engineers. Students work in teams to define, complete, validate and document their design project. They work in close accord with one or more faculty members. The course emphasizes engineering ethics and communication skills. Prerequisite: senior standing.
COE 491 Design Project II (0-6-2).
Continuation of COE 490. Prerequisite: COE 490.
COE 494 Selected Topics in Computer
Engineering (1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific
COE 496 Independent Study (1 to 4 credits). A theoretical or practical topic project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisite: junior standing and approval of instructor.

## CVE Civil Engineering

CVE 202 Construction Materials Lab (0-3-1). Focuses on 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. timber and other metals tests; written reports covering the planning, execution, results and conclusions of the investigation. Emphasis on teamwork. Co-requisite: CVE 221.
CVE 220220 Statics (3-1-3). (Cross-listed as MCE 220). Covers fundamental concepts and principles of mechanics, vectors and force systems; concepts of free-bodydiagram; principle of equilibrium of particles and rigid bodies in two and three dimensions; analysis of structures: trusses, frames and machines; shear and bending moment in beams, center of gravity, centroids and area moment of inertia; and friction. Prerequisite: PHY 101.
CVE 221 Construction Materials and Quality Control (3-0-3). Examines properties of construction materials; aggregate, Portland cement, admixtures, concrete and bituminous materials used in
construction and maintenance of structures, roads and pavements; design of concrete mixes including admixtures; concrete trial mixes on construction site; concrete curing methods, concrete strength and durability; design of paving mixtures; production, specifications, tests, and quality control of various construction materials. Prerequisite: CVE 220. Co-requisite: CVE202.
CVE 223 Mechanics of Materials (3-1-3). (Cross-listed as MCE 223). Covers stress and strains; mechanical properties of materials; axial load, torsion, bending and transverse shear; combined loading; stress transformation; deflection of beams and shafts; and buckling of columns. Prerequisite: CVE 220 or MCE 224.

## CVE 231 Engineering/Environmental

 Geology (3-0-3). Covers basic principles of physical geology pertinent to environmental and civil engineering; identification of minerals; origin and types of rocks and sediments; weathering; land forms; geologic structure; air photos and geologic maps; effects of geologic features and processes on constructed facilities planning and design; earth structure and materials; hazardous geologic processes; contaminants in the geologic environment; and physical and engineering properties of rocks. Prerequisite: NGN 110.CVE 240 Fluid Mechanics (2-3-3). (Cross-listed as MCE 240). Examines fundamental concepts. 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. Prerequisite: MTH 104, CVE 220.

CVE 241 Elementary Surveying (3-0-3). Offers and introduction to geodetic positions, coordinate systems, datum, basic measurement procedures, and use of surveying instruments. Covers principles and practice in measuring distance, elevation, and angels; leveling, traverse, and earth work computations. Introduction to GPS and GIS. Prerequisite: MTH 104.

Co-requisite: CVE 242.
CVE 242 Field Plane Surveying (0-3-1). Covers fundamental principles of surveying, basic measuring procedures and use of surveying instruments, use of surveying equipment for leveling, traverse, and area/volume computations. Corequisite: CVE 241.
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. Introduction to Intelligent Transportation Systems (ITS). Prerequisite: CVE 241.
CVE 267 Civil Engineering Cost Analysis (2-0-2). 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; cost estimating; depreciation methods; breakeven analysis; benefit cost analysis; sensitivity and decision making; feasibility and optimum life comparison. Prerequisite: NGN 111.
CVE 272 Statics and Mechanics of Materials for Architecture (2-2-3). (Cross-listed as ARC 242). Covers Newton's laws; forces, free body diagrams and equilibrium equations. Analysis of beams and trusses; geometric properties, centroid and moment of inertia; normal stress and strain; mechanical properties of common building materials; tensile, compression, bending and torsion tests for different building materials (steel, concrete, wood); bending stress and shearing stress. Prerequisite: PHY 104. (Not for civil engineering majors).
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. Use of commercial software for structural analysis. Prerequisite: CVE 223.
CVE 303 Geotechnical Engineering Lab (0-3-1). Experiments in soil mechanics.

Laboratory experiments to geotechnical test equipment and techniques. Applications of testing principles to the measurement of fundamental aspects of soil behavior from classification to engineering properties. Emphasis on rigorous techniques to measure mechanical behavior under various boundary conditions. Exposure to error estimation. Laboratory studies utilizing standard test methods and equipment to assess physical, mechanical, chemical and hydraulic properties of soils for application in civil engineering design. Laboratory work on classification and engineering tests on intact and weathered rock. Corequisite: CVE 331.

## CVE 304 Environmental and Water

Engineering Lab (0-3-1). Experiments in environmental engineering, hydraulic engineering and surface and ground water hydrology. Laboratory work: sampling, physical, chemical and bacteriological analysis of water and wastewater. Laboratory sessions utilizing standard test methods and equipment for measurement of important environment parameters. Sampling methods and data presentation. Experiments in water surface run off and subsurface infiltration and flow, experiments in closed conduit, open channel tests and related hydraulic structures. Co-requisite: CVE 351.

## CVE 310 Fundamentals of Structural

Dynamics (3-0-3). Examines fundamental concepts of kinematics and kinetics of rigid body motion; sources and types of dynamic forces in structures. Introduction to the basic concepts of structural dynamics; equations of motion of single degree of freedom systems, free and forced vibration; response to earthquake loading; generalized single degree of freedom systems.
Introduction to multi-degree of freedom systems; applications to civil engineering disciplines. Use of relevant computer modeling and dynamic analysis programs. Prerequisite: CVE 301 and MTH 205.
CVE 312 Structural Steel Design (3-0-3). Covers loads on structures; design criteria and philosophies; analysis and design of structural steel elements found in buildings and bridges including tension members, compression members, beams, columns, beam columns and connections. 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. Design project and use of computer software. Prerequisite: CVE 301.

## CVE 325 Computational Methods

(2-3-3). (cross-listed as MCE 325). 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; interpolation, approximation and curve fitting. Numerical solutions of ordinary and partial differential equations. Applications of computational methods in solving engineering problems using computers. Prerequisite: MTH 205 and MTH 221.
CVE 331 Geotechnical Engineering Principles (3-0-3). Studies physical properties of soils, classification systems, soil structure and soil water systems, effective stress principle, stresses in soil due to applied loads. Compressibility, consolidation and swell. Permeability and seepage analysis. Soil compaction. Stress-strain-shear strength relationships of soils, failure criteria and direct and triaxial shear testing. Soils used in construction. Introduction to lateral earth pressures. Use of computer software for geotechnical analysis. Prerequisite: CVE 223 and CVE 231. Co-requisite: CVE 303.

## CVE 333 Geotechnical Engineering

Design (3-0-3). Covers subsurface exploration and site investigation and evaluation. Bearing capacity of shallow foundations in different types of soils, settlement analysis: consolidation and immediate. Design of shallow foundations including footings and raftings. Design of deep foundation 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. Design of pile foundations. Introduction to design of retaining walls. Extensive use of computer aided design in team projects. Prerequisite: CVE 331.

## CVE 341 Hydraulic Engineering (3-0-3).

Introduction to surface hydrology. Review of basic conservation principles of continuity, energy and momentum. Incompressible flow in pipes. steady and
unsteady flow in pipelines and pipe networks, open channel and pipe network hydraulics, water supply canals and bridge and culvert hydraulics. Collection and distribution of water; pumps and pumping stations. Design of water supply distribution network. Darcy equation, Introduction to ground water hydraulics and wells hydraulics. Team projects. Analysis and design using computer software. Prerequisite: CVE 240.

## CVE 351 Water and Wastewater

Treatment (3-0-3). Examines quantity and quality of water and sewage; chemical, physical and biological processes that affect materials in engineered and natural systems; water quality modeling; water and wastewater treatment; sewerage systems; flow in sewers; sewage disposal. Design of sanitary and storm sewers; theory of wastewater treatment processes; design of unit operations; on-site wastewater treatment; waste stabilization ponds, water re-use; industrial wastewater. Design of intake works. Solid and hazardous waste disposal, air quality. Theory of water treatment processes, design of water treatment units. Treatment of sea and brackish water. Prerequisite: CHM 101. Corequisite: CVE 304. Prerequisite/ concurrent: CVE 341.
CVE 363 Highway Design (3-0-3). 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). Cost estimating for construction. Economic analysis and evaluation of engineering projects. Systems analysis, synthesis and optimizations. Applications to civil engineering projects. Introduction to investments, interest, financial mathematics and financing methods. Profit determinations. Factors influencing planning, design, execution and maintenance of engineering projects. Project estimating, planning and controls. Introduction to contracting, bidding and awarding. Labor and equipment costing and productivity. Job costs, project cost control. Materials procurement. Introduction to project management. Prerequisite: CVE 267.

## CVE 371 Structural Analysis for

Architecture (2-2-3). (Cross-listed as ARC 343). Introduction to structural analysis. Classification of structures and sources of loads. Load path and load tracing in structural systems. Analysis of simple beams, trusses, arches, cables, and frames. Internal forces: axial, shear and moment diagrams for beams and frames. Qualitative analysis of structures. Elastic buckling of columns. Computer analysis of structures. Prerequisite: CVE 272 or ARC 242. (Not open to civil engineering majors).
CVE 372 Structural Design for Architects (2-2-3). (Cross-listed as ARC 344). Examines structural systems and behavior of structural members and assemblies. The structural design process, codes and specifications. Qualitative and preliminary design of structural members. Design of simple steel structures, including tension members, compression members, beams and connections. Design of simple concrete structures, including beams, columns, one-way slabs and isolated footings. Introduction to the design of wood and masonry structures. Prerequisite: CVE 371 or ARC 343. (Not open to civil engineering majors).
CVE 397 Professional Training (0-0-0)
Minimum of six weeks of approved professional experience. Work undertaken must be documented in a formal report to the program by the beginning of the following term. Prerequisite: Approval of training coordinator for the major.

## CVE 410 Computer Methods in

 Structural Analysis and Design (3-0-3). Explores structural systems; loading on structures - wind and earthquake loads; virtual work method, stiffness and flexibility methods; matrix formulation of the stiffness and flexibility methods; direct stiffness method; introduction to finite element method; computer analysis and design of 2D and 3D framed structures and high rise buildings. Emphasis on teambased learning through specific design projects. Prerequisite: CVE 301.
## CVE 411 Structural Concrete Design

(3-0-3). Introduction to flooring and structural systems. Design of reinforced concrete members including: beams subjected to torsion, two-way slabs, column under biaxial bending, slender columns, combined footings and shear walls. Introduction to prestressed concrete, prestress materials and losses. Design of prestressed beams. Computer analysis and
design of structures. Emphasis on teambased learning through specific design projects. Prerequisite: CVE 313.
CVE 412 Finite Element Method (3-0-3). Explores matrix representation of stress, strain, and material relations. Basic theory of the finite element method with emphasis on civil engineering applications. Applications to a wide class of physical problems, including trusses, frames, and continuums. Finite element modeling. Energy methods; discrete models of continuous systems; and construction of basic finite element algorithms. Use of a general purpose finite element analysis computer program. Application to civil engineering problems. Prerequisite: CVE 301.

CVE 413 Bridges Design (3-0-3). Covers design of highway bridges. History, classification, and aesthetics of bridge structures. Design philosophy; loading, girder distribution factors, and load combinations. Design of concrete deck slab and reinforced concrete box girders. Design of noncomposite steel beams and composite steel girder, fatigue considerations. Design of prestressed concrete girders. Design of piers, bearings and abutments. Prerequisite: CVE 312 and CVE 313.
CVE 437 Advanced Concrete Technology (3-0-3). Properties and applications of special concretes, curing methods, admixtures, fiber-reinforced concrete and High Performance Concretes "HPC" and their use in innovative design solutions. Hot and cold weather concrete. Concrete construction in hot weather with special reference to the Middle East. Design of concrete mixes based on experience with local construction materials. Properties of high performance concrete. Design of high performance concrete materials and their use in innovative design solutions. Concrete production, strength, durability, deterioration and quality control aspects. Maintenance and repair materials and methods. Computer applications for the prediction of service life and cost analysis of the reinforced concrete structures. Prerequisite: CVE 221 and CVE202.

## CVE 441 Advanced Soil Mechanics

(3-0-3). Stress-strain and strength properties of dry and saturated cohesionless and clayey soils. Basic shear strength principles. Loading induced pore pressure and its influence on strength and compressibility. Stress path concept. Drained and undrained loading. Classes of stability problems.

Effective and total stress analysis procedures. Factors affecting shear strength parameters. Lateral earth pressure theories and methods of slope stability analysis. Secondary consolidation. Undrained settlement. Engineering properties of compacted soils. Analysis of earth retaining structures and slope stability under drained and undrained conditions. Prerequisite: CVE 303 and CVE 331.

## CVE 442 Advanced Foundation

Engineering (3-0-3). Site investigation with emphasis on in-situ testing. Computeraided profile data reduction and recording. Interpretation of field and laboratory data. Design of retaining structures, earth structures, braced cut excavations, sheetpile walls, and reinforced earth structures. Offshoring. Design of staged construction embankments. Introduction to seismic behavior of ground and geotechnical earthquake engineering. Emphasis on design of locally used geotechnical structures. Problematic soil and ground improvement. Introduction to design with geotextiles. Extensive use of computer aided design in team-projects. Prerequisite: CVE 333.

## CVE 445 Environmental Geotechnology

(3-0-3). Pollution processes and soilpollution interaction, particle-energy-field theory and its application, nature of soil and environment, chemical composition of natural soil and clay, identification, characterization and classification of contaminated soils, microscopic debris, dust in the water, soil technology, clay mineralogy, particle bond, energies, clay structures, clay-water system, soil-water-air interaction in the environment, hydraulic conductivity and mass transport phenomena, thermal properties of soils, electrical properties of soils, radiation effects on water. Soil and rock, nuclear waste disposal, utilizations of wastes, antidesertification measures, remediation technologies, applications, case studies. Prerequisite: CHM 101. Prerequisite/ concurrent: CVE 331.
CVE 446 Geotechnical Dam Engineering (3-0-3). Examines regional geoscience and seismotectonic investigations. Related subsurface exploration programs. In-situ permeability testing. 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. Grouting in the
ground. Introduction to earthquake analysis and design of earth and rockfill dams. Special considerations: liquefaction problems, sinkholes, land subsidence, foundation defects and dispersive soils. Compaction methods. Monitoring and staged construction. Case studies. Computer aided design projects. Prerequisite/concurrent: CVE 331.
CVE 447 Irrigation and Drainage Engineering (3-0-3). Explores soil/plant/water relationships; crop water requirements; methods of irrigation (surface, sprinkle, drip, subsurface); irrigation scheduling; water logging and salinity control, drainage criteria; artificial drainage systems; operation and maintenance of irrigation systems. Prerequisite: CVE 341.

## CVE 448 Port and Harbor Engineering

(3-0-3). Principles of port and harbor planning and design. Geotechnical engineering aspects of port and harbor engineering. Design loads. Construction materials. Wave characteristics and transformation, wave forces and concepts and theories of wave structure interaction. Water level fluctuations (tides). Planning and layout of port facilities. Coastal and ocean structures. Underwater systems. Design of seawalls, breakwaters, shore protection systems, fixed offshore installations, and sheet piling systems. Dredging. Design of selected coastal structures. Hydraulic considerations. Introduction to selected coastal engineering problems. Team projects, case studies and site visits and computer aided analysis and design commercial software. Prerequisite: CVE 223. Prerequisite/concurrent: CVE 341.

## CVE 450 Environmental Pollution

 Engineering and Control (3-0-3). Examines pollution of water bodies and control; self purification process; measurement of water quality and water quality for various beneficial uses. Also covers effect of consumption and growth; measurement of air quality; air pollution control, guidelines and standards; environmental impact assessment; global atmospheric change and its effects; ozone depletion; and hazardous substances and risks. Prerequisite: CVE 351 and CVE 304.CVE 455 Environmental Impact Assessment, Protection and Public Health (3-0-3). Explores humanity and environment. Communicable and noncommunicable diseases. Technologyenvironment interactions. Environmental
concerns. Environmental risk assessment. Comprehensive environmental planning and management of impact studies. Assessment of impacts of engineering projects on environment. Small water and wastewater systems. Solid waste and hazardous spills management.
Environmental monitoring. Prerequisite: CVE 351 and CVE 304.
CVE 456 Traffic Engineering (3-0-3). Explores characteristics of road users, characteristics of traffic stream: speed-flowdensity, traffic volume, traffic accidents, travel time and delay, parking, capacity and level of service of freeways, signalized intersections, at-grade intersection design. Transportation models. Prerequisite: CVE 263.

## CVE 457 Airport Planning and Design

(3-0-3). Examines airport master planning, forecasting air travel demand, design of airports, including lighting, terminal facilities, noise-level control, aircraft control, airspace utilization, and automobile parking. Prerequisite: CVE 263.
CVE 461 Advanced Surveying (3-0-3). Photogrammetry and modern surveying and mapping techniques. Global Positioning Systems (GPS) and Geographic Information Systems (GIS) applications in civil engineering. Prerequisite: CVE 241.

## CVE 463 Construction Management

(3-0-3). Examines management in the construction industry; construction delivery systems; management organizations; construction contracts; preconstruction planning, scheduling; bidding and award; contract administration and control; managing submittals, drawings, communications, progress payments, cash flow and site materials; progress monitoring and control; introduction to construction quality and safety management; Prerequisite: CVE 267.

## CVE 464 Building Construction (3-0-3).

 Topics include masonry construction;. steel frame construction; cast-in-place concrete framing systems; precast concrete framing systems; roofing; glass and glazing; cladding; interior finishes; interior walls and partitions; and finish for ceilings and floors. Also covers preconstruction site investigation; earthwork methods' construction equipment; drilling and blasting of rocks; soil compaction methods and equipment; material handling and transportation; formwork; and cranes. Construction methods of shallow and deepfoundations, bracing and excavation support, retaining and earth structures. Contract documents. Specifications and bill of quantities. Different types of contract and construction related drawings. Method statement for construction. Work inspection and quality control. Prerequisite: CVE 221 and CVE 301. Prerequisite/concurrent: CVE 333.

## CVE 468 Systems Construction

 Management, Scheduling and Control (3-0-3). Basic elements of management of civil engineering projects; roles of all participants in the process; coordination with various authorities; emphasis on contractual aspects, 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, equipment and; costschedule integration; least cost schedules; progress monitoring and control.Prerequisite: CVE 267.

## CVE 490 Civil Engineering Design

Project I (0-3-1). An open-ended, in-depth design project of civil and/or environmental engineering significance that includes the analysis and design of a civil engineering system meeting desired objectives within one, or more, of the civil engineering practice areas. Students apply creativity with their engineering knowledge in the solution of civil engineering problems. Students work in close accord with one or more faculty members, in a team environment. Students apply civil engineering principles to analyze and design the civil/environmental engineering system. The project outcomes must demonstrate that students have attained the level of competency needed for entry into the civil engineering profession. Prerquisite: senior standing

## CVE 491 Civil Engineering Design

Project II (1-6-3). Continuation to CVE 490. Prerequisite: CVE 490.

## CVE 494 Selected Topics in Civil

 Engineering (1 to 4 credits). Selected topics in the field of civil, environmental and urban systems engineering. Prerequisite: topic specific.
## CVE 496 Independent Study

(1 to $\mathbf{4}$ credits). Involves investigation under faculty supervision beyond what is offered in existing courses. Prerequisite: Approval of instructor.

CVE 561 Construction Management (3-0-3). (cross-listed as ARC 561). In-depth study of the interrelationships among the various professional disciplines in the building and construction industry as they pertain to issues of the management and planning of complex construction projects. Includes review of standard practices of tendering, contracting, quantity surveying, cost estimation, supervision, quality control and economy. Not open to civil engineering majors. Prerequisite: (ARC 397 or IDE 397) and ARC 461.

## ELE Electrical and Electronic Engineering

ELE 211 Electric Circuits I (2-3-3).
Explores physical concepts and mathematical analysis of electric circuits. DC, transient, and sinusoidal steady state analysis of circuits. Laboratory experiments and use of Pspice and MATLAB.
Prerequisite: PHY 102.
ELE 212 Electric Circuits II (2-3-3).
Covers magnetically coupled inductors and ideal transformer. Introduction to three phase circuits. Laplace transform, application of Laplace transform in circuit analysis. Frequency response analysis. Two port networks. Prerequisite: ELE 211.
ELE 225 Electric Circuits and Devices (2-3-3). Electrical quantities and variables. Circuit principles. Signal processing circuits. DC and AC circuit analysis. Diodes, transistors, operational amplifiers and digital devices. Microprocessors. Prerequisite: PHY 102. (Not open to electrical or computer engineering majors).
ELE 241 Electronics I (3-0-3). Review of semiconductor physics. PN junction. Diode circuits. Special diodes. Bipolar junction transistor (BJT). Biasing, small signal analysis and design of BJT amplifiers. Biasing, small signal analysis and design of MOSFET amplifiers. Optoelectronic devices. Digital electronics. Prerequisite: ELE 211. Co-requisite: ELE 241L.
ELE 241L Electronics I Lab (0-3-1). Laboratory to accompany ELE 241. Corequisite: ELE 241.

## ELE 251 Electrical Energy Conversion

(3-0-3). Magnetic circuits. Single phase transformer and equivalent circuit. Threephase transformers. Basic concepts of electromechanical energy conversion. DC and AC machines. Prerequisite/concurrent: ELE 212. (Prerequisite: ELE 225 for nonelectrical engineering students only).

ELE 311 Electromagnetics (3-0-3). Covers vector algebra; vector calculus; electrostatic boundary conditions, magnetostatic fields; magnetic materials; Maxwell's equations; and transmission lines. Prerequisite: MTH 203, MTH 205, MTH 221 and PHY 102.
ELE 321 Signals and Systems (3-0-3). Covers signals and systems, classification and manuipulation of continuous- and discrete-time signals; linear time invariant systems modeling; convolution of discretetime and continuous signalsl Fourier representation of signals: Fourier series and Fourier transform; the discrete-time Fourier transform; applications of Fourier representations; and the Z-transform and analysis of discrete-time systems. Prerequisite: ELE 212 and MTH 205.
ELE 323 Signal Processing (3-0-3). Examines signal classification and system behavior. Impulse response and convolution. Signals and systems analysis and representation via the Fourier transform and the Z transform. Sampling of band limited signals, FIR and IIR Digital filters and their design. Random variables and stochastic processes for statistical signal processing. Prerequisite: MTH 205 and (ELE 211 or ELE 225).

## ELE 332L Measurements and

 Instrumentation Lab (0-3-1). Covers basic measurement concepts; error and statistical analysis; electrical measuring instruments; field measurements such as displacement, temperature, pressure, flow level; transducer interfacing; digital instrumentation; data acquisition and control; and noise reduction techniques. Prerequisite: ELE 341.ELE 341 Electronics II (3-0-3). Operational Amplifiers. Power amplifiers. Frequency response characteristics of amplifiers. Feedback and stability. Oscillators. Active filters. Timing circuits. Digital to analog conversion (D/A). Analog to digital conversion (A/D). Prerequisite: ELE 241.
ELE 341L Electronics II Lab (0-3-1). Laboratory to accompany ELE 341 Prerequisite/concurrent: ELE 341.
ELE 353 Control Systems I (3-0-3). Mathematical models of systems. Feedback control system characteristics. Transient response analysis. Performance and stability of feedback control systems. Root locus analysis. Frequency response analysis. Design of feedback control systems.

Prerequisite: MTH 205 and ELE 212.
ELE 353L Control Systems I Lab (0-3-1). Laboratory to accompany ELE 353. Prerequisite: ELE 353.
ELE 361 Communications I (3-0-3). Review of Fourier series, Fourier transform, and communication systems. Random variable and stochastic processes. Continuous wave modulation: amplitude modulation and angle modulation. Pulse modulation and sampling theory. Multiplexing techniques. Performance of various modulation schemes in the presence of noise. Introduction to digital communications. Prerequisite: ELE 321.
ELE 361L Communications I Lab (0-3-1). Laboratory to accompany ELE 361. Prerequisite: ELE 361.

ELE 371 Power Systems Analysis (3-0-3). Power system concepts and per unit quantities. Transmission line, transformer and rotating machine modeling. Steadystate analysis and power flow. Theory of symmetrical components and application to analysis of power systems during fault conditions. Power system stability. Prerequisite: ELE 251. Corequisite/concurrent: MTH 221.
ELE 371L Electric Machines and Power Systems Lab (0-3-1). Test and analysis of electric power and machines devices and the design of systems using these devices. Prerequisite/concurrent: ELE 371.

## ELE 394 Special Topics in Electrical

 Engineering (1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.
## ELE 397 Professional Training in

 Electrical Engineering (0-0-0). Minimum of six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Prerequisite: Approval of the training coordinator for the major.ELE 424 Digital Signal Processing (3-0-3). Treatment of sampling/ reconstruction. Quantization. Discrete-time signals and systems. Digital filtering. Ztransforms. 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. Digital signal processing (DSP) applications. Prerequisite: ELE 321.

ELE 426 Imaging Systems (3-0-3).
Imaging techniques including: ultrasound imaging, convention X-Ray imaging, computerized tomography, magnetic resonance imaging, microwave imaging, thermal imaging, nuclear imaging, and other imaging techniques. For each of the addressed imaging techniques, the following is covered: radiation propagation and interaction with materials, generation and detection, image construction and reconstruction. Radiation protection. Prerequisite: ELE 311.

## ELE 432 Medical Instrumentation I

(3-0-3). Principles of medical instrumentation. 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. Electrical safety. Prerequisite: ELE 341.

## ELE 433 Medical Instrumentation II

(3-0-3). Blood flow measurements. Respiratory system measurements. Chemical biosensors. Clinical laboratory instrumentation. Therapeutic devices. Prerequisite: ELE 432.

## ELE 439L Medical Electronics Systems

Lab (0-3-1). Data acquisition tools. Medical signal processing. Biopotentials Amplifiers. Biopotentoals. Bioimpedance measurements. Blood pressure measurements. Respiratory measurements. Ultrasonic measurements. Electrical safety. Prerequisite/concurrent: ELE 432.
ELE 444 Control Systems II (3-0-3). State-space modeling and analysis. Controllability and observability. State feedback design and pole placement. Dynamic observers and output feedback design. Stability analysis. Prerequisite: ELE 353.

## ELE 451 Wireless Communications

(3-0-3). 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 such as GSM, IMT-2000. Prerequisite: ELE 361.

## ELE 452 Digital Communications

(3-0-3). Model of digital communication
systems. Base-band transmission and line coding techniques. Geometric interpretation of signals. Band-pass transmission and digital modulation techniques. Optimum detection of known signals in AWGN channels. Error correcting codes. Modulation and coding trade-off. Inter-symbol interference. Synchronization. Prerequisite: ELE 361.
ELE 453 Microwave Engineering (3-0-3). Electromagnetic plane waves. Microwave transmission lines. Smith charts and stubs. Microwave waveguides and components. Microwave measurements and applications. Microwave generators. Prerequisite: ELE 311.

## ELE 454 Antennas and Wave

Propagation (3-0-3). Radiation pattern. Directivity and gain. Half-power beamwidth and beam efficiency. Antenna bandwidth, polarization, input impedance and radiation efficiency. Wire antennas, loop antennas, array antennas, aperture antennas, reflector antennas. Prerequisite: ELE 311.

## ELE 455 Digital Image Processing

 (3-0-3). Basics of digital images. Image transforms. Image enhancement. Image point processing and filters. Image restoration. Image compression. Image segmentation. Edge detection and thresholding. Prerequisite: ELE 424.
## ELE 457 Satellite Communications

(3-0-3). Technical and economical aspects of satellite communication. Design considerations of low, medium and high power transponders. Antenna types, and ground station design. Prerequisite: ELE 361 and ELE 311.

## ELE 458L Communications Systems Lab

(0-3-1). Practical aspects of digital communications, antennas and microwave engineering. 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. Satellite receiver operation and troubleshooting. Prerequisite: ELE 311 and ELE 361.

## ELE 459 Introduction to Radar Systems

(3-0-3). Nature of radars. 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). Discrete-time systems and the Z-transform. Sampling and reconstruction. Open-loop and closed discrete-time systems. System time-response characteristics. Stability analysis techniques. Digital controller design. Prerequisite: ELE 353.
ELE 472 Nonlinear Control (3-0-3). Analysis of nonlinear systems. Phase plane analysis, limit cycle, describing function and its applications. Stability analysis of nonlinear systems using Liapunov, input/output and asymptotic methods. Design methods of nonlinear controllers: linearization, absolute stability theory, sliding modes and feedback linearization. Prerequisite: ELE 353.
ELE 473 Industrial Instrumentation and Control (3-0-3). Reviews measurements systems. 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. Closed control systems analysis and design. Introduction to distributed control systems. Prerequisite: ELE 332L and ELE 353.
ELE 476L Instrumentations and Control Systems Lab (0-3-1). Reviews measurement systems. Field instrumentation. Input/output instrument characteristics. Instrument grounding and cabling techniques. Signal processing and transmission. Smart sensors. Data acquisition and display. General purpose control devices. Programmable logic controllers and industrial controllers. Closed control systems analysis and design. Introduction to distributed control systems. Prerequisite: ELE 353L and ELE 332L.

## ELE 481 Power System Protection

(3-0-3). Covers fuses; voltage and current transducers; fundamental relay operating principles and characteristics; over current protection; comparators and static relay circuits; differential protection and its application to generators, transformers and bus bars; motor protection; pilot wire protection of feeders; and standard protective schemes for system coordination of relays. Prerequisite: ELE 371.
ELE 482 Electric Power Distribution Systems (3-0-3). Concepts and techniques associated with the design and operation of
electrical distribution systems. Load characteristics. Distribution substations. Choice of voltage levels. Loss minimization and voltage control. Calculation of impedances of unbalanced three-phase systems. Analysis techniques of radial systems. Prerequisite: ELE 371.

## ELE 483 Power System Operation

(3-0-3). Introduction to economic operation of power systems. Techniques for stability analysis. Introduction to methods used in the real time operation and control of power systems. Prerequisite: ELE 371.

## ELE 484 Control of AC Machines

(3-0-3). Dynamic models of three-phase AC machines. PWM inverters. Scalar control of induction machines. Principle of field orientation. Flux estimators and observers. Vector control of induction and permanent magnet synchronous machines.
Prerequisite: ELE 251 and ELE 353.
ELE 485 Power Electronics (3-0-3). Electric power conditioning and control. Characteristics of solid state power switches. Analysis and applications of AC power controllers, controlled rectifiers, DC choppers and DC-AC converters.
Prerequisite: ELE 241 and MTH 205.

## ELE 486 Electric Drives (3-0-3).

Application of semiconductor switching power converters to adjustable speed DC and AC motor drives. Steady state theory and analysis of electric motion control in industrial, robotic and traction systems. Prerequisite: ELE 251, ELE 241 and MTH 205.

## ELE 488L Power Engineering Lab

 (0-3-1). Covers various power systems and power electronics applications including issues related to power transmission and distribution and adjustable speed motor drives. Prerequisite: ELE 371 and ELE 371L.
## ELE 490 Electrical and Electronic

 Engineering Design Project I (0-6-2).Introduces design methodology in electrical engineering through lectures and an openended, in-depth design project of significance in electrical or electronic engineering. The project includes the design of a system process or component to achieve the functional objectives representative of problems encountered by practicing electrical engineers. Students work in teams to define, complete, validate and document their design project. They will work in close accord with one or more faculty members. The course emphasizes
engineering ethics and communication skills. Each student is required to complete a comprehensive assessment exam of engineering fundamentals. Prerequisite: senior standing.
ELE 491 Electrical and Electronic Engineering Design Project II (0-6-2). Continuation of ELE 490. Prerequisite: ELE 490.

## ELE 494 Special Topics in Electrical

 Engineering ( $\mathbf{1}$ to $\mathbf{4}$ credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.
## ELE 496 Independent Study

(1 to 4 credits). A theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisites: junior standing and approval of instructor.

## MCE

## Mechanical Engineering

## MCE 215 Engineering Drawing and

Workshop (1-6-3). Covers orthographic projections of machine elements, auxiliary views, section views, dimensioning, introduction to fits and tolerances, basic detailed and assembly drawings, computer aided drafting using commercial computeraided design software. Introduction to using basic machines and developing hand skills in the workshop, safety in the workshop; basic hand tools, basic machining operations, welding, casting, woodwork, sheet metal work, measuring instruments.
MCE 220 Statics (3-1-3). (Cross-listed as CVE 220). 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 and area moment of inertia; friction. Prerequisite: PHY 101.
MCE 222 Dynamics (3-1-3). Examines fundamental concepts of kinematics and kinetics with application to motion of particles and plane motion of rigid bodies. 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. Energy and momentum methods. Prerequisite: MCE 220.
MCE 223 Mechanics of Materials (3-1-3). (Cross-listed as CVE 223). Stress and strain. Mechanical properties of materials. Axial load, torsion, bending and transverse shear. Combined loading. Stress transformation. Deflection of beams and shafts. Buckling of columns. Prerequisite: MCE 220 or MCE 224.
MCE 224 Engineering Mechanics Statics and Dynamics (3-1-3). Topics include particle statics and dynamics; vector mechanics; free body diagrams; twoand three-dimensional force equilibrium systems; internal forces; centroid and moment of inertia; rectilinear and curvilinear motion; coriolis effects; considerations of work and energy; periodic motion. Prerequisite: MTH 104 and PHY 101. (Not open to mechanical engineering or civil engineering majors)
MCE 225 Statics and Dynamics for Computer Engineers (2-1-2). Covers particle statics and dynamics; vector mechanics; free body diagrams; twodimensional force equilibrium systems; rectilinear and curvilinear motion; considerations of work and energy. Prerequisite: MTH 104 and PHY 101. (Not open to mechanical engineering, civil engineering or electrical engineering majors)
MCE 230 Materials Science (2-3-3). (Cross-listed as CHE 230). Introduced 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. Mechanical properties of materials, alloys, polymers and composites. Electrical and magnetic properties of materials, semiconductors and ceramics. Prerequisite: CHM 101.
MCE 240 Fluid Mechanics (2-3-3). (Cross-listed as CVE 240). Covers fundamental concepts and properties of fluids: specific gravity, viscosity and surface tension.Fluid statics: pressure and its measurement, hydrostatic forces on submerged surfaces, stability of floating bodies. Basic equations of motion: continuity, momentum and energy equations, Bernoulli's equation. Measurement of static and stagnation pressure, velocity and flow rate in closed conduits and open channels. Flow in closed
conduits (internal flow), laminar and turbulent flow. Flow over immersed bodies (external flow). Lift and drag. Dimensional analysis and dynamic similitude.
Prerequisite: MTH 104 and MCE 220.
MCE 241 Thermodynamics I (3-1-3).
Covers properties of matter, processes in fluids, energy and first law of thermodynamics, second law of thermodynamics, entropy and availability analyses, basics of vapor power and gas power cycles. Prerequisite: PHY 101.
MCE 311 Engineering Measurements (2-3-3). Examines basic concepts of measuring methods, static and dynamic characteristics of signals, types of errors, assessing and presenting experimental data, uncertainty analysis, measurement system behavior, sampling, digital devices and data acquisition, selection and use of temperature, pressure, fluid flow, force, stress, strain, torque and power instrumentation. Lab experiments and demonstrations. Prerequisite: ELE 225, MCE 222 and MCE 240.
MCE 315 Fundamentals of ComputerAided Design and Manufacturing (2-3-3). Covers fits and tolerances, detailed and assembly drawings. Provides an introduction to computer-aided design (CAD) and computer-aided manufacturing (CAM) technologies. Topics include the role of CAD/geometric modeling; parametric representation of curves and surfaces; viewing transformations; shading techniques; data exchange standards; computer numerical control (CNC); part programming; tool path generation; and rapid prototyping. Utilization of commercial computer aided design software. Prerequisite: MCE 215 and MCE 331.
MCE 316 Kinematics and Dynamics of Machinery (3-0-3). Explores analysis and synthesis of linkages (displacement, velocity, acceleration and force analysis), cam-follower, gear train systems. Introduction to machine dynamics. Prerequisite: MCE 222.
MCE 321 Mechanical Design I (3-0-3). Covers stresses and deflection of engineering members; statistical considerations in design; steady and variable loading; design of screws, fasteners and connections; welded joints. Mechanical springs. Prerequisite: MCE 215 and MCE 223.
MCE 322 Mechanical Design II (3-0-3). 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. Utilization of commercial computer aided design software. Design project. Prerequisite: MCE 321.

## MCE 325 Computational Methods

(2-3-3). (Cross-listed as CVE 325). Covers basic concepts of computational methods; errors, accuracy and precision; numerical solutions of non-linear equations; direct and iterative methods for solving systems of linear algebraic equations; numerical differentiation and integration; interpolation, approximation and curve fitting; numerical solutions of ordinary; and partial differential equations. Applications of computational methods in solving engineering problems using computers. Prerequisite: MTH 205. Prerequisite/ concurrent: MTH 221.
MCE 328 Dynamic Systems (3-0-3). Covers modeling, analysis, and measurement of mechanical damped and undamped, forced and free vibrations in single and multiple degree-of-freedom dynamic systems. The processes of energy storage and dissipation, which are common for the different kinds of dynamic systems, will be emphasized and analogous elements will be addressed when modeling different dynamic systems. Introduction to basic concepts in system theory such as system state and stability. Elements of frequency response. Fourier and Laplace transform techniques. Total response from partial fraction expansion. Prerequisites: MTH 205, MCE 222 and ELE 225.

## MCE 331 Manufacturing Processes

(2-3-3). Introduction to fundamentals of manufacturing processes including casting, metal forming, metal-cutting and machining operations, joining, surface processing, welding, plastics and plastic processing, and nontraditional machining. Integration of manufacturing system into process planning as a part of product and systems design. Students work in teams to conduct hands-on experiments in the manufacturing laboratory. Prerequisites: MCE 215 and MCE 230.
MCE 341 Thermodynamics II (2-3-3). Energy system analysis including modified power cycles, refrigeration cycles, and air conditioning processes. Thermodynamic relations and development of thermodynamic properties. Thermodynamics of non-reacting and
reacting mixtures, chemical reaction. Prerequisite: MCE 241.
MCE 344 Heat Transfer I (2-3-3). Mechanisms of heat transfer, steady-state conduction in various geometries, transient conduction, forced and natural convection, radiation, analysis of heat exchangers. Prerequisite: MCE 240 and MCE 241.
MCE 394 Special Topics in Mechanical Engineering ( 1 to 4 credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.

## MCE 397 Professional Training in Mechanical Engineering (0-0-0)

 Minimum of six weeks of approved professional experience. Work undertaken must be documented in a formal report to the department by the beginning of the following term. Prerequisite: Approval of training coordinator for the major.MCE 410 Control Systems (2-3-3). Covers mathematical models of systems, state variable models, feedback control system characteristics, performance and stability of feedback control systems. Rootlocus method. Stability in the frequency domain. Design of feedback control systems. Introduction to control system design in the state space domain. Lab experiments and demonstrations. Prerequisite: MCE 311 and MCE 328.
MCE 418 Modeling and Simulation of Dynamic Systems (3-0-3). Explores a unified, energy-based approach for the modeling and simulation of engineering components and systems. Systematic modeling is based on Lagrange's equation for mechanical, electrical, fluid, and thermal systems; simulation is based on the numerical solution of initial-value problems in nonlinear differential-algebraic equations. Applications are explored via projects using modern computer aided tools. Introduction to hybrid dynamics systems. Prerequisite: MCE 328.
MCE 423 Mechanical Vibrations (3-0-3). Covers systems with single and multiple degrees of freedom. Damped and undamped free vibrations, forced vibrations. Eigen values and eigen vectors of multiple degrees of freedom system. Prerequisite: MTH 205 and MCE 222.
MCE 435 Advanced Mechanics of Materials (3-0-3). Examines basic material properties and their use in design. Topics include stress-strain-temperature relations, inelastic material behavior, energy methods,
torsion of non-circular bars, and nonsymmetric 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 definition and process integration of computer aided design and manufacturing. Topics include computer aided design, computer aided manufacturing, and computer aided process planning, production planning and control, programming principles of numerical controlled and computer numerical controlled systems, manufacturing systems design, manufacturing cells and flexible manufacturing systems. Prerequisite: MCE 331

## MCE 440 Advanced Manufacturing

Processes (2-3-3). Explores and analysis of the machining process, economics of machining, modeling of material deformation in metal forming operations, non-traditional manufacturing processes, plastic processing, powder metallurgy. Utilization of commercial computer aided design software. Prerequisite: MCE 331.
MCE 443 Introduction to Engineering Fracture Mechanics (3-0-3). Examines Griffith criterion; mechanisms of fracture and crack growth; elastic crack-tip stress field; plane stress and plane strain; R-curve and J-integral; and determination of stress intensity factors. Applications. Prerequisite: MCE 230 and MCE 321.
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, and environmental impact of power plants. Prerequisite: MCE 341 and MCE 344.

## MCE 446 Refrigeration and Air

 Conditioning (2-3-3). Provides an introduction to ventilation, air conditioning and refrigeration; classification of air conditioning systems; applied psychrometrics, design conditions, design of conventional and non-conventional systems; human thermal comfort andindoor 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, system selection and design. Prerequisite: MCE 341 and MCE 344.

## 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, thermochemistry and fuels, air and fuel induction systems, Fluid motion within combustion chamber, combustion in spark ignition engines, combustion in compression ignition engines, exhaust system, emission and air pollution, methods of emission control, engine friction and lubrication, engine operating characteristics, introduction to modeling of real engine flow and combustion processes. Prerequisite: MCE 341.

## MCE 448 Advanced Heat Transfer

 (3-0-3). Explores advanced conduction: basic equation and boundary conditions, analytical and numerical solutions of transient 1-D conduction and steady 2-D conduction. Convection: basic relations of convection, analytical solutions of some simple flows (forced and natural convection). Heat transfer in condensing and boiling processes. Energy exchange by radiation. Advanced topics in radiation. Finite difference analysis of heat transfer problems. Prerequisite: MCE 344.
## MCE 449 Renewable Energy Systems

(3-0-3). Covers solar radiation; collectors and concentrators; solar heating for domestic and industrial uses; passive heating and cooling of buildings; solar refrigeration and desalination, solar pumping, solar electricity (PV-central receiver systems) and solar ponds. Wind energy, statistical description of wind. Weibul distribution. Maximum power obtainable from the wind. Horizontal and vertical-axis wind turbines. Ocean tides. Ocean waves OTEC. Biomass and biogas. Geothermal energy. Economic evaluation of renewable energy systems and comparison with conventional and/or alternative power generating systems. Prerequisite: MCE 344.
MCE 450 Energy Conservation and Management (3-0-3). Provides an analysis of energy systems, including fossil fuels, steam, cogeneration, waste heat recovery, refrigeration and air conditioning systems,
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 454 Electronic Heat Transfer (3-0-3). Covers mechanisms of heat transfer, conduction and convection in electronic components, thermal characteristics of chips, heat transfer in multi-chip module, flow field in packaging configuration, single fins and fin array heat transfer, and heat sinks. Prerequisite: MCE 344.

## MCE 464 Introduction to Robotics

(2-3-3). Gives an overview of robotics; robot coordinate systems; direct and inverse kinematics; introduction to manipulator dynamics; robot sensors and control strategies; introduction to force control and compliance; and requirement of digital control of robots. Prerequisite: MCE 311 and MCE 316.
MCE 466 Introduction to Mechatronics (2-3-3). Covers modeling and control of actuators and electro-mechanical systems. Mechanical engineering applications of microprocessors and analog electronics to modern mechatronic systems. Prerequisite: MCE 222 and MCE 311.

## MCE 473 Applied Finite Element

 Analysis (3-0-3). Introduction to Finite Element Method (FEM) and its application in different mechanical engineering problems. Theoretical and computational basics of finite element method, element formulation and assembly of global matrices. Applications include: static loading of beams and beam structures, free vibration of beam and beam structures, 2-D plane stress and plane strain elasticity, and 2-D steady state heat conduction. Using a commercial FE software in solving various engineering problems. Prerequisite: MCE 321, Prerequisite concurrent: MCE 344.MCE 477 Composite Materials (3-0-3). Examines advanced composite materials and applications. Stress-strain relationship for an orthotropic lamina. Laminate analysis. Static strength of laminates. Micro-mechanical analysis of laminae. Analysis of laminated beams. Design applications. Computer program applications. Prerequisite: MCE 223 and MCE 230.
MCE 480 Plastics and Plastic Processing (3-0-3). Properties and engineering
applications of thermoplastic and thermosetting polymers, plastic manufacturing processes, equipment and mold design. Prerequisite: MCE 331.
MCE 482 Intermediate Fluid Mechanics (3-0-3). Compressible flow: fundamental concepts, isentropic compressible flow with area change, normal shock waves, performance of nozzles, frictional flow in constant-area ducts (Fanno flow), flow in constant-area ducts with heat transfer (Rayleigh Flow). Potential flow: stream function, velocity potential and solution of simple flows. Viscous flow: differential formulations, solution of simple flows. Introduction to numerical solution of 2-D viscous flows. Use of commercial CFD software. Prerequisite: MCE 240, MCE 241 and MTH 205.
MCE 487 Turbomachines (2-3-3). Covers classification of turbomachines, dimensional analysis, specific speed, model testing, basic laws. Incompressible flow turbomachines: centrifugal and axial flow pumps, Euler's theory, characteristics and laboratory testing, cavitation in pumps. Compressible flow turbomachines: centrifugal compressors and fans, surge and choking in a compressor stage, axial flow compressors and gas turbines. Prerequisite: MCE 240 and MCE 241.
MCE 488 Introduction to Computational Fluid Dynamics (CFD) (3-0-3). 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 to equations of fluid mechanics and heat transfer, using software packages in solving CFD problems. Prerequisite: MCE 240 and MCE 335.
MCE 489 Fluid Power (3-0-3).
Components of a fluid power system. Properties of hydraulic fluids. Hydraulic pumps. Fluid power actuators: hydraulic cylinders and hydraulic motors. Control valves. Applications of hydraulic circuits. Introduction to pneumatics. Prerequisite: MCE 240 or CHE 300.
MCE 490 Design Project I (1-3-2). An open-ended, in-depth design project of mechanical engineering significance that includes the design, manufacturing and testing of a complete system of current interest to mechanical engineering. Students work under close supervision of one or more faculty members in a team
environment. Students are required to present their findings at the end of the project in the form of a seminar and in a formal written report. The project outcomes must demonstrate that students have attained the level of competency needed for entry in the mechanical engineering profession. Each student is required to complete a comprehensive assessment exam of engineering fundamentals. Prerequisite: senior standing.
MCE 491 Design Project II (0-6-2). Continuation of MCE 490. Prerequisite: MCE 490.
MCE 494 Selected Topics in Mechanical Engineering ( $\mathbf{1}$ to $\mathbf{4}$ credits). A theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisite: topic specific.
MCE 496 Independent Study (1 to 4 credits). A theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisite: junior standing and approval of instructor.

## NGN <br> Engineering

## NGN 101 Introduction to Computer

 Tools and Workshop Skills (2-3-3). Use of computer tools in data analysis, data display and visualization techniques. Also covers computer-aided drawing, development of basic hands-on workshop skills, and safety.
## NGN 110 Introduction to Engineering

 (1-2-2). Examines common concepts in each of the engineering disciplines at AUS. Selected engineering systems, subsystems, processes and devices used in each discipline. Introduction to engineering problem solving. Principles of engineering design processes. Introduction to engineering sketching. Role and responsibilities of engineers. Basics of time management. Selected laboratory exercises of different disciplines. Introduction to engineering ethics. Prerequisite: admission to the School of Engineering.
## NGN 111 Engineering Statistics (2-0-2).

Summarizing data and descriptive statistics, designing experiments, sampling distributions, introduction to statistical inference (estimation and hypothesis testing), simple regression and correlation. Use of statistical software. Probability. Examples from the five engineering
disciplines are presented. Prerequisite: NGN 110.
NGN 461 Management for Engineers
(3-0-3). Focuses on engineers as managers; nature of organizations; functions of organizations; the tools of engineering management; engineering organizational models including cluster and matrix organization; leadership, team-work and creativity, personnel management, finance and communication skills; and ethical and professional standards. Introduction to total quality management. Case studies.

## NGN 462 Engineering Project

Management (3-0-3). Projects in engineering organizations. Project initiation. Effective project management. Project life cycle, planning and scheduling. Resourcing. Cost estimating. Project monitoring and control. Introduction to computer packages. Case study.
NGN 463 Quantitative Engineering Management (2-3-3). Models in operational management. Linear programming: formulation of linear programming models, and standard forms. Principles of the simplex method. Dual simplex method. Nonlinear programming problems. Use of linear and nonlinear problem solvers with applications in various engineering fields including network analysis, resource allocation, transportation problems, product mix applications. Term project.
NGN 464 Engineering Economics (3-0-3). Economics concepts and theories of planning. Bases and methods of economic analysis of engineering projects. Application of these principles in understanding economic activity of private and public engineering companies at various micro and macroeconomic levels.

## NGN 465 Quality Control for Production

Systems (3-0-3). Control charts and diagrams (types, construction, application and implementation). Control charts for variables, control charts for attributes. Acceptance sampling: lot by lot acceptance sampling by attributes, acceptance sampling plans and standards. Quality costs: product liability, quality improvement, implementation of quality control system. Quality engineering. Value engineering principles and applications.
NGN 494 Selected Topics in Engineering
( $\mathbf{1}$ to $\mathbf{4}$ credits). Selected topics in interdisciplinary engineering fields. Prerequisite: topic specific.


## Graduate Studies

The American University of Sharjah strives to become a center for education and research and to serve as a resource for development, sustainability and advancement.
To this end, AUS has established a number of graduate programs that target the needs of the local community and the Gulf region. Students in these programs seek career advancement opportunities and personal enrichment. The diversity of the graduate programs is expressed through the university's commitment to offering crossdisciplinary courses and specialized degrees.
Offering a stimulating intellectual environment with qualified faculty and state-of-the-art facilities, AUS fosters an atmosphere in which faculty and students are involved in a constructive dialogue toward collaborative research and intellectual exchange.

## Admissions

The university seeks to attract to its graduate programs excellent students who demonstrate the ability to do creative and original work. A graduate applicant must have a recognized bachelor's degree with a record at the required level as mentioned below, be
proficient in the English language, and perform well on any required entrance examination. Actual acceptance depends upon the overall merit of the applicant's academic record, meeting any additional admission requirements pertinent to each program, and space availability.

## Application Process

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

> American University of Sharjah
> Dean of Admissions
> P.O. Box 26666
> Sharjah, United Arab Emirates
> E-mail: admission@ausharjah.edu

To be considered for admission, a graduate applicant must complete an application, pay the required application fees and include all requested materials, such as official transcripts, TOEFL score, GMAT score (if apllicable), three letters of recommendation, and personal statements. Incomplete applications will not be processed. Upon receiving a
complete application, a file for each applicant is prepared by the Office of Admissions to ensure that the applicant meets the minimum university requirements. The file is then sent to the appropriate college/school for evaluation and recommendation. The Office of Admissions then informs the applicant of the decision. Those who have been accepted are informed of the required tuition fees and dates for advising and registration.
Admission is valid only for the semester for which the student applies. If a student is granted admission for a certain semester and fails to register, the application may be reconsidered, upon request, for the following semester only. For further information, please visit www.ausharjah.edu.

## Application Deadlines

To guarantee that their applications will be processed before the semester begins, applicants should submit completed application forms and all supporting documents to the Office of Admissions by the following dates:

Fall Semester
Spring Semester
Summer Term

July 15
November 15
April 15


For the School of Business and Management, the deadlines are as follows:

## Fall Semester

July 10
Spring Semester

## Summer Term

December 15
May 15
Students who need visas should apply one month before the above deadlines.

## General Requirements for

 Admission
## Eligibility

Admission to the university's graduate programs is competitive. All applicants for graduate study must have a bachelor's degree in a relevant field with an academic record at a level sufficient to qualify for full or special admission as described below.

## Categories of Admission

## Full Admission

Full admission to graduate certificate and master's degree programs may be granted to entering students who have a cumulative grade point average (GPA) of at least 2.75 (on a scale of 4.00) or its equivalent, and 3.00 or its equivalent in 300- and 400-level courses in discipline(s) relevant to the graduate program. Additionally, some graduate programs may require satisfactory performance on specific entrance examinations. A graduate applicant must attain a minimum International TOEFL score of 197 (530). Some programs may require a higher TOEFL score and/or TWE score as indicated in the detailed description of the program.

## Special Admission

Special admission to graduate certificate and master's degree programs may be granted as a preliminary step to applicants holding appropriate bachelor's degrees with a minimum cumulative GPA of at least 2.50 (on a scale of 4.00 ) or its equivalent, and a 2.75 or its equivalent in 300- and 400-level courses in discipline(s) relevant to the graduate program. In order to continue in their graduate program, special admission students must achieve a cumulative GPA of at least 3.00 in their first five graduate courses.

Special admission may also be granted to applicants who meet the above GPA requirements but who have an International TOEFL score of at least 173 (500). To continue beyond the first semester in the graduate program, these students must present a minimum International TOEFL score of 197 (530) by the end of their first semester.
The program director or graduate admissions committee may assign a set of courses for each student on special admission status. The courses may include undergraduate prerequisite courses and/or specially tailored leveling courses. The dean of the school/college offering the program must approve the prescribed set of courses. Satisfactory completion of the prescribed set of courses with a B average (cumulative GPA of 3.00 ) is required prior to enrolling in graduatelevel courses. Undergraduate prerequisite courses and specially tailored leveling courses cannot be used to satisfy the credits required for completion of the graduate program nor will they count in the graduate -level cumulative GPA.

Visiting Students Admissions A student who is currently enrolled in another institution but wishes to take a course at AUS for credit transfer may be admitted as a visiting student if he/she is in good academic standing in the current institution and minimum International TOEFL score of 173 (500).
Requests are submitted to the Office of the Registrar. The School of Business and Management does not admit visiting students.
Normally, a visiting student is allowed to register as a visitor for no more than one academic year. Visiting students should check with their home institutions to determine if AUS credits will transfer to their program.

## Non-degree Admissions

An applicant not seeking an AUS degree but who wishes to take AUS courses for academic credit may be admitted as a non-degree student if he/she meets the minimum requirements for graduate admission. Applications are submitted to the Office of Admissions. The School of Business
and Management does not accept nondegree admissions.
Upon request, the university may approve a change of status from a nondegree to a degree-seeking student. If a graduate non-degree student requests to change his/her status to a degree candidate, the program director may consider accepting credit for courses taken under non-degree status. All academic regulations applicable to degree students will apply retroactively to such a change of status. Regular graduate tuition rates apply.

## Entrance Examinations

Additional placement and skills-related tests might be required by some programs. The tests must be current and the results must be no more than two years old. Please refer to specific degree program descriptions.

## Transfer Policy

Upon the recommendation of the student's department to the school dean, a graduate student may normally receive up to six graduate credits for graduate level work completed at another university if the grades received were not less than a B. The course work should not have been used previously to earn another degree. Courses taken more than five years prior to entering a graduate program at AUS are not transferable. Applicants must request that their credit transfers be reviewed at the time of application. Some programs may waive courses toward fulfillment of foundation requirements. Please refer to the specific program description for more details.

## Tuition

For graduate courses offered by the School of Engineering, School of Architecture and Design, and the MBA program, tuition is charged at the rate of AED 1,870 per graduate credit hour. Tuition for courses in the Humanities is AED 1,560 per graduate credit hour. Tuition for the EMBA program is AED 7,350 per course for cohorts begun preFall 2003 and AED 7,630 for all other cohorts. For all other non-tuition fees refer to the Undergraduate Fees section in this catalog.

## Academic Regulations

Current university regulations apply regardless of the regulations in effect when the student first enrolled in the university unless stated otherwise.
Caution: The course offerings and requirements of the American University of Sharjah are under continual examination and revision for improvement. This catalog is not a contract. It merely presents the offerings and requirements in effect at the time of publication and in no way guarantees that the offerings and requirements will not change. The university specifically reserves the right to change requirements for any major during any particular year. The student assumes full responsibility for compliance with all academic requirements.
The graduation requirements for any individual student are determined either by the catalog that was in effect when the student first enrolled in AUS or the catalog in effect for the academic year
when the student graduates. In case of major changes in course offerings, equivalent graduation requirements are determined by the college/school dean and the Vice Chancellor for Academic Affairs.

## Registration

Students must register during the official registration period announced in the academic calendar. They should plan their courses with their advisors prior to registration and follow the instructions in the registration guides issued by the Office of the Registrar. Those seeking to enroll after the scheduled registration period cannot be guaranteed acceptance. If permitted to register, they will be charged a late registration fee.

## Auditing

Those who wish to attend individual classes without receiving academic credit may apply to audit courses; however, such students may not sit for
final examinations nor receive credit or any university certificate of completition. Since permission to audit is granted on a space-available basis, applicants are not permitted to register until after regular students have been registered. An applicant must hold a bachelor degree in a related field of study from an accredited university and demonstrates the required level of English proficiency. Registration for audits is done through the Office of the Registrar, given the approval of the instructor of the course, program director, and college-school dean. Regular graduate tuition rates apply.

## Add/Drop and Withdrawal Policies and Procedures

If students pay careful attention to the degree requirements and courseofferings, there should be minimal need for course changes after registration. Any student who wishes to add or drop a course must first obtain the appropriate form from the department of his/her major and

have it approved by his/her advisor before changing the registration. Add/drop period is announced by the Office of Registrar.
Students are allowed to add and/or drop courses during the official published add/drop period. Such changes in courses are not recorded in the student's transcripts.
Students may withdraw from courses without academic penalty within the published graduate program's academic calendar. A grade of W will be assigned to these courses. After the deadline, students may withdraw from courses but a grade of WF is assigned to those courses.

## Academic Load

The normal academic load for a fulltime graduate student is nine hours per semester; however, upon the recommendation of the department concerned, a student may register for up to 15 hours per semester. See descriptions of individual degrees for program-specific restrictions.

## Grades

Final grades are recorded on the student's permanent record in the Office of the Registrar. Grades may not be removed from the record. A minimum passing grade of C is required for each course. The following grading system for individual graduate courses is used at the American University of Sharjah:

```
A equals 4.00 grade points
    Excellent
A- equals 3.70 grade points
B+ equals 3.30 grade points
B equals 3.00 grade points
    Meets expectation
    for graduate course
B- equals 2.70 grade points
C+ equals 2.30 grade points
C equals 2.00 grade points
    Below expectation
    for graduate course
F equals 0.00 grade points
    Fail
WF equals 0.00 grade points
    Withdrawal Fail
```


## Incomplete Work

In some circumstances, graduate students who are unable to finish a course may be permitted to complete it in the following semester. In the meantime, a grade of I (incomplete) is assigned for the course. Whether registered or not, students are responsible for making arrangements with the professor and the department of their major to complete the course before the end of the following semester. Otherwise, a tentative grade estimated on the basis of work already completed will be recorded. Failure to complete the course within the following semester will result in the grade being recorded as F unless a tentative grade has been previously reported.
Any instructor submitting an incomplete grade must also submit a form to the Office of the Registrar providing the following information:

- The valid reason for the incomplete
- The material that the student has not submitted
- The action necessary for removal of the incomplete
- The grade the student will receive if the outstanding work is not completed on time


## Probation, Dismissal and Repeats

If the student's cumulative grade point average falls below $B$ either in graduate work or in prerequisite course requirements, he/she will be placed on probation for one semester, during which time he/she must regain a cumulative GPA of 3.0. Failure to do so may result in dismissal from the program. A student must have a cumulative GPA of at least 3.0 to graduate with a master's degree. With the recommendation of the program director and the approval of the school /college dean, a graduate student may be allowed to repeat one course in which a grade of $\mathrm{B}-, \mathrm{C}+$ or C is received. This privilege may be exercised only once during the student's tenure in a graduate program. Both the original grade and the new
grade will appear in the transcript, but only the new grade will be calculated into the GPA. Normally, graduate students who receive an F in a graduate course will not be allowed to continue in the program.

## Withdrawal from the University

Students who are unable to complete a semester may be given permission to withdraw. They must acquire a withdrawal form from the Office of the Registrar, obtain signatures as indicated on the form, and return the completed form to the Office of the Registrar. The grades are either W or WF. No academic credit is given for courses from which a student withdraws.

## Readmission

A student who withdraws from the university and later wishes to return must apply for readmission. A student who has withdrawn in good standing and wishes to return to the university after an absence of not more than two semesters may apply for readmission to the Office of the Registrar. After longer absences or for students who were not in good standing when they withdrew, the admissions process must be reinitiated through the Office of Admissions. The application must be made before the appropriate application deadline, and the applicant must meet all the admission requirements prevailing at the time of readmission. Readmission is not granted automatically.

## Application for Graduation

Upon the completion of all the degree requirements, students must apply for graduation in the Office of the Registrar. Students must have completed all courses, have achieved the required minimum cumulative GPA of 3.00 and have paid all fees.

## Programs of Graduate Studies

The graduate programs currently offered at AUS are:

## College of Arts and Sciences

- Master of Arts in Teaching English to Speakers of Other Languages
- Master of Arts in Translation and Interpreting
School of Architecture and Design
- Graduate Certificate in Heritage Resource Management
- Graduate Certificate in Urban Planning
- Master in Urban Planning


## School of Business and Management

- Master of Business Administration
- Executive Master of Business Administration
School of Engineering
- Graduate Certificate in Engineering Systems and Management
- Graduate Certificate in Mechatronics
- Master of Science in Mechatronics Engineering
Please refer to the appropriate graduate program for full description and details of the particular programs and courses.


## Advising

Each graduate student is assigned an academic advisor. Students are required to consult with their advisor on issues
regarding degree requirements, policies and procedures.
Some programs require that students have a graduate advisory committee, which has specific responsibilities identified by each graduate program in accordance with university policy. The committee oversees the preparation of the degree plan, proposals for professional projects and thesis research, and preparation and final examination of the scholarly work of the student, and will make recommendations to the school/college dean and Vice Chancellor for Academic Affairs regarding awarding of the master's degree.

## Independent Research

Some programs may require a graduate thesis, final project or their equivalent in partial fulfillment of program requirements. Please see the individual program descriptions for specific details.

## Qualifying and Exit Examinations

Some programs may require qualifying or exit examinations. Please see the individual program descriptions for specific details.

Time Limits on Duration of Study
Students in the graduate certificate

programs must complete their program requirements within five consecutive semesters from first enrollment at AUS. Students in the master's degree programs must complete their program requirements within five years from first enrollment at AUS. Students must register for at least three semesters to obtain a master's degree from AUS.

## Academic Integrity

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

## Academic Grievance Procedure

Graduate students are entitled to receive fair and equitable treatment from faculty and fellow students. In the event that a student seeks a reappraisal of a grade or wants to file a complaint against a faculty member or student, he/she can file a petition with the director of the program. Complete procedures are listed in the Graduate Student Manual.

## Graduate Policies and Procedures

The Graduate Student Manual provides further details on issues of academia, policies and procedures. Students are responsible for knowing and observing all procedures and requirements of graduate studies at AUS. A student is expected to be fully informed about his/her program of study and degree requirements.

# Graduate Programs 

## College of Arts and Sciences

## TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES (TESOL)

Maher Bahloul, Coordinator

The mission of the Master of Arts degree program in Teaching English to Speakers of Other Languages (MA in TESOL) program is to provide comprehensive study and practical opportunities at an advanced level to both experienced and novice English language teachers. Highly qualified, multi-culturally experienced faculty, research-based methodology, practical teaching experience and computerassisted learning provide a solid foundation for this program.
The program provides students with advanced practical, theoretical, and critical knowledge of language learning models and teaching methodologies for English instruction at different levels, primarily throughout the schools of the Gulf region. The core of the program leads to a comprehensive understanding of the forms and functions of English and relates pedagogical theories to English language teaching. This goal is reinforced by supervised teaching practice in real world classrooms.
The MA in TESOL program prepares its graduates to evaluate the effectiveness and validity of different teaching methodologies and testing procedures, develop or adapt materials for special teaching/learning situations, supervise classroom teachers, and assist in the administration of English as Second Language (ESL) programs.

## Admission Requirements

A CBT (Computer-Based TOEFL score) of 213 or higher with a minimum of 5 on the TWE (Test of Written English) are required. Only official ETS scores are accepted.
Applicants for the MA in TESOL must
hold a BA degree or equivalent bachelor degree from an accredited institution with a minimum grade point average of 3.0 (B average). Applicants receiving a BA in English/Linguistics within the last 10 years are granted full admission. All other bachelor degree holders are granted conditional acceptance pending completion of Introduction to Language Study (ENG 123) and Advanced English Grammar (ENG 501), with a GPA of 3.0 or higher. These courses are waived with a minimum of two years of full-time English language teaching in an accredited institution.

## Degree Requirements

The MA degree in TESOL is awarded after successful completion of 36 credits ( 12 courses) at the graduate level, inclusive of the research thesis.

## Required Courses

- ELT 511 Linguistics for ESL Teachers
- ELT 513 Language Acquisition and Development
- ELT 515 English Language Teaching Methodology
- ELT 517 Curriculum and Materials Development
- ELT 551 Language Testing and Evaluation
- ELT 553 Technology in the ESL Curriculum
- ELT 611 Classroom Research
- ELT 619 Practicum in TESOL
- ELT 695 Research Seminar


## Elective Courses

Students must select three courses from the list below, in consultation with their advisor.

- ENG 501 Advanced English Grammar
- ELT 504 Discourse Semantics and Pragmatics
- ELT 503 Contrastive Linguistics
- ELT 505 Culture and the Language Teacher
- ELT 521 Reading and Writing in ESL
- ELT 523 Bilingual Education
- ENG 531 Sociolinguistics
- ENG 594 Special Topics in Applied Linguistics


## Other Degree Requirements

The research thesis (ELT 699) must be prepared under close direction of a faculty supervisor on a topic related to some aspect of TESOL. It must be defended to the satisfaction of the thesis committee composed of three faculty members from the department of English.

## Advising

Students work closely with their advisor in selecting elective courses that address their individual needs. The advisor also encourages students to develop professional portfolios that include samples of selected work such as research papers, teaching reports, projects, and lesson plans.

TRANSLATION AND INTERPRETING

Said Faiq, Coordinator
Translation and interpreting services are in demand now more than ever as the world market expands and the trend toward globalization gathers momentum. The vital role that English continues to play in international communication and the growing impact of the Arab World on world affairs combine to create a demand for highly trained English/Arabic translators and interpreters.
The MA degree in English/Arabic Translation and Interpreting at AUS is designed to respond to these demands. The program aims to equip graduates from a variety of disciplines with highly specialized translation and interpreting skills in English and Arabic. The program also addresses the need for upgrading the skills of professionals who are already working as translators and interpreters. The courses are intended to produce graduates conversant with the various forms of translation and interpreting required in the complex web of communication. This diverse range of skills is placed within a general theoretical framework, which provides the student with the
conceptual tools to identify, analyze and resolve problems and develop a reflective approach to translation.

The MA program in English/Arabic Translation and Interpreting enables students to achieve a high level of competence in English/Arabic translation and interpreting, provides them with advanced training in translation and interpreting techniques, and helps them develop a thorough understanding of translation theory and its relevance to the practical concerns of translators. In addition, students can further develop their knowledge of academic writing conventions and research methods.

## Admission Requirements

Full admission to the program is granted to applicants who hold a BA degree or equivalent bachelor degree with an overall grade point average (GPA) of at least 2.75 (or equivalent) and 3.0 (or equivalent) in a relevant major from an accredited institution. In addition to the general admission requirements, non-native speakers of Arabic must hold a BA in Arabic.
A Computer-Based TOEFL (CBT) score of at least 213 (or equivalent score on an internationally recognized English language proficiency test) is required. Only official ETS scores will be accepted.
Special Admission status may be granted to applicants with a minimum overall GPA of 2.50 (or equivalent) with 2.75 (or equivalent) in the major, and at least three years of relevant practical experience in translation and/or interpreting. In such cases, the student must take Principles \& Strategies in Translation \& Interpreting (TRA 500) and Specialized Translation \& Terminology I (TRA 501), and must attain a GPA of 3.00 or above for that semester to achieve full admission and to be allowed to proceed.

## Degree Requirements

To graduate, students must complete all the requirements of the program, which consists of 36 credits inclusive of a research thesis.

## Required Courses

- TRA 500 Principles \& Strategies in Translation \& Interpreting•
- TRA 501 Specialized Translation \& Terminology I
- TRA 502 Specialized Translation \& Terminology II
- TRA 503 Theoretical Models of Translation
- TRA 505 Interpreting and the Profession
- TRA 507 Professional Trends in Translation
- TRA 556 Rhetoric for Translators
- TRA 558 Contrastive Linguistics
- TRA 695 Translation Research Seminar


## Elective Courses

Students must select two courses from the following list.

- ENG 501 Advanced English Grammar
- TRA 504 Discourse Semantics \& Pragmatics in Translation
- TRA 506 Theoretical Perspectives on Translation Quality Assessment
- TRA 508 Research \& Academic Writing
- TRA 610 Intercultural Communication


## Other Degree Requirements

The research thesis (TRA 699) must be prepared under close direction of a faculty supervisor on a topic within translation/interpreting studies.
Emphasis is placed on the theoretical and practical aspects of translating or interpreting. It must be defended to the satisfaction of the thesis committee composed of three faculty members from the department of English.

## School of Architecture and Design

## HERITAGE RESOURCE MANAGEMENT (HRM)

Samia Rab, Coordinator
Heritage Resource Management (HRM) is an emerging field that involves identifying, documenting, interpreting, safeguarding and preparing for public viewing and education the world's heritage resources, which range from works of art and artifacts to buildings and archaeological sites. It draws upon disciplines affiliated with natural sciences, arts and humanities, architecture and design.
The HRM program at AUS recognizes
the importance of safeguarding the region's built and movable cultural heritage. It addresses the regional need for educating professionals who can treat the heritage resources of their nations as economic assets, linking these resources to overall strategies for sustainable development based on cultural and ecological tourism. It aims to promote culturally and ecologically sustainable tourism in this vast region.
The Graduate Certificate Program in HRM strives to help students develop an understanding of the legal, historical, theoretical, and practical aspects of safeguarding historic resources and giving them a new lease on life. Students will also receive credentials required by international agencies that are participating in the massive task of reconstructing and safeguarding many decaying or destroyed artifacts, museums, buildings, urban areas and landscapes in this vast region.

## Admission Requirements

In addition to the university's general graduate admission requirements, full admission to the Graduate Certificate Program in HRM requires that an applicant must have received from an accredited institution a four-year university degree in HRM-related fields including architecture, interior design/architecture, engineering, archaeology, history, art history, planning, and tourism management. In addition, work experience is desirable but not required.

## Certificate Requirements

Graduates of the Graduate Certificate Program in HRM will require successful completion of 15 credits (five courses).

## Required Courses

- HRM 511 Research and Documentation
- HRM 521 History of Material Culture
- HRM 531 Theory \& Practice of Building Restoration
- HRM 571 Legal and Economic Issues in Architectural \& Urban Conservation
- HRM 594 Special Topics in Heritage Management
Courses are offered in the evening and/or weekends.


## URBAN PLANNING

Amer Moustafa, Director
Urban planning is concerned with creating better environments in which present and future generations live, work, entertain and engage in their customary community, social, religious and cultural activities.
Urban planning has its roots in architecture, engineering, public health, law, and the social sciences. Planners today combine design, analytical, and communication skills to help communities manage change. Urban planning entails taking concerted action by the government, private enterprise, and local communities toward achieving a common goal.

## Master in Urban Planning

The Master of Urban Planning program will provide professionals with outstanding, specialized graduate education that will enable them to undertake leadership roles in managing urban growth, prescribing urbanization policies, and advancing social development. The program seeks to empower students with the highest ethical standards compatible with values of local cultural settings, principles of social justice, and concerns for environmental protection and sustainability.

## Admission Requirements

The program admits students from all fields of study including, but not limited to, architecture, engineering, business, the humanities and the social sciences. The admissions committee shall be comprised of the Urban Planning Program Director and two faculty members who teach in the program, one each from the School of Architecture and Design and the School of Engineering. In addition to the university's general graduate admission requirements, an updated curriculum vitae (CV) must be submitted.

## Academic Load

The program currently offers two courses per semester. Courses are offered in the evening and/or weekends.

## Degree Requirements

Student must complete 48 credit hours
including an internship and a research thesis or a final project. In addition to the core course requirements, students will choose between two areas of concentration: Design of the Built Environment or Transportation Planning. Students must also take two free electives at the graduate 500 or 600 course level.

## Required Courses

Core Courses

- UPL 501 Fundamentals of Urban Planning
- UPL 541 Planning Theory \& Methods
- UPL 547 Research Methods and Analysis
- UPL 548 Environmental Planning
- UPL 550 Urban Economics \& Analysis
- UPL 556 Advanced Planning Tools: GIS Applications
- UPL 565 Land Use Planning Principles \& Practice
- UPL 667 Urban Planning Lab
- UPL 597 Planning Internship

Concentration: Design of the Built Environment

- UPL 582 Theory and Principles of Urban Design
- UPL 584 Urban Form Analysis
- UPL 686 Space, Society \& the Public Realm
Concentration: Transportation
Planning
- UPL 572 Urban Transportation Planning
- UPL 574 Urban Transportation Systems Analysis
- UPL 676 Transportation Systems Operations and Control


## Elective Courses

Students must select two courses from the list below, in consultation with their advisor.

- ESM 510 Economic Decision Analysis
- ESM 520 Management for Engineers
- ESM 530 Strategic Technology Management
- MBA 602 Managing People and Organizations


## Other Degree Requirements

In addition to the courses above, students must complete a Planning Internship (UPL 597). Furthermore, students must pursue either a final
project (UPL 698) or a research thesis (UPL 699) option.

## Academic Advising

Academic advisors are responsible for orienting, guiding, and following the student's progress. The advisor works closely with the student in selecting elective courses that address the student's individual needs. Upon completing 30 credits in the program and once a research topic has been identified for the final project or thesis, the program director will encourage the student to select a research advisor whose background and interests suit the research interest of the student. The role of the academic advisor will then be transferred to the research advisor. Both the academic advisor and the research advisor must be members of the Urban Planning Executive Committee (UPEC). The committee consists primarily of the faculty teaching in the graduate program. At least one member of the UPEC must be a School of Engineering faculty member.

## Graduate Certificate in Urban

 Planning
## Certificate Requirements

The Graduate Certificate in Urban Planning is comprised of 15 credits (five courses). Graduate Certificate students who wish to continue in the master degree in urban planning must have achieved a minimum cumulative grade point average of $B(3.0)$ in at least two consecutive semesters, and a Graduate Certificate overall grade point average of B (3.0). Students who do not wish to continue in the Master's Program in Urban Planning will receive a Graduate Certificate in Urban Planning upon the completion of all requirements.

## Required Courses

- UPL 501 Fundamentals of Urban Planning
- UPL 541 Planning Theory \& Methods
- UPL 550 Urban Economics \& Analysis
- UPL 556 Advanced Planning Tools: GIS Applications


## Elective Courses

Students must select one of the courses
listed below, in consultation with their advisor.

- UPL 572 Urban Transportation Planning
- UPL 582 Theory and Principles of Urban Design


## School of Business and Management

## MASTER OF BUSINESS <br> ADMINISTRATION

## J. Reagan McLaurin, Director

The AUS Master of Business Administration program (MBA) is committed to the idea of helping individuals in the Gulf region to think and act globally and integrate knowledge into problem solving. The program provides advanced management education in an environment that encourages students to extend their leadership capabilities. It is built on the premise that up-to-date expertise is what gives knowledge workers a value-added capacity in a knowledge-based economy. Through this program, students are prepared for careers in management and leadership positions in both the private and public sectors. Students will acquire a comprehensive foundation in the fundamentals of business in the global environment in which they function. They will also learn the skills and analytical tools for effective communicating and decision-making.
AUS faculty worked in close cooperation with the American University of Washington, D.C. to design the program. Individual participation is emphasized through class discussions, case study methodology, and interaction and cooperation with other students in the class.
Graduates of the MBA program are prepared to identify, analyze and understand the interrelationships among business organizations and international and domestic institutions in the UAE and throughout the world. Students also develop an awareness of societal and environmental needs and concerns as they relate to ethical, professional and
socially responsible business practices.

## Admission Requirements

Admission to the MBA program is on a case-by-case basis. In addition to meeting the university's requirements, applicants must meet the specific requirements of the MBA. Admission to the program normally requires an acceptable score on the Graduate Management Admission Test (GMAT). This score is then matched to the student's undergraduate grade point average for the last two years of study. The resulting score will determine if an applicant will be admitted to the program. GMAT scores more than five years old will not be accepted. The test may be administered locally.

## Special Admission

Special admission is limited and difficult to receive. In addition to the university requirements for special admission, the MBA program only allows students to take two graduate courses under the special admission status. During the semester in which they have special admission status, applicants must satisfy all requirements for the MBA program. Failure to do so will result in the student being unable to take any further courses in the MBA program and possible termination from the program.

## Waiver Policy

Students may qualify to waive up to 18 credits (six courses) from the foundation courses (see Degree Requirements). In general, a course may be waived if the student has completed comparable course work at the undergraduate level. Students may be required to submit course documentation. Waivers are only granted after an official, sealed transcript is received by the AUS Office of Admissions. The waiver rules are:

- Students may waive foundation courses if two similar undergraduate courses have been taken at an accredited university within five years prior to admission to the AUS program with a minimum grade of $B$.
- Students with professional experience and/or holders of commonly recognized certificates, e.g., CPA or CFA, indicating
mastery of a given foundation course content, may be granted a waiver.


## Academic Load

An MBA student can register for up to nine credits per semester. Upon a student's request, the Program Director can approve additional three credits if the first semester in the MBA program has already been completed, and the cumulative GPA is 3.5 or above. Courses are offered in the evenings and/or weekends.

## Grade Policy

The MBA program follows the university graduate program guidelines in terms of grading. A 3.0 cumulative GPA is required to graduate. In addition to university guidelines, the following rules apply:

- A student is allowed to receive two Cs ( C or $\mathrm{C}+$ ) in courses in the MBA program. If the student receives a third C oe $\mathrm{C}+$, he/she is automatically dismissed from the program.
- A student who receives an F in any course in the MBA program is automatically dismissed from the program.


## Continuous Enrollment

Students are expected to maintain a continuous enrollment until they complete the program. If a student cannot attend a particular semester, it is expected that he/she will enroll in the Matriculation course (MBA 630) to maintain an active status in the program. Failure to enroll will result in the dismissal of the student from the program and the student will be required to re-apply for admission back into the program. Due to space limitations in the MBA program, a student who is dismissed for failure to enroll in MBA 630 cannot be assured of reinstatement.

## Degree Requirements

The degree is composed of 48 credits (16 courses). Eighteen credits (six courses) comprise the foundation courses and 30 credits ( 10 courses) comprise the core courses.
The MBA program can be completed in 24 months, including summers, if all the foundation courses are required and 15 months if all the foundation courses are waived.

## Foundation Courses

- MBA 601 Managerial Economics
- MBA 602 Managing People and Organizations
- MBA 603 Accounting Concepts and Applications
- MBA 604 Applied Managerial Statistics
- MBA 605 Financial Management
- MBA 606 Management Information Systems


## Core Courses

- MBA 608 Professional Communication
- MBA 610 Business Research Applications
- MBA 611 Advanced Financial Management
- MBA 612 Leadership and Change
- MBA 613 Accounting for Management
- MBA 614 Marketing Management
- MBA 615 Innovation and Entrepreneurship
- MBA 616 International Electronic Commerce
- MBA 617 Ethical and Legal Issues
- MBA 620 Strategic Management in the 21st Century


## Elective Courses

With permission from the Director of Graduate Programs, students may replace core courses with elective courses in the areas of finance, marketing or management.

- MBA 630 Matriculation
- MBA 632 Securities Analysis
- MBA 633 Financial Futures and Derivatives
- MBA 650 Internet Marketing Management
- MBA 655 Internet Marketing Project
- MBA 670 Entrepreneurship and New Venture Management
- MBA 672 Managing a Family Business
- MBA 696 Special Topics in Business


## Other Degree Requirements

Students are required to submit a thesis project reflecting various crossdisciplinary aspects covered throughout the MBA program as part of the Strategic Management in the 21st Century course (MBA 620).

## Advising

The MBA Graduate Programs office provides advising to students
throughout the program through the director and coordinator. Additionally, the graduate committee will provide assistance in advising as required. The graduate committee consists of faculty members who teach in the MBA program and are appointed on a yearly basis. They provide assistance to the director in admissions, advising, curriculum and other related matters.

## EXECUTIVE MASTER OF BUSINESS ADMINISTRATION

J. Reagan McLaurin, Director

For today's professional manager, a credible Executive Master of Business Administration degree (EMBA) is evidence of specialized knowledge, a sign of recognition by the profession and an indication of commitment to continued learning. It is also a gateway to corporate leadership.
The AUS EMBA has been uniquely designed by the American University of Sharjah faculty working in close cooperation with the American University of Washington, D.C.
The program uses instructional technology and is highly interactive in nature. It provides participants with a rigorous, though relaxed, learning environment and a chance to build long-lasting relationships with colleagues. International learning resources will be tapped in a manner that will maximize their applicability to the local management community.
The EMBA program prepares individuals to analyze and understand the interrelationships among business organizations and international and domestic institutions in the UAE and throughout the world. It also provide students with an executive-level business education that helps them to deal with global competition, capitalize on business opportunities, benefit from advanced technologies, and engage in strategic alliances.

## Admission Requirements

This program is designed for experienced managers. Admission is highly competitive and each cohort in the program is limited to 15 members.

The admission review takes into consideration academic and employment information, giving special attention to professional accomplishments and potential for growth within an organization. Most participants have earned bachelor's degrees in business administration. Some hold advanced degrees in other fields. All have demonstrated an ability to sustain intensive, graduate-level work. Under certain circumstances a standardized examination, such as the GMAT and/or TOEFL, may be required and may be administered locally. A resume must be submitted along with the application form and other university-required documents.
Applicants who are admitted will be required to pay a non-refundable deposit to secure a seat in the program. This deposit will be applied to the total cost of the first three quarters of the program. If the deposit is not received within two weeks of acceptance, the position may be passed to the next successful candidate.

## Waiver Policy

Waivers are granted on a case-by-case basis.

## Transfer Policy

No transfer credits are accepted for the core courses.

## Academic Load

The EMBA program can be completed in 24 months if the foundation courses are required and in 15 months if the foundation courses are waived. Two courses ( 6 credits) are completed each quarter ( 10 -week period) and classes are held every other weekend. Each year contains four quarters, usually with a four-week break between each quarter.

## Grade Policy

Grading is on a pass/fail basis. EMBA participants who receive a failing grade in the program are dismissed automatically. If an EMBA participant is unable to complete the course requirements, he/she may request a course grade of Incomplete (I) from the Program Director. If approved, the student must make arrangements with
the director for an independent study. EMBA participants are allowed no more than two incompletes during their entire program. Incompletes are to be satisfied within the subsequent twocourse segment. If the incomplete requirements are not satisfied, the grade will become an $F$ and the student will be withdrawn from the EMBA program.

## Degree Requirements

The degree is awarded upon successful completion of 48 credits ( 16 courses). Eighteen credits (six courses) comprise the foundation courses and 30 credits (10 courses) form the core courses inclusive of a final project. Foundation courses may be waived based upon academic and professional experience.

## Foundation Courses

- EMB 701 Economic Analysis in an Interdependent Environment
- EMB 702 Theories of Management and Organizational Behavior
- EMB 703 Financial Management I (Accounting)
- EMB 704 Information Systems Strategy
- EMB 705 Marketing Management
- EMB 706 Financial Management II (Finance)


## Core Courses

- EMB 710 Analytical Methods
- EMB 711 Corporate Finance
- EMB 712 Management in the International Environment
- EMB 713 Investment Analysis
- EMB 714 Advanced Systems Strategy and Implementation
- EMB 715 Entrepreneurship
- EMB 716 E-Commerce
- EMB 717 Corporate Communication Strategy
- EMB 718 Strategic Management
- EMB 719 Capstone: A Diagnostic Practicum


## Other Degree Requirements

EMBA participants are required to do a comprehensive, integrative project that reflects their work in the program.
Students must register for Capstone: A Diagnostic Practicum (EMB 719). The results of the project are presented to
faculty at the end of the final term in the program.
Since each course taught at the EMBA level requires significant use of computerbased instruction, Internet and video technologies, all students are required to have access to a PC and the Internet.

## Advising

The Program Director serves as the primary advisor to the participants in the EMBA program. Additionally, the graduate committee will provide assistance in advising as required. The graduate committee consists of faculty members who teach in the Graduate Programs and are appointed on a yearly basis. They provide assistance to the director in admissions, advising, curriculum and other related matters.

## School of Engineering

## ENGINEERING SYSTEMS AND MANAGEMENT (ESM)

## Ibrahim Al Kattan, Director

Engineering Systems and Management (ESM) is a multidisciplinary program dedicated to integrating management skills with technical knowledge from different engineering disciplines for the purpose of accomplishing work activities and entire projects more economically and productively.
ESM encompasses the integration of system elements to manage work activities and projects in the public and private sectors. Students learn about making decisions that meet quality and funding goals while adhering to technical specifications and timeline requirements.
The primary mission of the ESM program is to significantly increase the opportunities for practicing, degreed engineers working in engineering management and in systems engineering positions to be successful in their efforts to build effective teams, lead and manage major engineering projects, and expand economic development for the private and public sectors of UAE and the Gulf region countries.

## Admission Requirements

In addition to fulfilling the AUS admission requirements for graduate studies, applicants must hold a BS degree in an engineering discipline from an accredited institution. Degreed individuals in closely related fields to engineering or a quantitative science may be considered on a case-by-case basis. Applicants with bachelor's degrees in technology (or less than four years of university-level work) are not normally admissible to the program. Applicants are also required to document at least one year of professional experience in an engineering or closely related field that has provided good professional experience in design, analysis, management, research, technical sales or another relevant dimension of engineering practice.

## Certificate Requirements

The Graduate Certificate in ESM is comprised of at least 15 credit hours. A student must complete the certificate requirements within two years from the time of initial enrollment into the program.

## Prerequisite Course

- ESM 500 Statistical Methods for Engineers
In special cases, ESM 500 may be waived by the Program Director upon the student passing a two-hour comprehensive exam with a minimum grade of B . This waiver must be completed prior to the student registering for the first semester.


## Required Courses

- ESM 510 Economic Decision Analysis
- ESM 520 Management for Engineers
- ESM 540 Modeling and Simulation
- ESM 550 Information Technology for Engineering Managers


## Elective Courses

Additionally, students must select one of the following courses.

- ESM 530 Strategic Technology Management
- ESM 560 Quality Engineering and Management
- ESM 570 Project Management


## MECHATRONICS

Mohammad Jarrah, Director
Mechatronics is the synergistic application of the latest techniques in precision mechanical engineering, control theory, computer science, and electronics to the design process to create more functional and adaptable products. Jobs considered as mechatronics are based on the multidisciplinary aspects of electrical, mechanical, control, computer, and software engineering. The unique skills of the mechatronics graduate are becoming increasingly valuable to employers in a variety of areas, including modern industrial installations and systems, computer integrated manufacturing systems, maintenance diagnosis and troubleshooting, defense systems, vehicle design and manufacturing, robotics and much more.

## Master of Science in Mechatronics

The Master of Science in
Mechantronics provides students with
state-of-the-art knowledge in their areas of specialization and strategies for adapting that knowledge to serve the specific needs of the region.
Multidisciplinary engineers are needed now more than ever to meet the demands for a flexible engineering workforce to deal with highly integrated engineering systems.
The Mechatronics program responds to the growing need for integration and interdisciplinary education. It is committed to the idea of offering individuals in the Gulf region the opportunity to acquire the necessary skills to face the challenges of modernization.

## Degree Requirements

Graduate students must file formal study plans with their advisor and school upon the completion of 12 credits of approved courses. The formal program of study must include a minimum of 30 credit hours and completion of a thesis or research project.
Each student must propose and complete
a scholarly work that is pertinent to mechatronics and his/her selected area of specialization. There are two options to accomplish this: the thesis program, which requires coursework, a written thesis and an oral defense of the results; or a non-thesis option, which involves two design projects and presentations on the results.
Both degrees normally take 24 months to complete, and must be completed within four years. The minimum residency requirements are three consecutive academic semesters of fulltime study (nine credits per semester) and research at AUS while registered as a graduate student.
Both options require students to take four core courses ( 12 credit hours) with a minimum cumulative GPA of B. Up to two courses may be transferred from another program or institution with the permission of the academic advisor, the Mechatronics graduate committee, and the Dean of Engineering. Prerequisite discipline-bridging courses may be taken at the senior undergraduate level and should be approved by the Mechatronics graduate committee. Both options also require students to take a minimum of 12 additional credit hours with at least three courses at the 600 level with a cumulative grade of B.

## Prerequisite Discipline-Bridging Courses

- MTR 505 Applied Electrical and Electronics Systems (Students with a BS in Electrical Engineering are exempted.)
- MTR 510 Applied Mechanical Systems (Students with a BS in Mechanical Engineering are exempted.)
- MTR 515 Information Technology for Mechatronics (Students with a BS in Computer Engineering are exempted.)


## Core Courses

Students must complete 12 credit hours from the following courses.

- MTR 500 Advanced Engineering Mathematics
- MTR 520 Embedded Systems for Mechatronics
- MTR 600 Modeling and Simulation of Dynamic Systems
- MTR 605 Advanced Digital Signal Processing and Control Systems
- MTR 695 Mechatronics Seminar


## Elective Courses

Students must take a minimum of 12 credit hours with at least three courses at the 600 level.

- MTR 530 Power Electronics and Electrical Drives
- MTR 535 Electro-Pneumatic and Hydraulic Systems
- MTR 540 Advanced Industrial Instrumentation and Control
- MTR 610 Automated Manufacturing Systems
- MTR 615 Artificial Intelligent Systems
- MTR 620 Machinery Dynamics and Vibration
- MTR 625 Distributed Control Systems
- MTR 630 Real-Time Robotics Systems
- MTR 635 Smart Structures
- MTR 690 Special Topics


## Other Degree Requirements

## Thesis option

Students must complete a program of research culminating in a thesis (six credits) that makes a contribution to the area of knowledge in which the work is carried out. Students will be supervised by a faculty member or committee with a main advisor to supervise the research topic. The research advisor is appointed no later than the end of the student's second semester.
Students must pass a final oral thesis presentation exam with at least a grade of B.

## Design projects option

Students must complete two comprehensive design projects for 3 credit hours each. The first project is during the first year of the program and the second project is during the final semester. A faculty member will supervise students. Projects are strongly encouraged to be industry related and developed through an industrial partner.
Students must pass a final oral project presentation exam with at least a grade of B.

## Advising

The MS committee formed for the student will be comprised of three faculty members, including the thesis advisor or project advisor. For students who selected the project option and whose work is accomplished with an industrial or municipal partner, a representative from the sponsoring organization is appointed as a full member of the committee. The committee, under the chair of the dean or a designate, shall be responsible for the following approvals:

- Degree plan
- Project plan or thesis proposal describing the research to be performed
- Project reports and presentations, or thesis document and defense

The committee chair recommends the student for graduation when all requirements have been completed. This recommendation is presented to the Mechatronics faculty committee, the Dean and to the Vice Chancellor for Academic Affairs.

## Graduate Certificate in Mechatronics

## Certificate Requirements

The Graduate Certificate in Mechatronics is comprised of 18 credits (six courses) inclusive of a comprehensive design project.
Graduate Certificate students who wish to continue in the master degree in mechatronics must have achieved a minimum cumulative grade point average of B (3.0) in at least two consecutive semesters, and a Graduate Certificate overall grade point average of B (3.0). Students who do not wish to continue in the Master's Program in Mechatronics will receive a Graduate Certificate in Mechatronics upon the completion of all requirements.

## Core Courses

- MTR 515 Information Technology for Mechatronics
- MTR 520 Microprocessors Based Mechatronics Systems
- MTR 590 Mechatronics Design

Additionally, students must select one of the following courses depending on their background.

- MTR 505 Applied Electrical and Electronics Systems (for non Electrical Engineering students)
- MTR 510 Applied Mechanical Systems (for non Mechanical Engineering students)


## Elective Courses

Students must select two courses from
the list below, in consultation with their advisor.

- MTR 500 Advanced Engineering Mathematics
- MTR 535 Electro-Pneumatic and Hydraulic Systems
- MTR 540 Advanced Industrial Instrumentation and Control.

Other Certificate Requirements
Students must complete a design project through the required course
Mechatronics Design (MTR 590).


## RESEARCH CENTERS

## Mechatronics Center

Mohammad Jarrah, Director
Modern engineering systems combining computer technology and precision mechanical engineering are rapidly revolutionizing many aspects of engineering product design, monitoring and diagnostics, and automated manufacturing. Responding to this challenge, School of Engineering has established a Mechatronics Center in July of 2001. The mission of the center is to assume a leadership role in research and development of advanced engineering systems and High-Tech technology transfer to the region. The Mechatronics Center, first of its kind in the region, seeks to promote multidisciplinary research activities among faculty and supports the first in the region Mechatronics Master of Science program. The Center aims to provide services to and to cooperate with industry and government agencies where extensive synergic integration of instrumentation, control systems, electronics, intelligent software, and computers is required.
The objective of the center is to provide expertise in the following areas: Modern industrial installations and systems, Computer integrated manufacturing systems, Maintenance diagnosis and troubleshooting, Defense systems, Micro-electro- mechanical systems, all vehicles manufacture and design, Robotics, Electrical control and drives, Software Development, Electrical consumer goods, Food processing, Automated production systems, Sales and marketing.

## Institute of Materials Systems

## Adil Al-Timimi, Director

The Institute of Materials Systems (IMS) of the School of Engineering was established on June 2001 based on the region's need and recommendation of Ministers for Public Works \& Housing in the GCC. It is a Multidisciplinary Institute involving the

School of Engineering and School of Architecture and Design. IMS collaborates with both governmental and private sectors concerned with materials research and applications in UAE, to provide technical advice \& consultations, conduct applied research and deliver seminars on materials related issues. The main focus of IMS is on quality control, performance, standard procedures and assurance for materials such as aggregate, cement, steel, fibers, additives, admixtures, asphalt, rubber, polymers, composites and soil that are being used in the region. It is anticipated that the Institute will play a significant role toward the development of materials systems, application of new technologies and standards for both conventional and innovative materials and composites in UAE.

IMS's objectives are:

- Conduct scientific research focused on materials properties and applications taking into consideration the harsh environment in the region.
- Take an active role with related governmental departments in the establishment of Local/Regional code of practice.
- Provide an independent technical testing, evaluation and advice services on materials related issues to private sectors and public community.
- Enhance materials education for undergraduate and postgraduate levels. through, seminars, conferences, new courses and graduate programs.
- Establish partnership with governmental and public sectors.
- Establish collaboration with similar worldwide centers of excellence.


## Institute of Urban and Regional

 Planning and Design
## Amer Moustafa, Director

The Institute of Urban and Regional
Planning and Design (IURPD) was founded in May 2001 through a directive by the AUS Board of Trustees, IURPD is a university-wide, interdisciplinary academic unit whose primary mission is to promote the
education, research, training, and practice of urban planning and urban design. The institute strives to advance urban planning as it relates to the local culture and identity of the UAE and the Arab Gulf region, and it seeks to promote sustainability as integral to all activities pertinent to urban planning and urban design.
The basic objectives of IURPD are to:

- Advance the production and accumulation of knowledge in urban and regional planning and urban design;
- Develop and offer educational and training opportunities in the field of urban and regional planning and urban design to meet the increasing demand for specialized professionals in these fields;
- Cooperate with local governmental, not-for-profit, non-governmental, and private agencies concerned with urban planning and development in areas of mutual interest with the intent of advancing the quality of practice and research;
- Advance the public discourse on urban planning through the initiation and/or participation in public forums (seminars, conferences, symposia) dealing with urban planning and urban development matters;
- Increase the public's awareness and interest in urban planning and urban design through pursuing public outreach programs and engagement in mass media opportunities.


## College of Arts and Sciences

## ELT

## TESOL

## ELT 503 Contrastive Linguistics.

(3-0-3). Deals with how English and Arabic compare and contrast at various levels of linguistic organization: phonology, morphology, syntax and semantics. A discourse pragmatic perspective, together with a functional approach to the lexico-grammar, is promoted throughout to enable students look at the way texts are organized functionally.
ELT 505 Culture and the Language Teacher (3-0-3). Examines the relationship between language, society, and culture. It investigates how teaching and learning a second language is affected by factors such as verbal and nonverbal behaviors, assumptions, values, identity, worldviews, expectations, communication styles, and conflicts. In addition, students examine methods and approaches for crosscultural research.
ELT 511 Linguistics for ESL Teachers (3-0-3). (formerly ENG 511). Investigates areas in linguistics relevant to ESL teachers. Students examine key linguistic concepts and definitions in phonetics, phonology, morphology, syntax and semantics and their applications to teaching and learning English. The course explores ways of using research and generalizations derived from linguistics to inform teaching practice.
ELT 513 Language Acquisition and Development (3-0-3). Focuses on processes involved in understanding and producing language, and investigates the relationship between linguistic and cognitive development. It critically examines current research trends in first and second language acquisition and examines individual and social factors affecting language development and learning. Students explore how research in this area can be applied in ESL classroom contexts.

## ELT 515 English Language Teaching

 Methodology (3-0-3). Critically examines traditional and contemporary approaches to English language teaching. Aspects of classroom practice are analyzed, including teacher and learner roles, classroom management, and teaching the language skills integratively and separately. Opportunities are offered to observe applications of classroom pedagogy, to survey and create ESL materials, to evaluate textbooks, and to adapt authentic texts to the ESL classroom. Prerequisite: ELT 511.
## ELT 517 Curriculum and Material

 Development (3-0-3). Introduces students to principles of ESL course design and examines the stages of developing and evaluating learning centered curricula and materials. Topics covered include analyzing student needs, defining program missions, setting goals and objectives, assessing resource needs, selecting appropriate content, methodology, materials and texts for a given instructional setting, and evaluating course effectiveness. In addition, students examine course syllabi reflecting various pedagogical approaches (e.g., notional-functional, content-based, communicative, situational, and task-based and so on) along with their theoretical bases and then design relevant materials. Prerequisite: ELT 511.ELT 521 Reading and Writing in ESL (3-0-3). Discusses various theoretical models dealing with teaching literacy skills in a second language to children and adults. Students examine processes and strategies involved in second language reading, writing, and learning and explore ways to apply them for effective language instruction. Prerequisite: ELT 513.
ELT 523 Bilingual Education (3-0-3). Reviews different models of bilingual education and issues in bilingualism. Students discuss ways of achieving a
balanced bilingual education system by examining the challenges posed by cultural and linguistic diversity in a bilingual education setting. Prerequisite: ELT 513.
ELT 551 Language Testing and Evaluation (3-0-3). Reviews the fundamental goals, principles, standards and uses of language assessment and language assessment research. Students examine the factors involved in assessing proficiency in second language skills and in selecting testing instruments and evaluation tools appropriate for various age groups, competency levels, skills and purposes. Prerequisites: ELT 517.

## ELT 553 Technology in the ESL

 Curriculum (3-0-3). Introduces students to a wide range of current applications of technology in the English language classroom and focuses on creating innovative and successful ESL teaching and learning environments using computers and other technologies.Various technologies, such as computer software, Internet and electronic communication applications for the ESL classroom, are demonstrated and discussed. In addition, students are provided with theoretical and pedagogical standards for evaluating these technologies, as well as strategies for integrating these applications in their classrooms. Students also become familiar with current research into the issues and considerations behind integrating technology into English language learning. The central focus of the course will always be on the pedagogical rationale for the use of media in a particular lesson. Prerequisite: ELT 517.ELT 611 Classroom Research (3-0-3). Reviews ESL classroom-based research as a means of understanding how instruction and learning take place. Students examine research topics such as teacher talk, wait time, conversational repair, error correction,
learning strategies and feedback. They are introduced to research approaches including interaction analysis, ethnographic classroom observation, action research and quantitative analysis. Prerequisites: ELT 513.

## ELT 619 Practicum in TESOL

(3-0-3). Provides the opportunity to observe, explore, and implement effective teaching ideas. Students experience applying theoretical knowledge to teaching practice, design lesson plans and classroom activities, select teaching materials, and monitor and assess students' progress at different age levels. Students attend weekly seminars to discuss their classroom experiences and reflect on their personal growth as English language teachers. Prerequisite: ELT 515 and ELT 517.

## ELT 695 Research Seminar (3-0-3).

The Research Seminar is for all Masters students nearing the conclusion of their program of studies, and who are about to commence work on their thesis. It allows them to share what they have learned throughout the course as they develop their thesis proposals. Students further refine their research skills, learn appropriate presentation formats and enhance their professionalism in a supportive environment. Prerequisite: ELT 551, ELT 553.
ELT 699 Master Thesis (0-0-0). The thesis must be prepared under close direction of a faculty supervisor on a topic related to some aspect of TESOL. It must be defended to the satisfaction of the thesis committee composed of three faculty members from the department of English.

## ENG

English
ENG 501 Advanced English Grammar (3-0-3). Provides an intensive investigation into contemporary English structure, function and meaning. It also analyzes how structure types and sentence relationships are realized in various texts and genres. In addition, the course discusses issues relative to descriptive/prescriptive approaches to language.

ENG 531 Sociolinguistics (3-0-3). Examines the relationship between language and society at both macro and micro levels. It also studies the methods and techniques used in sociolinguistic research and analysis. A major component of the course looks at the implications of sociolinguistic research on the teaching of English as a foreign or second language. Topics to be covered include communication styles, registers, language variation, teaching language in various social contexts, speech acts and conversing, bilingualism, diglossia, language and gender, ethnography and ethnomethodology, politeness and solidarity, language maintenance and language shift. Prerequisite: ENG 511.

## ENG 594 Special Topics in Applied

 Linguistics (3-0-3). Focuses on a range of issues relevant to the preparation of second language teachers by addressing topics in linguistics and their application to teaching a second/foreign language. Given the wide scope of the field, the approach adopted in this course is an eclectic one, whose main objective is to examine ways to make research findings in linguistics applicable to language teaching/learning situations. Emphasis may change each semester. Prerequisite: ELT 513.
## TRA Translation and Interpreting

## TRA 500 Principles and Strategies in

 Translation \& Interpreting (3-0-3). Provides advanced training in principles and methods of translation and interpreting from English to Arabic and vice versa. A variety of text types are covered, ranging from legal to journalistic genres.
## TRA 501 Specialized Translation \&

 Terminology I (3-0-3). Provides focused training in the translation of texts in the fields of international relations, law and journalism (social sciences and the humanities). from and into English and Arabic. The treatment of such texts is guided by theoretical input covered in TRA 500 and more importantly by inputfrom the area of Terminology and its application in these fields. Prerequisite and/or concurrent: TRA 500.

TRA 502 Specialized Translation \& Terminology II (3-0-3). Provides focused training in the translation of texts in the fields of business, science and technology from and into English and Arabic. The treatment of such texts is guided by theoretical input covered in TRA 500 and more importantly by input from the area of Terminology and its application in these fields. Prerequisites: TRA 500 and TRA 501.

## TRA 503 Theoretical Models of

Translation (3-0-3). Provides the students with a conceptual map of translation studies, and outlines the various theoretical approaches to translation equivalence. Students are introduced to the range of factors, which govern the process of translation, and to the theoretical underpinnings, which have motivated different attitudes to translating and translations. Prerequisites: TRA 500 and TRA 501.
TRA 504 Discourse Semantics and Pragmatics in Translation (3-0-3). The course is intended to address the needs of the practising translator and interpreter within a discourse framework. Advanced training in semantics and pragmatics is provided, and linguistic analysis in these domains is re-considered from the vantage point of cross-cultural communication. Prerequisites: TRA 500 and TRA 501.
TRA 505 Interpreting $\&$ the Profession (3-0-3). Provides the students with highlevel training in those interpreting skills most relevant to the translator at work. Advanced training in liaison and consecutive training is provided with a focus on professional standards and community needs. Theoretical insights into the process of interpreting are presented and placed within an overall, practice-driven model of the process. Prerequisites: TRA 500 and TRA 501.

## TRA 506 Theoretical Perspectives on

 Translation Quality Assessment (3-0-3). The course is designed to enable students both to achieve competent standards of translation and to reflect on the process of deriving texts from English or Arabic.Emphasis will be placed on texts with a persuasive function in professional settings such as journalism, advertising and translation for the media.
Prerequisites: TRA 503.
TRA 507 Professional Trends in the Practice of Translation (3-0-3). Builds on the theoretical principles introduced so far, and deals with the constraints within which translations are made. Linguistic, cultural and translation-professional norms are explained and related to the work of the professional translator. Prerequisites: TRA 500 and TRA 501.
TRA 508 Research \& Academic Writing (3-0-3). The course is designed with the dual purpose of introducing the students to the conventions of academic writing in both English and Arabic, and of promoting an 'action research' stance. These research skills are applied to the work of the translator and interpreter both as practitioners and as analysts.
Prerequisite: TRA 500 and TRA 501.

## TRA 556 Rhetoric for Translators

(3-0-3). Surveys the various traditions within both English and Arabic grammar and rhetoric. This is related to the concerns of the translator in dealing with modern standard Arabic and English composition. A text-linguistic model rooted in rhetorical thinking is developed and applied particularly to the translation
of sacred and sensitive texts. Prerequisite: TRA 500 and TRA 501.
TRA 558 Contrastive Linguistics (3-
0-3). Deals with how English and Arabic compare and contrast at various levels of linguistic organization: phonology, morphology, syntax and semantics. A discourse pragmatic perspective is promoted throughout to enable students look at the way texts are organized functionally. Prerequisite: TRA 556.
TRA 610 Intercultural Communication (3-0-3). Provides an in-depth view of the way in which cultures influence communication. Topics covered include perception differences, worldview, identity, verbal and non verbal communication styles in both high and low context cultures, and the effect of bias and conflicting value systems on crosscultural communication.
TRA 694 Special Topics (1 to 4 credits). The course and subject matter is announced in the university course listings each semester. May be repeated for credit. Prerequisites: Permission of program director.
TRA 695 Translation Research Seminar (3-0-3). The Research Seminar is for all Masters students nearing the conclusion of their program of studies, and who are about to commence work on their thesis. It allows them to share what they have
learned throughout the course as they develop their thesis proposals. Students further refine their research skills, learn appropriate presentation formats, and enhance their professionalism in a supportive environment. Prerequisite: TRA 558.
TRA 696 Independent Study ( 1 to 4 credits). A theoretical or practical project initiated by an individual student and conducted under faculty supervision beyond what is offered in existing courses. Prerequisites: Permission of program director.
TRA 699 Master Thesis (3-0-3). The Master thesis is an extended piece of individual research (10,000-12,000 words) on a topic within translation/interpreting studies and chosen in consultation with the thesis faculty supervisor. Emphasis is placed on the theoretical and practical aspects of translating or interpreting. The thesis must be completed within two consecutive academic semesters. An extension may be allowed if a candidate presents acceptable mitigating circumstances. The thesis is defended to the satisfaction of a committee composed of three faculty members. Candidates must pass this examination of the thesis by at least a grade B . Prerequisite: Permission of Program Director.

## School of Architecture and Design

## HRM Heritage Resource Management

## HRM 511 Research and Documentation

(3-0-3). An introduction of: a) methodologies for documenting artifacts and conducting reconnaissance surveys; b) emerging technologies in recording heritage resources (includes 3 weeks of workshops on MultiGin, Photogrametry, and GIS); standards recommended by UNESCO and the US National Park Service of safeguarding heritage resources; c) strategies for identifying, recording and interpreting distinctive features of heritage resources (includes
basic instruction on preparing a registration form for historic property listing, inventory forms). Prerequisite: admission to program.
HRM 521 History of Material Culture
(3-0-3). A survey of history, theory and study of material culture, with focus on ancient civilizations, development of the discipline of archaeology, and the origins of modern concerns with protection of heritage resources.Course provides a historical context within which the earliest archaeological sites and agricultural settlements in this region developed, examining the rise, spread, and impact of Islam in the region's material culture, and
assessing the state of cultural heritage in the contemporary period. Prerequisite: admission to program.

## HRM 531 Theory \& Practice of

 Building Restoration (3-0-3). Examines theories and practices of restoration, with focus on inherent behavior of architectural structures and strategies to detect and resist building failure. Includes study of traditional building materials, technologies and tools, and strategies for rehabilitating historic buildings after natural disasters and/or destruction caused by war or human conflict. Field demonstrations related to building diagnostics, analysis, and prevention of further deterioration.Prerequisite: admission to program.
HRM 571 Legal and Economic Issues in Architectural \& Urban Conservation (3-0-3). Surveys constitutional, statutory and legal theories, financial incentives, national and international laws, planning, and management of heritage management projects. Discusses architectural and urban impact of regulatory and aesthetic zoning, planning and design, and the strategies to develop heritage destinations for culturally and ecologically sensitive tourism.
Prerequisite: admission to program.

## HRM 594 Special Topics in Heritage

 Management (3-0-3). An introduction to critical issues in Heritage Management through case studies and collaboration with local and regional organizations. Course illustrates fundamental issues that heritage managers will encounter in their professional career. Includes hands-on participation in different aspects of a local restoration project, site accessibility proposal plan, or museum exhibition design and implementation. Examines implementation of project planning and budgeting, research, documentation, and code issues. Prerequisite: admission to program.
## UPL Urban Planning

## UPL 501 Fundamentals of Urban

 Planning (3-0-3). Introduction to the discipline of urban planning. Surveys the history of the field as well as its links with other fields of environmental studies such as architecture, urban design, geography, engineering, etc. Overviews what planners do and the tools they use in their practice.UPL 541 Planning Theory and Methods (3-0-3). Explores the theoretical foundations of planning and its associated methods. Examines the basic theoretical framework that fosters good planning practice. Reviews the classical theoretical paradigms of planning, examines the major roles played by practicing planners, and looks at the application of theory in dealing with such issues as community development, environmental protection, economic policies and social equity.
UPL 547 Research Methods and Analysis (3-0-3). An introduction to the quantitative and qualitative methods and
techniques used in urban planning research and practice. Analytic approaches include research design, multivariate regression, survey research, case study research, evaluation and graphic data presentation. The emphasis is on methods in the context of planning and urban policy research. Prerequisites: UPL 501 and UPL 541.
UPL 548 Environmental Planning (3-03). Comprehensive overview of the field of environmental planning and how it relates to efforts intended to manage, organize, and protect environmental resources. Addresses principles of sustainability, ethics, and the law in relation to land, air, water, and other natural resources. Prerequisites: UPL 501, UPL 541, UPL 550, UPL 556.

## UPL 550 Urban Economics and

 Analysis (3-0-3). Examines the economics of cities and urban problems. We will undertake economic analysis of the location and growth of urban and regional areas with emphasis on public policy issues.It discusses land-use patterns, measurement and change in regional economic activity, and urban problems such as transportation, housing, poverty, and crime. Special attention is placed on local fiscal behavior, overlapping jurisdictions and the provision of local public goods, and intergovernmental fiscal relations. Prerequisites: UPL 501 and UPL 541.UPL 556 Advanced Planning Tools: GIS Applications (4-0-3). Provides an introduction to the Geographic Information Systems concepts, capabilities, and applications. The course focuses on developing the skills required to use GIS tools to analyze geographic data. Issues of data input, data models, spatial analysis, and data output will be discussed. By the end of the course, students will have a good understanding of GIS development, capabilities, and potentials for socio-economic and urban planning studies. Prerequisites: UPL 501 and UPL 541.

UPL 565 Land Use Planning Principles and Practice (3-0-3). Examines various theoretical and practice-based approaches to land use planning. Overview of the various social, economic, political, and
legal influences on land use and the planning process and application appropriate to balance such influences. Prerequisites: UPL 501 and UPL 556.
UPL 572 Urban Transportation Systems Planning Techniques (3-0-3). Covers 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 and evaluation of alternatives. Prerequisites: UPL 501 and UPL 541.

## UPL 574 Urban Transportation Systems

Analysis (3-0-3). Focus on using quantitative techniques for modeling system performance and design transportation services. Application of network analysis to transportation problems. Analytical approaches to the formulation of network equilibrium assignment problems and solution algorithms, with emphasis on alternative assumptions on user behavioral process; introduction to dynamic assignment. Prerequisites: UPL 572.
UPL 582 Theory and Principles of 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 context. Prerequisites: UPL 501 and UPL 541.

## UPL 584 Urbanism and Urban Form

Analysis (3-0-3). Examines urban form elements, patterns, and evolution. Focuses on the forces that have shaped cities in history and analyzes contemporary trends that impact urban formation and regeneration. Explores methods of urban morphological analysis as related to urban design. Special attention is placed on the study of cities of the Middle East and Islamic societies. Prerequisites: UPL 582.as

UPL 597 Planning Internship (0-0-0).
Consists of 8 weeks ( 320 hours) of approved internship. At the end of the internship, student must submit a report of the internship work experience. Course is offered on a pass/fail basis. Prerequisites:

UPL 501, UPL 541, UPL 550, UPL 556, and either UPL 572 or UPL 582.

UPL 667 Urban Planning Lab (12-0-6). Application of substantive skills in urban planning. Focuses on comprehensive planning exercises for an urban area in the UAE/Gulf region, involving fieldwork and hands-on analysis and application.
Emphasizes the methods and tools of preparing plans. Addresses development of baseline data; analysis of existing conditions; identification of strategic planning and development issues; forecasting of future conditions; review of development goals, objectives and policies; development and synthesis of alternative plans; evaluation of alternatives; and development of implementation strategies and programs. Prerequisites: UPL 548.

UPL 676 Transportation Systems Operations and Control (3-0-3). Introduces operational, control, and analysis of arterial and freeway traffic systems. Control concepts, detectors, local controllers, and advanced traffic measurement technologies. Characteristics of traffic stream: speed-flow-density, traffic volume, traffic accidents, travel time and delay, parking, capacity and level of service of freeways, signalized intersections, at-grade intersection design. Design of traffic control devices and information systems for streets and highways. Prerequisites: UPL 572 and UPL 574.
UPL 686 Space, Society, and the Public Realm (3-0-3). Explores the nature of urban space and its role in the social being. Focuses on the potentials of space
as a tool in shaping the public realm nurturing citizenship. Examines critical issues of globalization and the transforming role of space in the postindustrial, informational city. Prerequisites: UPL 584.
UPL 698 Project (0-6-6). Introduces advanced methodologies in urban planning through an open-ended, in-depth project of significance to urban planning. Prerequisites: approval of advisor.
UPL 699 Thesis (0-6-6). An independent original research conceived and developed by the student and guided by an advisor and a reader. Student must integrate, synthesize, and apply concepts, ideas, and/or theories from course work. Prerequisites: approval of advisor.

# School of Business and Management 

## EMB Executive Business Administration

EMB 701 Economic Analysis in an Interdependent Environment (3-0-3). Presents basic tools used for market analysis and managerial decision making, including the behavior of firms and consumers, and the analysis of pricing policies. Emphasis is placed on economic applications in the financial, industrial, and service sectors. The course also examines the underlying forces that contribute to the present economic climate in the domestic and global arenas.
EMB 702 Theories of Management and Organizational Behavior (3-0-3). This course focuses on current organizational issues that have a direct impact on management in various industries. The emphasis is on human development issues and the development of effective work elements, as well as the personnel concerns that must be resolved for successful leadership. Topics cover organizational structure and design, leadership, motivation, organizational development, ethics, and social
responsibility of business.

## EMB 703 Financial Management 1

(Accounting). (3-0-3). Covers financial and managerial accounting concepts and models. The course focuses on the use of accounting to support human resource management, financing policy and management, financial disclosure, valuation of resource allocation, planning, capital management, production, costing, marketing, control, and performance evaluation decisions.

EMB 704 Information Systems Strategy (3-0-3). The objective of this course is to give the student knowledge about the way organizations use information systems to improve their own operations, to improve decision making, knowledge utilization and communication, and/or to add value to their products and services. The issues that will be addressed are: Identifying opportunities where IT can make a difference for a firm; the role of information systems in a firm's corporate strategy; information technology architecture; measuring the benefits/value of investments in information systems; electronic commerce; how information
systems impact organizations and individuals; how organizations can use information technology to add value to their products and services; the ethical, social and organizational issues raised by information systems.
EMB 705 Marketing Management (3-03). This course centers on the marketing concepts and its impact on strategic decision- making processes. A study of the functions and basic concepts of marketing goods and services is presented. Product, pricing, promotion, and distribution decisions are major topics. Emphasis is on the application of the strategic marketing process in the turbulent global business environment. Other topics include demand measurement, market segmentation, buyer behavior, and global marketing strategies.
EMB 706 Financial Management 2
(Finance). (3-0-3). A study of the theoretical and practical approaches to effective financial management. Planning, analyzing and controlling investment, and short and long term financing are examined for decision-making purposes. Emphasis is placed on the application of these methods in the aviation-related
industries. Topics include, but are not limited to, capital budgeting, risk and diversification, asset liability management, airport financing, aircraft financing, and international finance. Prerequisites: EMBA703.
EMB 710 Analytical Methods (3-0-3). This course utilizes descriptive and inferential analytical techniques for business applications. Topics include estimation of quantitative and qualitative population parameters, hypothesis testing, Analysis of Variance, Chi-Square, simple and multiple linear correlation and regression analysis and linear programming.
EMB 711 Corporate Finance (3-0-3). This course covers the theory and practice of financial management of firms. Techniques of capital budgeting under certainty and uncertainty are presented. Valuation of projects is emphasized Other topics include theory of capital structure; cost of capital; mergers and acquisitions, etc.
EMB 712 Management in the
International Environment (3-0-3). This covers topics in international management including cross-cultural issues that are evaluated from the perspective of interpersonal relationship in a diverse domestic and foreign environment, and in the context of evolving global trends. Managing workforce diversity is examined from culture-based and comparative perspectives. A critical review of the trends and issues. challenging the corporate manager in a global environment will be undertaken.
EMB 713 Investment Analysis (3-0-3). The courses examines the role and functioning of securities market, security valuation techniques, and the theory and practice of portfolio management. The management of an actual portfolio of investments is one of the main features of this course.
EMB 714 Advanced Systems Strategy and Implementation (3-0-3). This is an integrative study of the functions and responsibilities of top management and the strategies that affect the character and success of companies, especially those operating in a developing economy. The course, conducted by case study and assigned readings related to various
industries, is problem oriented to develop the viewpoint of top management charged with responsibility for the enterprise as a whole.
EMB 715 Entrepreneurship (3-0-3). Participants study how to identify and evaluate entrepreneurial and entrepreneurial opportunities in the inner and outer environments and in a global context. Applications cover the creation and management of stand-alone ventures and those developed within corporations. Various simulation and case study techniques are employed to provide the student with an entrepreneurial environment.
EMB 716 E-Commerce (3-0-3). An overview course that examines how the internet and the world wide web. are used for marketing and business purposes. Students will study well established US and UAE companies that have established a marketing presence on the internet. Projects include building a web site to market a specific product and establishing a simulated business on the Internet.

## EMB 717 Corporate Communication

 Strategy (3-0-3). This course focuses on written and oral communication aspects of the participants. Emphasis is placed on the use of technology in business communication. Topics include effective business writing, presentation, listening, and negotiating skills. Stressed will be the study and practice of advanced techniques of argumentative writing.EMB 718 Strategic Management (3-03). Integration of knowledge in functional areas of business and in the simulation of management experiences. Various methods of simulating a management environment are employed, including live case studies from a number of industries and computerized management problems. Topics covered are SWOT analysis, goalsetting, planning systems, and organizational control.
EMB 719 Capstone: A Diagnostic Practicum (3-0-3). A capstone activity course that develops diagnostic skills and the ability to apply management concepts and theories to concrete, real life situations. Participants, working with a faculty advisor, define, research, examine, and analyze a business problem in their
own unit, and present a written and oral report of the project.

## MBA <br> Master of Business Administration

## MBA 601 Managerial Economics (3-0-

3). Application of economic theory to management problems, using basic economic tools and techniques of economic analysis to analyze decisionmaking problems faced in private businesses, government agencies and nonprofit organizations.

## MBA 602 Managing People and

 Organizations (3-0-3). Incorporating current management theory and research, the course looks into the factors that influence individual and group performance. Topics discussed range from individual attitudes and motivation to leadership, change, culture and organizational structure.MBA 603 Accounting Concepts and Applications (3-0-3). Addresses the use of accounting as a management tool, including the strengths and limitations of accounting as an information system. Financial and managerial aspects of accounting with focuses on the underlying concepts of accounting, the role of accounting in management planning and control and the usefulness of accounting data for evaluating the results of operations and decision making.
MBA 604 Applied Managerial Statistics (3-0-3). The decision-aiding tools that can be applied by managers to gain insight into decision problems range from simple graphic displays of data to sophisticated statistical tests. Students use real-world data sets and PC- based software to describe sets of measurements, construct probability distributions, estimate numerical descriptive measures and build multiple regression models. Prerequisite: a college-level finite mathematics course is highly recommended.
MBA 605 Financial Management (3-0-
3). Financial theory and techniques of analysis, including valuation theory, theories of risk measurement, managing a firm's investment decisions and capital structure, sources of financing for a firm,
and financial planning and analysis. Prerequisite: MBA 601, MBA 603, and MBA 604.
MBA 606 Management Information Systems (3-0-3). Provides the theoretical, technological, practical and managerial foundations of management information systems. Includes: information technologies, systems development, the impact of information systems on business organizations, information technology as a competitive tool, and the management of information systems within domestic and multinational corporations. Introduces students to current systems and software.
MBA 607 Business Communication (3-
$\mathbf{0 - 3}$ ). This course focuses on the written and oral communication aspects of the participants. Emphasis is placed on the use of technology in business communication. Topics include effective business writing, presentation, listening, and negotiation skills. Stressed will be the study and practice of advanced techniques of argumentative writing. Required only from students admitted in 2003/2004.

## MBA 608 Professional Communication

 (1-0-1). Focuses on effective communication skills of business professionals. Emphasis is placed on the use of technology in 21st century business communications. Topics include effective business writing, presentation, and negotiation skills.
## MBA 610 Business Research

 Applications (3-0-3). Introduces the student to the basic tools of business research by explaining various research methodologies and techniques. Numerous illustrations, portraying actual research in management, marketing, finance, accounting and other areas of business, show how to perform the research function. Prerequisite: MBA 604.
## MBA 611 Advanced Financial

Management (3-0-3). This course examines, at an intermediate level, the problems of managing short-term assets including cash, marketable securities, accounts receivable and inventory, managing the acquisition and disposal of long-term assets, and financing decisions including leverage, leasing, mergers and international issues. Students become
familiar with both the basic theories in each of these areas and various strategies for integrating the theory with practice. Prerequisite: MBA 605.
MBA 612 Leadership and Change (3-03). The role of leadership is investigated in the context of global change. Particular attention is given to leadership issues as they pertain to organizational development, culture and the dynamics of change. Prerequisite: MBA 602.
MBA 613 Accounting for Management (3-0-3). Explains the role of accounting information in facilitating the functions of management. Topics covered are decisionmaking, planning, performance evaluation, budgeting, cost control and international transfer prices. Prerequisite MBA 603.

MBA 614 Marketing Management (3-0-
3). An introduction to current marketing management techniques and the tools necessary for effective marketing decision-making. Provides global perspectives on marketing management and international marketing issues. Interactive learning techniques include the case method and active class participation. Issues including ethics, minorities and the ecological environment are incorporated. Course content requires familiarity with microeconomics theory, basic concepts of accounting and Quattro-Pro (or a similar spreadsheet program). Prerequisite: MBA 601.

## MBA 615 Innovation and

Entrepreneurship (3-0-3). The practices and techniques used to stimulate and sustain innovation and the entrepreneurial spirit are considered. The process of new venture formation and the issues involved are examined in both the contexts of existing firms and free-standing new ventures. Prerequisite: MBA 602, MBA 605 and MBA 614.
MBA 616 International Electronic Commerce (3-0-3). International Electronic commerce is the conduct of intra-organizational transactions, messages and inquiries through purely electronic means, as opposed to paper and/or voice. This course presents a survey of consumer and business-to-business electronic commerce models, systems and technical
solutions. Includes hands-on projects and assignments. Prerequisite MBA 606.
MBA 617 Ethics and Legal Issues (3-0-
3). An intensive introduction to the legal and ethical issues confronting the global business manager. This course addresses the legal system, legal processes and several areas of substantive commercial law relevant to the business manager. In addition, it discusses the developing recognition of legal and ethical issues, and their managerial implications. Examines product liability, the administrative legal process of regulation, antitrust and the contract as the fundamental legal instrument of global commercial relations.
MBA 618 Strategic Management in a Global Environment (3-0-3). Focuses on developing and applying strategic management to successfully position organizations in a competitive global environment. Course is integrated with previous course experiences to hone decision-making, analysis, and oral and written communication skills. Students work in small teams to analyze a real company's external environment, perform an internal corporate audit and build detailed action plans including implementation issues and financial forecasting. Prerequisite: MBA 610, MBA 611, MBA 612, and MBA 615.
MBA 620 Strategic Management in the 21st Century (5-0-5). Focuses on developing and applying strategic management to successfully position organizations in a competitive 21st century environment. The course is integrated with previous course experiences to hone decision-making, analysis, and oral/written communication skills. Students will prepare and present a major business research project that requires analysis of a company's external environment, detailed internal corporate audit and build detailed action plans including implementation issues and financial forcasting. Required from students admitted Fall 2003 onwards. Prerequisite: MBA 610, MBA 611, MBA 612 and MBA 615.
MBA 630 Matriculation (0-0-1).
Students admitted into the MBA program and not attending the current semester
(Fall or Spring). must register for the Matriculation course in order to hold their position in the MBA program. Failure to do so will result in the loss of their admission into the program. Students will then have to re-apply to the program. This course does not generate credits for graduation.

MBA 632 Securities Analysis (3-0-3). The purpose and operations of security markets; investment instruments and their characteristics; introduction to portfolio and capital market theory; theory of valuation, bonds and the term structure of interest rates; options, commodity and financial futures, investment companies; and international investments. Prerequisites: MBA 605.
MBA 633 Financial Futures and Derivatives (3-0-3). A comprehensive study of equity and debt-based futures and other derivative instruments. The functioning of options and futures markets and the role the market participants will be discussed. Derivative instruments will be analyzed with a focus on pricing, hedging techniques, and arbitrage applications. Prerequisites: MBA 632.
MBA 650 Internet Marketing Management (3-0-3). Gives students insight on using the Internet as an
implementation tool for business and marketing strategy. Provides a cursory overview of Web and commerce technologies, but the focus of the course is on marketing applications of the Internet, including distribution, commerce, advertising, public relations, and other "stakeholder" relations. A technical background is not required, but students develop an understanding of technical aspects of the Internet relating to marketing strategy. Prerequisites: MBA 601 and MBA 616.
MBA 655 Internet Marketing Project (3-0-3). Student teams analyze Internet marketing opportunities facing a client firm and develop a strategic marketing plan. Issues assessed include the firm's Internet and technological capabilities, stage of Internet development Internet marketing objectives, stakeholder concerns, creation and maintenance of the Web site, nature of the marketing offer, and communication, pricing, and service objectives. Prerequisites: MBA 601 and MBA 616.
MBA 670 Entrepreneurship and New Venture Management (3-0-3). Identifies entrepreneurship characteristics, and success and failure factors. Explores entrepreneurship and new venture-
management elements essential to the development of a new venture plan and the initial launching of new ventures. Students develop a new venture idea/opportunity and complete a written business plan that could be presented to a venture capitalist, banker, or other party for funding consideration. Successful strategies for managing and harvesting the new venture are developed. Prerequisites: MBA 602 and MBA 605.

## MBA 672 Managing a Family Business

(3-0-3). This course addresses issues facing family enterprise, a unique subset of entrepreneurial, small, and growing businesses. Family business issues, family business systems, family members as employees, boundaries, and succession issues are dealt with. Cases and empirical studies engage students in family business experiences. Prerequisites: MBA 602 and MBA 605.
MBA 696 Special Topics in Business (1 to $\mathbf{4}$ credits). This course will vary on credit hours ranging from one hour to three hour credit. Special research topics may be proposed by students and accepted by faculty for oversight. These will then be approved by the Director of Graduate Programs and the Dean.

## School of Engineering

## ESM <br> Engineering Systems Management

## ESM 500 Statistical Methods for

Engineers (3-0-3). Covers the principles and methods of statistics as applied to engineering systems and management. Topics include probability, sample statistics, confidence intervals, and introduction to quality control for product acceptance and process control.

## ESM 510 Economic Decision Analysis

(3-0-3). Covers economic decision
analysis and accounting/finance fundamentals for engineering projects and management. It also covers time value of money and the effects of interest; project cost estimation; alternative evaluation methods; make/buy decisions; replacement studies; and project selection under limited budget. In addition, fundamental principles of accounting, indirect cost distribution, and financial analysis are covered. There is an extensive use of spreadsheets and case studies
ESM 520 Management for Engineers (3-0-3). This is the foundational engineering management graduate
course. It treats a range of integrated topics for individuals in both public and private sector organizations who coordinate and manage engineering projects, personnel, resources and systems. Professional practice topics include human resources, communication skills, leadership styles, team building, total quality management, principles of project management, and the fundamentals of organizational development and performance evaluation. Management needs in multicultural and multi-national environments are also considered. An important aspect
of this course is to integrate core management principles with engineering experiences using case studies and applications.

## ESM 530 Strategic Technology

Management (3-0-3). Gives students a broad overview of the main topics encompassed by management of technology. It includes technical managerial challenges which are presented by new technologies in the context of engineering systems, and development and implementation of technological strategies to create competitive advantages. Innovative activities beginning with research and development and extending through production and marketing will also be presented. Focus is on the emergence of the knowledge economy and technology as a key knowledge asset. Technological innovation, technological forecasting, technological impact identification, and technology assessment and evaluation. Case studies. Prerequisite/concurrent: (ESM 510 and ESM 520) or (MBA 601 and MBA 302).

## ESM 540 Modeling and Simulation

(3-0-3). Covers the concepts and principles associated with systems modeling and simulation using contemporary software such as simulation with ARENA. Topics include probability and statistics review, modeling techniques including problem formulation, and queuing theory; discrete event simulation modeling. Students become experienced with the state-of-the-art simulation and modeling software reflecting the joint nature of these activities in good simulation studies, and continuous simulation of industrial and manufacturing systems using ARENA Team project included. Prerequisite: ESM 500.
ESM 550 Information Technology for Engineering Managers (2-3-3). Introduces information systems; classifications; components; management, telecommunication and networks. It overviews hardware, technologies and protocols, network planning and management, network security. Design and implementation of database systems; internet and world wide web, Web design,
and E-commerce.
ESM 560 Quality Engineering and Management (3-0-3). Covers the techniques and applications of quality control, total quality management and reliability engineering. Sampling procedures; data patterns; product quality and control of engineering materials. Statistical process control: charts and troubleshooting. Product acceptance sampling plans, process capability analysis, an introduction to total quality management, reliability principles and analysis, time-to-failure, failure rate, and reliability determination, and component and system reliability will be covered. Prerequisite: ESM 500.
ESM 570 Project Management (3-0-3). Application of management techniques related to the unique nature of projects. The course examines the elements of project management critical to the success of projects; project management framework, project life-cycle, scope management, time management, cost management, project controls and earned value, use of project management software. The principles and tools are integrated and clarified through case studies from a variety of disciplines and through creation of project management plans developed by students working in teams.
ESM 595 Seminar (1-0-1). This is a series of seminars presented as project and/or case studies by professionals. The purpose is to stimulate the understanding and integration of managerial tools and engineering management into the UAE environment. This is an opportunity to present industrial case studies by experts in the area of engineering systems and management.
ESM 630 Advanced Economic Decision Analysis (3-0-3). Covers advanced topics in engineering economy. Effects of inflation and taxes, treatment of depreciation, risk and uncertainty, cost estimation, indirect cost allocation, and life cycle cost analysis. It also covers value engineering and its application. Case studies and a project are included.
ESM 632 Applied Operations Research (3-0-3). This is a course for the
quantitative management decision skills. Topics include formulation of mathematical model, solution using linear programming, sensitivity and cost analysis of developing alternative optimum solutions, inventory control, production planning and control, management resource planning, forecasting and stochastic modeling. Team-based design project

## ESM 636 Human Resources

 Management for Engineers (3-0-3). Introduces current trends, practices and methodology of Human Resources Management (HRM). and planning as related to the engineering profession and conduct of business. Topics include: human resources planning process, tools and techniques, job specification and methods of job analysis. Legal requirements and ethical context of HRM. Methods of recruitment, evaluation, career training and development programs, salary systems and employee benefits, HR information systems, and international HR issues. HR management practices and methodologies are integrated with engineering experiences. Prerequisite: ESM 520.ESM 638 System Optimization and Decision Analysis (3-0-3). Covers theory and practice of analyzing decisions in the public and private sectors. Multiple objectives; influence diagrams; decision trees; sensitivity analysis; probability assessment; multi-attribute utility; human biases are covered. Practical applications through real world systems model building are described and conducted. Use of decision analysis software and spreadsheets to solve real life problems through case studies are covered.
ESM 640 Logistics Management (3-0-3). Offers an overview of supply chain management (SCM), an integration of purchasing, operations, logistics, management of physical warehouse, documentation and information flows within the supply chain cycle. Topics include: supply chain management purposes and processes; supply chain design, evaluation and measurement models; trends in strategic operations, procurement, and logistics within the
supply chain. Case studies in logistic modeling for diverse distributors.
ESM 644 Financial Management for Engineers (3-0-3). This course is designed for understanding, recording and analyzing financial information, cost concepts, cost behavior and cost accounting. Cost-volume-profit analysis and leverage, capital budgeting for profit planning; financial planning and forecasting are covered. In addition, risk and return, portfolio theory and asset pricing models, multinational and international finance are covered.

## ESM 650 Construction Management

(3-0-3). Covers application of construction management techniques related to the unique nature of construction projects. Elements of construction management; construction delivery systems; partnering and subcontracting; cost estimating and scheduling; contract administration and control techniques. In addition, construction quality control, construction safety, use of construction contract control software are covered. Case studies from the construction industry.
ESM 652 Construction Planning and Scheduling (3-0-3). Covers the application of planning and scheduling techniques related to the unique nature of construction projects. Elements of project planning and scheduling critical to the success of construction projects; Work Breakdown Structures (WBS); network modeling, activity on arrow techniques; Critical Path Method; Program Evaluation and Review Techniques; project monitoring and control; earned value; use of construction planning and scheduling software. Case studies from the construction industry.
ESM 654 Materials Management (3-0-
3). Covers applications of management skills on construction materials, site, personnel, planning process, information systems, expediting and quality assurance, purchasing, logistics, materials control, electronic data management, bar coding, and materials selection and specifications.
ESM 660 Application of Construction Law (3-0-3). Introduces construction contracts and their administration with special emphasis for engineering.

Construction claims; matters of time, delays and litigation. Professional topics include: analysis of specific issues concerning contracts, subcontracting, tort claims, insurance and bonds. Strategies for avoiding or terminating litigation. Methods of dispute resolution, key aspects of prosecuting and defending claims, role of dispute review boards and their use and procedures of claims presentation Conduct cost evaluation of claims. Methods of international construction contracts. Actual legal cases involving construction and law are covered. Prerequisite/concurrent: ESM 650.
ESM 662 Construction Business Operations (3-0-3). Examines the elements of construction contracting critical to the success of construction businesses. Business ownership, company organization, insurance, labor law, business methods, accounting and cost keeping systems, budgeting, and financial management. Case studies from the construction industry.

## ESM 664 Infrastructure Systems

 Maintenance and Management (3-0-3). Explores civil infrastructure facility and asset management as comprehensive systems with emphasis on transportation and building structures. It includes needs assessment, information management, inservice monitoring and condition evaluation, performance modeling, life cycle cost and benefits analysis, prioritization and optimization. The course also covers planning, scheduling and coordination of maintenance activities.
## ESM 666 Advanced Construction

Materials Management (3-0-3). Covers an inventory management for construction materials, operational plan and forecasting supply and demand for the construction materials, construction facilities and handling of materials on site. It also covers applications of Research and Development (R\&D). and IT in construction materials management, handling of construction materials waste and planning for codes and specifications. Prerequisite: ESM 654.
ESM 668 Engineering Safety and the Environment (3-0-3). Provides an overview of safety, health, and environmental concerns in the engineering
worksite. Physical, chemical, and radiological hazards. Regulatory responsibilities. Safety audits. How to create a safe workplace. Environmental audits. Pollution prevention.
ESM 694 Special Topics (3-0-3). Selected topics that meet student interest and reflect recent trends in the area of engineering systems and management.
ESM 698 Professional Project (1 to 6 credits). Approved professional project for completion of the MS degree. A selected area of engineering management and systems engineering is chosen for the project. A report and final presentation to the Advisory Committee are required.

## ESM 699 Research (1 to 6 credits).

Research in the disciplinary areas that encompass systems engineering and engineering management. This course is taken during the planning and completion of the thesis for the MS degree. Conduct of the course and credits taken in a semester are determined by the faculty advisor and the degree candidate. A thesis and final defense to the Advisory Committee are required.

## MTR Mechatronics

MTR 500 Advanced Engineering
Mathematics (3-0-3). Analysis of linear and nonlinear physical systems equations of motion (ODEs and PDEs). Partial differential equations of mathematical physics: wave, diffusion, Laplace, Poisson Equations. Transform and integral methods for solving boundary and initial value problems. Numerical methods for ordinary and partial differential equations. Prerequisite: admission to program.
MTR 505 Applied Electrical and Electronics Systems (3-1-3). Covers operational amplifiers and their applications, power amplifiers and switches, DC and AC motors, digital systems, electronic CAD tools. Prerequisite: admission to program.
MTR 510 Applied Mechanical Systems (3-0-3). Covers modeling of thermal and fluid systems. Kinematics and dynamics of machinery, CAD tools for mechanical systems. Prerequisite: admission to program.
MTR 515 Information Technologie for

Mechatronics (3-1-3). Computer organization, Operating systems, Computer Networking (LAN \& WAN), internet programming and application: web-base monitoring. Prerequisite: admission to program.

## MTR 520 Embedded Systems for

 Mechatronics (2-3-3). Explores microprocessor hardware and software modules. Microcontroller's hardware and software architectures, Microcontrollers programming and interface with real-time Mechatronics systems. Data acquisition units, designing stand-alone embedded systems for Mechatronics products. Case studies and course projects. Prerequisite: admission to program.
## MTR 530 Power Electronics and

 Electrical Drives (3-0-3). Gives an overview of power electronic systems, energy conversion and electric power conditioning. Analysis and applications of various energy conversion processes: AC power controllers, controlled rectifiers, and DC choppers, DC-AC converters, operation of DC machines and AC Drives. Prerequisite: MTR 505.
## MTR 535 Electro-pneumatic and

 Hydraulic Systems (2-3-3). Explores fluids and fluid flows in high performance actuators and controllers, power flow and fluid power elements, valve and pump control, linear and rotary motion, state space descriptions. Design of electrohydraulic position and velocity control servo-mechanisms for high performance with stability. Prerequisites: MTR 505 or MTR 510.
## MTR 540 Advanced Industrial

 Instrumentation and Control (2-3-3). Covers signal conditioning. Grounding and cabling. Data acquisition. Continuous and discrete-time signals. Fourier representation of signals. The DiscreteTime Fourier Transform. Linear time invariant systems modeling. FIR and IIR digital filters. State variable models. Design of control systems in state space. Full state observers, reduced order observers. Simulation and animation of dynamic systems. Programming of PLC systems. Introduction to DCS. Introduction to SCADA systems. Prerequisite: admission to program.MTR 590 Mechatronics Design (2-3-3).
(formerly MTR 525). Individual and team projects involving the development and integration of hardware and software into a "smart" system, which includes the sensing, processing, and controlling functions. Prerequisite: MTR 520.

## MTR 600 Modeling and Simulation of

 Dynamical Systems (3-0-3). Introduction to multi-domain systems. Mechanical, thermal, fluid, electrical, electronic, and electro-mechanical system dynamics, emphasis on modeling and simulation of hybrid systems using computer-aided tools. Prerequisites: MTR 500
## MTR 605 Advanced Digital Signal

 Processing and Control Systems (3-0-3). Z-transform. Estimation of signals in noise. Short time Fourier Transform. Wavelet Representation of signals. TimeFrequency State-variable representations. Systems modeling. Digital compensator design. Pole placement, state estimation, and optimal linear quadratic regulation. Non-parametric control. Prerequisites: MTR 500, MTR 520.
## MTR 610 Automated Manufacturing

Systems (3-0-3). Description and demonstration of automated machine tools and machining cells. Machining center configuration and operation, machine tool controller, machining code generation, inprocess sensing and control, cell controllers, and system simulation. Prerequisites: MTR 520.
MTR 615 Artificial Intelligent Systems (3-0-3). Biological and Cognitive Paradigms, Concepts of Machine Intelligence, Intelligent Agents, Vision and Image Analysis, Principles of DecisionMaking, Fuzzy Logic, Decision Trees, Case-based Reasoning, Genetic Algorithms, Neural Networks, Expert systems. Prerequisites: MTR 515 and MTR 520

## MTR 620 Machinery Dynamics and

 Vibration (3-0-3). Machinery vibration analysis: signature analysis in time and frequency domains, fault detection, diagnosis, and correction; instrumentation; case studies; machine monitoring programs. Prerequisites: MTR 500.MTR 625 Distributed Control Systems (3-0-3). Distributed computer systems architecture. System elements. Data communications links. Software
algorithms. Reliability. Applications. Prerequisites: MTR 500.

## MTR 630 Real Time Robotics Systems

 (2-3-3). Components of Robot Systems, Analysis and design of modern robotic and industrial control systems, Hardware and software. Computational methods and techniques used in vision-based robotics. Real-time embedded control, optimization techniques, matrix analysis, and analytic 2D/3D geometry. Prerequisites: MTR 500, MTR 520.MTR 635 Smart Structures and Sensor Fusion (3-0-3). Basic material properties, models, active and sensory material systems. Health monitoring approaches to detect damage in a structure. Applications of smart materials primarily for vibration and pointing control. Finite element models with piezoelectric elements use in sensor selection and actuator. The design of feedback and adaptive feed-forward control algorithms. Implementation of sensor, actuator, and control electronics. Prerequisites: MTR520.
MTR 691 Mechatronics Design Project (0-6-3). This is an extended project of interdisciplinary nature. Elements of computing, mechanics, and electronics should be involved. Prerequisites: MTR 600.

MTR 694 Special Topics (3-0-3).
Selected topics that meet student interest and reflect recent trends in the field of mechatronics. Prerequisites: Approval of advisor.
MTR 695 Mechatronics Seminar (1-00). Seminar on project planning development and realization, case studies of engineering systems design and realization, current research topics in mechatronics engineering including areas such signal processing, image processing, control, robotics, intelligent systems, computer vision, MEMS. Prerequisites: Approval of advisor.
MTR 699 Master Thesis ( $\mathbf{1}$ to 6 credits). The mechatronics thesis is an extended investigation having original contribution to the field of study. Elements of computing, mechanics, and electronics, and intelligence should be involved. Prerequisites: Approval of advisor.



# The Continuing Education Center 

Director<br>Bashir AboLail

The Continuing Education Center (CEC) provides access to the educational resources of AUS and offers quality educational and training programs to meet the ongoing professional needs of the United Arab Emirates' workforce and adult community. CEC offers programs, workshops, seminars, conferences, and various other educational and training opportunities, both on AUS's Main Campus, Al-Buhaira Site, and in different locations around the Emirates. CEC provides a unique combination of experienced personnel, excellent facilities, and the latest technology available in the Emirates.

## Professional Certificate Programs

Certificate programs offer concentrated study to help you become specialized in your field without having to meet the extended requirements of a standard degree program. Earn a certificate to learn more about a subject, become expert in an emerging field, or boost your career. The programs are abbreviated enough to easily fit into the schedule of a busy professional, but thorough enough to give you a deep knowledge and understanding of the subject matter as well.
These programs include a wide range of professional disciplines such as business administration, sales and marketing, accounting, finance, computers, human resources, professional English, and French. The professional certificate programs utilize a modular approach to learning that is directly applicable to the workplace. These modules allow individuals to access different aspects of various disciplines while simultaneously building practical skills. By successfully completing a specified number of independent modules, individuals will earn an AUS Continuing Education Center certificate.

Other certificates prepare students to sit
for internationally recognized examinations such as the CMA/CFM,TOEFL GMAT and others. These certificates enhance individual professional ability, and provide the certificate holder with increased earning potential.

## Programs of the Continuing Education Center

## Professional Certificates ( 8 Months)

- Professional Certificate in Business Administration
- Professional Certificate in Sales and Marketing
- Professional Certificate in Accounting and Finance
- Professional Certificate in Information Technology and Computing
- Professional Certificate in Digital Media Production
- Professional Certificate in E-Commerce
- Professional Certificate in Human Resources


## Certificate of Achievement

(1-3 Months)

- Certificate of Achievement in Selling Skills
- Certificate of Achievement in Accounting
- Certificate of Achievement in Business English
- Certificate of Achievement in American English Conversation
- Certificate of Achievement in French Conversation


## Certificate of Attendance

(3 to 15 Days)

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


## Customized Training

For organizational development to be effective, the unique needs of an organization must be incorporated into the design and delivery of a training plan. This plan should be consistently applied and flexible enough to react to the changing business environment. At CEC education and development in organizations are considered long-term partners. CEC provides access to the faculty and facilities of AUS in the most economical way to serve organizational needs. The expertise of affiliates and other national and international experts are also utilized. The administration of CEC is a group of experienced professionals with years of expertise in developing and delivering continuing education programs both in the UAE and the USA.
By working in partnership with key management staff, CEC can assist organizations in many ways:

- Assess internal and external needs
- Set training objectives and plans
- Develop customized training sessions to achieve specific organizational goals
- Provide certification and develops internal certification programs


## Course Delivery

In recognition of the schedule of working professionals, these courses are delivered mostly in a part-time evening format. At the request of an organization or group of students, programs may be offered at different times or in a more intensive format.
For further information regarding CEC and the certificate and diploma programs, please contact the following numbers:

## AUS CAMPUS

Tel: 971-6 5152020
Fax: 971-6 5152050
AL-BUHAIRA SITE
Tel: 971-6 5744755
Fax: 971-6 5744754
E-mail: cec@ausharjah.edu

## Full-Time Faculty

## A

Abdalla, Jamaleldin, Ph.D., University of Califonia at Berkeley, 1989; Associate Professor of Civil Engineering
Abdel-Fatah, Akmal, Ph.D., University of Texas at Austin, 1999; Assistant Professor of Civil Engineering
Abdel-Malek, Kamal, Ph.D., McGill University, 1992; Associate Professor of Arabic Language and Literature
Abdul Hadi, Zayid Abdullah, Ph.D., Université Laval, 1987; Associate Professor of Mathematics
Abu-Muhanna, Yusuf, Ph.D., State University of New York at Albany, 1979; Professor of Mathematics
Abu-Yousef, Imad, Ph.D., McGill University, 1996; Associate Professor of Chemistry
Abu Al-Foul, Bassam, Ph.D., University of Utah, 1994; Assistant Professor of Economics
Abualrub, Taher, Ph.D., University of Iowa, 1998; Assistant Professor of Mathematics
Abukhaled, Marwan, Ph.D., Texas Tech
University, 1995; Assistant Professor of Mathematics
Ahmad, Saiyad, Ph.D., Princeton University, 2000; Assistant Professor of Arab and International Studies
Ahmad, Shoaib Nabi, M.I.D., Rhode Island School of Design, 1991; Assistant Professor of Design
Ahmed, Rana, Ph.D., Duke University, 1991; Associate Professor of Electrical and Computer Engineering
Ahmed, Aftab, M.A., University of London, 1997; Instructor in Intensive English
Ahmed, Saad, Ph.D., Georgia Institute of Technology, 1981; Professor of Mechanical Engineering
Alhasani, Nadia, Ph.D., University of Pennsylvania, 1990; Associate Professor of Architecture and Assistant Vice Chancellor for Academic Affairs
Alobaidi, Ghada, Ph.D., University of Western
Ontario, 2000; Assistant Professor of Mathematics
Al-Ali, Abdul Rahman, Ph.D., Vanderbilt
University, 1990; Associate Professor of Computer Engineering
Al-Issa, Ahmad, Ph.D., Indiana University of Pennsylvania, 1998; Assistant Professor of English
Al-Mohamad, Hussam, Ph.D., University of Paris XI, Centre d'Orsay, 1985; Associate Professor of Computer Science
Al-Musawi, Muhsin, Ph.D., Dalhousie University, 1978; Professor of Arabic
Al-Rousan, Mohammad, Ph.D., Brigham Young University, 1996; Associate Professor of Computer Engineering
Al-Tamimi, Adil, Ph.D., Strathclyde University, 1990; Associate Professor of Civil Engineering Al Assaf, Yousef, Ph.D., Oxford University, 1988; Associate Professor of Electrical and Electronic Engineering
Al Bataineh, Afaf Badr, Ph.D., Heriot-Watt

University, 1998; Assistant Professor of Arabic Al Ghoussein, Tarek, M.A., University of New Mexico, 1989; Assistant Professor of Photography Al Homoud, Azm, Ph.D., Massachusetts Institute of Technology, 1990; Professor of Civil Engineering
Al Khazali, Osamah, Ph.D., University of Memphis, 1997; Associate Professor of Finance Al Nashash, Hasan, Ph.D., Kent University, 1988; Associate Professor of Electrical and Electronic Engineering
Anabtawi, Mahmoud, Ph.D., University of Texas, 1998; Assistant Professor of Mathematics Assaleh, Khaled, Ph.D., Rutger's University, 1993; Assistant Professor of Electrical and Electronic Engineering
Atiyah, Wadiah, Ph.D., American University in Washington, DC, 1995; Dean, School of Business and Management
Auda, Gasser, Ph.D., University of Waterloo,
1996; Associate Professor of Computer Science

## B

Badawi, Ayman, Ph.D., University of North Texas, 1993; Associate Professor of Mathematics
Badry, Fatima, Ph.D., University of California at Berkeley, 1983; Professor of English and Linguistics
Baghestani, Hamid, Ph.D., University of Colorado, 1982; Associate Professor of Economics
Bahloul, Maher, Ph.D., Cornell University, 1994; Assistant Professor of English and Coordinator, Graduate Program in TESOL
Bahloul, Raja, M., M.A., Cornell University, 1994; Instructor in Intensive English
Bantey, Paul, B.F.A., The University of Arts, 1981; Instructor in Visual Design
Barlas, Gerassimos, Ph.D., National Technical University, Athens, 1996; Assistant Professor of Computer Science
Barnett, Andy H., Ph.D., University of Virginia, 1978; Professor of Economics,
Bartholomew, Aaron, Ph.D., College of William and Mary, 2001; Assistant Professor of Biology
Bérubé, Claude, M.D.E., University of Aston,
England, 1972; Assistant Professor of Interior Design
Bigelow, Kim, M.F.A., Northwestern University, 1983; Assistant Professor of Mass

## Communication

Blake, Barbara Leslie, M.A., University of Wales, Cardiff, 1997; Instructor in English
Blank, Leland, Ph.D., Oklahoma State University, 1970; Professor of Industrial Engineering and Dean, School of Engineering
Bley, Jorg, Ph.D., Florida Atlantic University, 2000; Assistant Professor of Finance
Botthoff, John, M.I.D., Pratt Institute, 1980; Assistant Professor of Design
Brodtkorb, M. Tor, L.L.B., McGill University, 2000; Assistant Professor on Business Law and Ethics

Bulos, Bassim Raif, Ph.D., Columbia University, 1971; Associate Professor of Physics (On leave Fall 2003)

## C

Caesar, Judith, Ph.D., Case Western Reserve University, 1976; Associate Professor of English
Capar, Nejat, Ph.D., Florida State University, 2003; Assistant Professor of Management
Carlstedt, Edward, M.A., University of
Leicester, 2000; Instructor in Intensive English
Chen, Kim Heng, Ph.D., Washington State
University, 2002; Assistant Professor of Quantitative Methods
Chevedden, Paul, Ph.D., University of California at Los Angeles, 1986; Associate Professor of History
Chilton, John, Ph.D., Brown University, 1989;
Assistant Professor of Economics and Chair,
Department of Economics and Public
Administration
Colbert, David, M.A., New Mexico State University, 1997; Instructor in Intensive English
Connell, John, M.A., Southern Illinois University, 1988; Instructor in Intensive English
Cook, Robert D., Ph.D., University of California at Los Angeles, 1967; Professor of Chemistry and Dean, College of Arts and Sciences
Crain, Richard, M.A., Northern Arizona
University, 1997; Instructor in English
Cumbus, Jerald, M.A., University of North Florida, 1992; Instructor in English

## D

Daghfous, Abdelkader, Ph.D., Pennsylvania State University, 1997; Assistant Professor of Management Information Systems
Dhaouadi, Rached, Ph.D., University of Minnesota, 1990; Associate Professor of Electrical and Electronic Engineering
Driscoll, Tina Joyce, M.A., University of Warwick, 1997; Instructor in Intensive English

## E

Eberlein, Armin, Ph.D., University of Wales, 1998; Associate Professor of Computer Engineering
Egan, Matthew, M.F.A., University of South Dakota, 2000; Assistant Professor of Foundations Elrefaie, Aly, Ph.D., Polytechnic University of New York, 1983; Associate Professor of Electrical and Electronic Engineering
El Fakih, Khaled, Ph.D., University of Ottowa,
2002; Assistant Professor of Computer Science
El Jarkass, Zouheir, C.F.A., Association of Investment Management and Research, 1995; Instructor in Accounting and Finance
El Kadi, Hany, Ph.D., University of Alberta, 1993; Associate Professor of Mechanical Engineering
El Morr, Christo, Ph.D., University of Technology of Compiegne, 1997; Assistant Professor of Management

El Sadek, Ibrahim, Ph.D., University of California at Santa Barbara, 1983; Professor of Mathematics and Associate Dean of Arts and Sciences
El-Baz, Hazim, Ph.D., University of Missouri, Rolla, 1991; Associate Professor of Industrial Engineering
El-Mousfy, Mona, M.Arch., Georgia Institute of Technology, 1983; Assistant Professor of Interior Design
El-Sayegh, Sameh, Ph.D., Texas A \& M University, 1998; Assistant Professor of Civil Engineering
El-Tarhuni, Mohamed, Ph.D., Carleton University, 1997; Assistant Professor of Electrical and Electronic Engineering

## F

Faiq, Said, Ph.D., Salford University, 1991; Associate Professor of English, Chair, Department of English and Translation and Coordinator, Graduate Program in Translation and Interpreting
Fallon, James, Ph.D., University of Texas at Austin, 1980; Associate Professor of English and Linguistics
Farah, Anthony, M.S.A., Central Michigan University, 1994; Instructor in Management Information Systems
Fox, John, Ph.D., State University of New York, 1975; Professor of Anthropology and Chair, Department of Arab and International Studies
Frasco, Gregg, Ph.D., Cornell University, 1988; Assistant Professor of Economics (On leave Fall 2003)

## G

Gadalla, Mohamed, Ph.D., University of Alabama, 1988; Associate Professor of Mechanical Engineering
Gallois, William, Ph.D., University of Bristol, 1999; Assistant Profosser of History
Gelinas, Patrice, Ph.D., Ecole Des Hec, 2001; Assistant Professor of Finance
George, Daniel, Ph.D., University of California at Los Angeles, 1997; Assistant Professor of Management
Gibbs, Joseph, Ph.D., Boston University, 1994; Assistant Professor of Mass Communication Giesen, Leslie, M.A., School for International Training, 2001; Instructor in Intensive English Giesen, Martin, Ph.D., Heidelberg University, 1973; Professor of Art History and Dean, School of Architecture and Design
Gilbertson, Milton, M.A., McGill University, 1991; Instructor in Intensive English
Gilbertson, Sharon, M.A., McGill University, 1993; Instructor in Intensive English
Gill, Jaswinder, M.Ed., University of British Columbia, 1991; Instructor in Intensive English Golley, Nawar, Ph.D., Nottingham University, 1994; Assistant Professor of English
Guessoum, Nidhal, Ph.D., University of California at San Diego, 1988; Associate Professor of Physics and Chair, Department of Physics
Gugin, David, M.A., Western Kentucky University, 1995; Instructor in English
Gunn, Cindy, Ph.D., University of Bath, 2001; Assistant Professor of English

Gyeszly, Stephen, Ph.D., Michigan State University, 1974; Associate Professor of Mechanical Engineering and Associate Dean of Engineering

## H

Hamad, Ahmad, Ph.D., Auburn University, 1997; Assistant Professor of Chemical Engineering
Hamdan, Nasser, Ph.D., Middle East Technical University, 1993; Associate Professor of Physics
Hamilton, Ann, Ph.D., University of Oklahoma, 2002; Assistant Professor of Mass Communication
Haney II, William, Ph.D., University of California at Davis, 1984; Professor of English and Communication Skills
Hassan, Jenifah, M.Sc., Professional Studies (TESL), 1989; Instructor in Intensive English
Hashem, Mahboub, Ph.D., Florida State University, 1984; Professor of English and Chair, Department of Mass Communications
Hatim, Basil, Ph.D., University of Exeter, 1981; Professor of English and Translation
Heintz, Eirik, M.Arch., Harvard University, 1994; Assistant Professor of Foundations
Hewitt, David, M.F.A., Cornell University, 1979; Assistant Professor of Foundations
Hicks, John, M.A., University of Nebraska, 1982; Instructor in Intensive English
Horger, Christopher, M.A., University of Arizona, 1992; Instructor in English
Hunt, David, Ph.D., University of Houston, 1980; Professor of Management (On leave Fall 2003)

## I

Ibrahim, Taleb, Ph.D., Auburn University, 1997; Assistant Professor of Chemical Engineering

J
Jaidi, Asad Hasan, Ph.D., University of Kansas, 1993; Associate Professor of Physics
Jallad, Karim, Ph.D., Purdue University, 2001; Assistant Professor of Physics
Jarrah, Mohammad, Ph.D., Stanford University, 1989; Professor of Mechanical Engineering and Director, Graduate Program in Mechatronics (On leave Fall 2003)
Jumean, Fawwaz, Ph.D., City University of New York, 1973; Professor of Chemistry and Chair, Department of Biology and Chemistry

## K

Kah, Jainaba, Ph.D., State University of New Jersey, 2001; Assistant Professor of Economics and Public Administration (January 2004)
Kah, Muhammadou, Ph.D., Stevens Institute of Technology, 1999; Visiting Assistant Professor of Management
Kanan, Sofian, Ph.D., University of Maine, 2000; Assistant Professor of Chemistry
Karake-Shalhoub, Zeinab, Ph.D., George Washington University, 1987; Professor of Management Information Systems and Associate Dean of Business and Management
Katodrytis, George, A.A. Dipl., Architectural Association, UK, 1985; Assistant Professor of Architecture

Kattan, Ibrahim, Ph.D., Tennessee Technical University, 1994; Associate Professor of Mechanical Engineering and Director, Graduate Program in Engineering Systems Management
Kawash, Jalal, Ph.D., University of Calgary,
2000; Assistant Professor of Computer Science
Khamis, Mustafa, Ph.D., University of
California at Davis, 1987; Associate Professor of Chemistry
Khan, Abdul Khaliq, Ph.D., Georgia Institute of Technology, 1995; Assistant Professor of Electrical and Electronic Engineering
Khan, M. Muqeem, M.A., Ohio State University,
1996; Assistant Professor of Digital Design
Khan, Masood, M.S.M.E., Colorado State University, 1991; Instructor in Digital Design Kherfi, Samer, Ph.D., Simon Fraser University, 2002; Assistant Professor in Economics
Khoury, Suheil, Ph.D., Michigan State
University, 1994; Associate Professor of Mathematics
Kienke, Christopher, M.F.A., Southern Illinois University, 2000; Assistant Professor of Foundations
Kostopoulos, George, Ph.D., Arizona State University, 1971; Professor of Management Information Systems
Kuehn, Kermit, Ph.D., University of NebraskaLincoln, 1993; Associate Professor of Management
Kucuk, Ismail, Ph.D., University of Utah, 2001; Assistant Professor of Mathematics

## L

Lazor, Dinah, M.S., Florida State University, 1974; Assistant Professor of Interior Design
Lea, David, Ph.D., University of Ottawa, 1990; Associate Professor of Philosophy
Lewis, Dennis, M.A., University of Toronto, 1995; Instructor in English
Loehlein, Gisela, Ph.D., Cardiff University, 2001; Assistant Professor of Architecture
Lonnman, Bruce, M.A.U.D., Cornell University, 1986; Associate Professor of Architecture and
Chair, Department of Architecture

## M

Mattar, Mahdi, Ph.D., Massachussetts Institute of Technology, 2002; Assistant Professor of Finance
Mason, Peter, M.B.A., Marshall University, 1977; Instructor in Marketing and Management
McCallum, Ann, M.A., University of Maryland, 1996; Instructor in English
McCallum, Brent, M.S., American University in DC, 1993; Assistant Professor of Accounting
McClane, Richard, M.A., University of Utah,
1997; Instructor in Intensive English
McKechnie, Donelda, Ph.D., Bradford University, UK, 2001; Assistant Professor of Marketing
McLaurin, J. Reagan, Ph.D., Memphis State University, 1994; Associate Professor of Management
Mitchell, Kevin, M.Arch., University of Washington, 1996; Assistant Professor of Architecture and Director, Foundation Program Mitias, Peter, Ph.D., Louisiana State University, 1997, Assistant Professor of Economics

Mokhtar, Ahmed, Ph.D., Concordia University, 1998; Assistant Professor of Architecture
Mottola, Louis, Ph.D., University of Northern Colorado, 1972; Associate Professor of Management
Mourtada Sabbah, Nada, Ph.D., Sorbonne (Paris II), 1997; Associate Professor of Political and International Studies
Moustafa, Amer A., Ph.D., University of Southern California, 1999; Associate Professor of Architecture, Associate Dean of Architecture and Design and Director, Graduate Program in Urban Planning

## N

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## 0

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## P

Palliam, Ralph, Ph.D., University of Pretoria, 1998; Assistant Professor of Quantitative Methods
Parker, David, M.Arch., Harvard University, 1991; Assistant Professor of Architecture
Pilkington, Mark, M.A., Royal College of Art, 1977; Assistant Professor of Design and Chair, Department of Design

## Q

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## R

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Raymond, Sylvie, M.Ed., Sheffield University, 1999; Instructor in Intensive English
Redding, Rodney, Ph.D., Pennsylvania State University, 1979; Associate Professor of Acounting
Richardson, Tina, M.A., University of Oregon, 2003; Instructor in English
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## S

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Salamin, Yousef, Ph.D., University of Colorado, 1987; Professor of Physics
Saleh, Kassem A., Ph.D., University of Ottawa, 1991; Professor of Computer Science and Chair, Department of Computer Science
Salloukh, Bassel, Ph.D., McGill University, 2000; Assistant Professor of International Studies
Saravia, Antonio, Ph.D., Arizona State University, 2003; Assistant Professor of Economics and Public Administration
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Shine, Anne, M.Ed., Massey University, 1999; Instructor in English
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## T

Tabsh, Sami W., Ph.D., University of Michigan, 1990; Associate Professor of Civil Engineering
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## V

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## W

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## Z

Zachary, Daniel, Ph.D., Massachusetts Institute of Technology, 1997; Assistant Professor of Physics
Zalzala, Ali, Ph.D., University of Sheffield, 1991; Visiting Associate Professor of Electrical and Electronic Engineering
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1996; Associate Professor of English
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[^0]:    * 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) will be extended.

[^1]:    * Include MIS-intended (first 2 years of MIS) and Computer Engineering-intended (first year of Computer Engineering)
    ** This refers to students who are admitted or matriculating from IEP to the above majors in or after Fall 2002
    ** This also refers to those students that are returning in or after Fall 2002 after not attending AUS for al least one semester

[^2]:    Abbreviations: GE: University Requirement; ME: Major Elective; FE: Free Elective; MR: Major Requirement; EPT: English Placement Test; MPT: Math Placement Test

[^3]:    Abbreviations: GE: University Requirement; ME: Major Elective; FE: Free Elective; MR: Major Requirement; EPT: English Placement Test; MPT: Math Placement Test

[^4]:    Abbreviations: GE: University Requirement; ME: Major Elective; FE: Free Elective; MR: Major Requirement;
    EPT: English Placement Test; MPT: Math Placement Test

[^5]:    Abbreviations: MR: Major Requirement, GE: General Education Requirement, ME: Major Elective, FE: Free Elective, EPT: English Placement Test, MPT: Math Placement Test

[^6]:    Abbreviations: MR: Major Requirement, GE: General Education Requirement, ME: Major Elective, FE: Free Elective, EPT: English Placement Test, MPT: Math Placement Test

[^7]:    Abbreviations: MR: Major Requirement, GE: General Education Requirement, ME: Major Elective, FE: Free Elective, EPT: English Placement Test, MPT: Math Placement Test

[^8]:    Abbreviations: MR: Major Requirement, GE: General Education Requirement, ME: Major Elective, FE: Free Elective, EPT: English Placement Test, MPT: Math Placement Test

[^9]:    * Effective in the 2004-2005 catalog, all courses in Management at the 300-level and above will require COM 204 as a prerequisite. MGT 301 and MGT 360 are exceptions, but will require that COM 204 be taken at the same time
    **Substitutions for upper level courses are done in exceptional cases upon approval of department chair.

[^10]:    * Substitutions for upper level courses are done in exceptional cases upon approval of department chair.

[^11]:    Abbreviations: EPT: English Placement Test; ME: Major Electice; MR: Major Requirement; GE: General Education Requirement

